TRUMBULL PUBLIC SCHOOLS
TRUMBULL, CONNECTICUT

Regular Meeting – Tuesday, July 11, 2023, 7:00 p.m.
Long Hill Administration Building

https://us06web.zoom.us/j/83335360918?pwd=ck9Fb3hnQ3k1dHBRdjZJbTl4dDJJQT09
Webinar ID: 859 3911 2648
Password: 559682
Join by telephone: (646) 931-3860 or (833) 548-0276 (Toll Free) / Webinar ID: 859 3911 2648

I. CALL TO ORDER

II. PRELIMINARY BUSINESS

A. Pledge of Allegiance
B. Correspondence – Ms. Julia McNamee - Correspondence may be sent to BoardofEd@trumbullps.org
C. Public Comment – The Trumbull Public Schools Board of Education will be allowing public comment at the upcoming Board Meeting. If you are interested in speaking during the Public Comment portion of the meeting, please use this form to signup. We will limit participants to the first **15** individuals that submit the form. Public comment will be limited to 2 minutes.
D. Superintendent Report
E. Board Chairman Report

III. REPORTS/ACTION ITEMS

A. Approval/Minutes:
   - June 6, 2023 BOE Regular Meeting
   - June 14, 2023 Special Meeting/Executive Session
B. Personnel Report
C. District Improvement Plan (DIP) 2023-2024 – Dr. Semmel
D. Approval/District Calendars 2024-2025 and 2025-2026 – Dr. Semmel, Dr. Iwanicki
E. 1:1 Insurance Fees – Mr. Hendrickson, Ms. Hefele
F. Teacher Evaluation Update – Dr. Iwanicki, Mr. Chella
G. Curriculum Committee Report – Mrs. Petitti
   Approval/ Curriculum Guides
   - *Grade 10 Biology*
   - *Grade 11 Chemistry*
   - *Grade 12 CP Physics*
   - *Grade 12 ACP Physics*
   - *Grade 9 English*
H. Financial Committee Report – Mrs. Norcel
   Financials as of May 31, 2023- Mr. Hendrickson

IV. RECEIVE AND FILE

A. Pending Litigation
B. Negotiations

V. OTHER

TRUMBULL PUBLIC SCHOOLS
TRUMBULL, CONNECTICUT

Report to the Board of Education
Regular Meeting – July 11, 2023

Dr. Semmel

Agenda Item – III-A

Approval/Minutes

- BOE Regular Meeting, June 6, 2023
- BOE Special Meeting/Executive Session of June 14, 2023

Recommendation:

Approve the minutes of the above noted meetings.

TRUMBULL PUBLIC SCHOOLS
TRUMBULL, CONNECTICUT
Board of Education
Regular Meeting – June 6, 2023

The Trumbull Board of Education met for a Regular Meeting at the Long Hill Administration Building.

Members present:
L. Timpanelli – Chairman
J. Norcel – Vice Chair
C. Bandecchi
L. Nuland
M. Petitti
A. Squiccimarro arrived at 7:10 p.m.

Members absent:
T. Gallo
J. McNamee

Agenda Item I—Call to Order

EXECUTIVE SESSION:

At 6:02 p.m., it was moved (Norcel) seconded (Nuland) to enter into Executive Session to discuss the Superintendent, Assistant Superintendent, Business Administrator contracts and all other non-affiliated positions. Vote: Unanimous in favor. BOE Member Chris Bandecchi participated via phone.

Executive Session began at 6:04 p.m.

The Superintendent, Director of Human Capital and Talent Management and Attorney Dugas and were invited to be a part of the discussion.

Motion made by (Nuland) and seconded by (Norcel) to come out of Executive Session at 6:13 p.m. Vote: Unanimous in favor.

The public part of the Regular Meeting was called to order at 7:00 p.m.

Mrs. Timpanelli asked for a moment of silence in memory of Gail Shipp, a former physical education teacher and girls' basketball coach at THS.

Agenda Item II—Preliminary Business

A. Salute to the Flag - The Public Session began with the Pledge of Allegiance to the Flag.

B. Recognition- Connecticut Association of Boards of Education Leadership Awards

The Board recognized the following CABE student leadership award winners:

- Elizabeth Steeves – THS
- Matthew Wich – THS
- Abigail Procaccini – Hillcrest
- Andrew Stanley – Hillcrest
- Nicole Adorante – Madison
- Lucas Leon – Madison

C. Correspondence – Ms. Nuland read the following correspondence: Jane Billington asked that schools be properly funded to support students after the pandemic learning loss. The Board received 6 emails opposing the elimination of the elementary talented and gifted program. Dan DiCairano wrote in praise of a Frenchtown teacher whose job is in danger of elimination.

D. Public Comment - The following people spoke: Nick Banks thanked the Board and noted that teachers are our most valuable resource and wished all a happy and safe summer. Peter Kuczynski thanked the Board for their service and spoke in support of the TAG program.

E. Superintendent Report
- Dr. Semmel sends huge thanks to the entire TPS team who contributed to the success of the 2022-2023 school year and extends his warmest wishes to all of the 2023 graduates for a job well done.
- We are busy with the interview process for the THS principal position and have posted the elementary school assistant principal position. We will also be posting positions for Director of Transportation as well as Director of Food Services.
- Congratulations to the THS girls golf team who won the FCIAC championship for the first time in TPS history. We are sending good wishes to the boys' volleyball team for their state final competition on Thursday.
- Dr. Semmel wishes the entire Trumbull community a happy and healthy summer.

F. Board Chairman Report – Mrs. Timpanelli reported on the update at the Hillcrest Planetarium and was happy to attend several end of year celebrations. Thank you to Lizzie Steeves and Matt Wich for their contributions as BOE student reps. The Board acknowledges all the efforts of TPS staff and students and hopes everyone has a safe and restful summer break.

G. Teacher BOE Representative Report – New Teacher BOE Representative John Congdon spoke for the first time and thanked the PTA for their contributions to TPS. He also acknowledged all of the hard-working students and teachers and wished them a healthy and well-deserved summer break.

<u>Agenda Item III—Reports/Action Items</u>

A. Approval/Superintendent and Non-Affiliates' Increases – Atty. Floyd Dugas, Dr. Semmel
At this time of the year, the Board of Education reviews and approves the non-affiliated salary increases and/or adjustments for those employees not in a bargaining unit.

The following increases are recommended with the corresponding bargaining unit (**in red**):

<u>Non-Central Office</u>
- Trumbull Public Schools Signing Aide (paras)
  - Grant this position an increase of 2.25% from $35.00 to $35.79 per hour.

- OT/PT (Therapists) (teachers)
  - Grant these positions an increase of 1.78% (five of these seven positions an increase from $73.12 to $74.42 per hour; one position an increase from $74.33 to $75.65 per hour; and one position an increase from $60.65 to $61.73 per hour).

- Behavior Analyst (teachers)
  - Grant these positions an increase of 1.78%; (one of these four positions an increase from $70.41 to $71.66 per hour; two positions an increase from $68.13 per hour to $69.34 per hour;
  - and one from $67.12 to $68.31 per hour.

- Cafeteria Aides (paras)
- Grant these positions an increase of 2.81% from $14.59 per hour to $15.00 per hour (minimum wage effective June 1, 2023).

- Trumbull Public Schools Webmaster (teachers)
  - Grant this position an increase of 2.0% from $8,411.97 to $8,580.21

Central Office/Non-Affiliates

- Grant the Payroll & Insurance Manager an increase of 2.25% from $92,774.10 to $94,861.52 per year.

- Grant the Executive Assistant to the Superintendent an increase of 2.25% from $39.56 to $40.45 per hour.

- Grant the Secretary to the Superintendent an increase of 2.25% from 36.35 to 37.17 per hour.

- Superintendent of Schools – Grant this position an increase of 3% as presented.

- Assistant Superintendent – Grant this position an increase of 2% as presented.

- Business Administrator – Grant this position an increase of 2% as presented.

- Director of Operations – Grant this position an increase of 4.5% as presented.

- Director of Human Capital & Talent Development – Grant this position an increase of 4% as presented.

It was moved (Norcel) and seconded (Nuland) to approve the above salary increases/conditions as presented. Vote: Unanimous in favor.

B. Approval/FFA Youth Organization Trip to Indianapolis, Indiana – Mrs. Trojanoski
Advisor Melissa Trojanoski presented the Trumbull FFA-Agriscience trip to the National FFA Convention at Indiana Convention Center in Indianapolis, Indiana which is scheduled for October 30-November 4, 2023, for Trumbull FFA-Agriscience students in grades 10-12 to compete and attend workshops.

It was moved (Bandecchi) and seconded (Squiccimarro) to approve the Trumbull FFA-Agriscience trip to the National FFA Convention Center in Indianapolis, Indiana as presented. Vote: Unanimous in favor.

C. Approval/Best Buddies Trip to Indiana University – Ms. Penna
Advisor Jennifer Penna presented the Best Buddies trip to Indiana University in Bloomington, Indiana which is scheduled for July 21-24, 2023, for the Trumbull High School Best Buddies students to attend the Best Buddies Leadership Conference.

It was moved (Bandecchi) and seconded (Squiccimarro)) to approve the Best Buddies trip to Indiana University in Bloomington, Indiana for July 21-24, 2023 as presented. Vote: Unanimous in favor.

D. Approval/Donations to Tashua School Cafetorium - Ms. Neumeyer, Mr. Hendrickson

Tashua Elementary School PTA will donate $10,000 and Tashua Fathers' Club will donate $5,181.28 to Tashua Elementary School for the purpose of a front electric screen and laser projector for school-wide assemblies and performances.

It was moved (Bandecchi) and seconded (Petitti) to approve the above donations as presented. Vote: Unanimous in favor.

E. Approval/Minutes of May 23, 2023, BOE Meeting
Minutes of the following:

- BOE Regular Meeting of May 23, 2023

It was moved (Norcel) and seconded (Nuland) to approve the minutes of the above noted meeting as presented. Vote: In favor: Timpanelli, Norcel, Nuland, Petitti, Squiccimarro. Abstain-Bandecchi. Motion passes.

F. Personnel Report
Dr. Semmel reported one certified resignation/retirement:

Dunn, Bernadette; district wide special education reading consultant since August 2010, retiring effective June 30, 2023.

It was moved (Bandecchi) and seconded (Norcel) to accept the above certified resignation/retirement as presented. Vote: Unanimous in favor.

Dr. Semmel reported one non-certified resignation/retirement:

Sinko, Betty; Director of Food Services since February 1976, retiring effective June 30, 2023.

It was moved (Bandecchi) and seconded (Norcel) to accept the above non-certified resignation/retirement as presented. Vote: Unanimous in favor.

Dr. Semmel reported one request for Leave of Absence.

Russo, Tamara; literacy consultant at Daniels Farm Elementary School since August 2005 is requesting a personal leave of absence without pay for the 2023-24 school year. This request complies with the Trumbull Board of Education Leave of Absence Policy, 4150.

It was moved (Bandecchi) and seconded (Norcel) to approve the above Leave of Absence in accordance with Policy 4150-Leave of Absence as presented. Vote: Unanimous in favor.

G. Curriculum Committee Report – Mrs. Petitti
Dr. Iwanicki presented the following Curriculum Guides:
Gr 10, 11, and 12 Digital Media
Gr 9 Global Civilizations
Gr 11 ECE Biotechnology

It was moved (Petitti) and seconded (Nuland) to approve the above curriculum guides as presented. Vote: Unanimous in favor.

Dr. Iwanicki presented the following New Text Proposal:
Gr 11, 12 Statistics -
Larson, Ron. *Elementary Statistics: Picturing the World* (8th Edition). Pearson, 2023

It was moved (Petitti) and seconded (Nuland) to approve the above new text proposal as presented. Vote: Unanimous in favor.

H. THS Student Parking Fee – Dr. Semmel, Mr. Hendrickson
Per Policy 5131.2, the Board of Education is responsible for setting the fee for student parking at Trumbull High School. The fee is used to cover the expenses of monitoring the student parking spaces and ensuring the efficient and effective use of student parking spaces at Trumbull High School.

It was moved (Norcel) and seconded (Nuland) to approve the cost of the student parking permit for Trumbull High School as $50 with the start of the 2023-2024 school year as presented.
Vote: In favor-Timpanelli, Nuland, Norcel, Petitti. No-Bandecchi, Squiccimarro. Motion passes 4 to 2.

I. Financial Committee Report – Mrs. Norcel
The Finance Committee of the Board of Education met on May 25, 2023 which included the review of the April 30, 2023, financial report. Mr. Hendrickson presented the financial reports as of April 30, 2023, for approval.

It was moved (Norcel) and seconded (Petitti) to approve the financial reports as of April 30, 2023 as presented. Vote: In favor – Timpanelli, Squiccimarro, Nuland, Norcel, Petitti. No- Bandecchi. Motion passes.

Mr. Hendrickson presented the proposed transfers requested in the April 30, 2023 financial report:

- Propose that $300,000 from the Athletics Fund (2051121); $100,000 from the Rebates Fund (2055904); and $66,300 from the Magnet Transportation Account (2009520) for a total of $466,300 be transferred to the General Fund (001) as budgeted.

It was moved (Norcel) and seconded (Bandecchi) to approve the above transfer as presented. Vote: Unanimous in favor.

- Propose that $1,406,530 be transferred from the Food Service Account (210) to the Town to reduce that balance of the "Due to Town" account.

It was moved (Norcel) and seconded (Bandecchi) to approve the above transfer as presented. Vote: Unanimous in favor.

Adjournment
Board Members gave unanimous consent to adjourn the Public Session at 8:20 p.m.

Trumbull Public Schools
Trumbull Board of Education
Wednesday, June 14, 2023
Special Meeting/Executive Session – 4:30 p.m.

Members present:	Members absent:
Lucinda Timpanelli, Board Chairman	Chris Bandecchi
Jackie Norcel, Vice Chairman	Julia McNamee
Lisa Nuland	Alison Squiccimarro
Tim Gallo (arrived 4:45)	
Marie Petitti	

EXECUTIVE SESSION

It was moved (Norcel) and seconded (Nuland) to go into Executive Session at 4:33 p.m. for the purpose of interviewing the candidate for the position of Trumbull High School Principal. The Superintendent and candidate were invited into Executive Session. Vote: Unanimous in favor.

It was moved (Gallo) and seconded (Petitti) to come out of Executive Session at 5:48 p.m. Vote: Unanimous in favor.

In Public Session –

A motion was made by (Nuland) and seconded (Norcel) to approve the Superintendent be given the authority to offer the Trumbull High School Principal position to the top candidate. Vote: Unanimous in favor.

A motion was made (Gallo) and seconded (Norcel) to adjourn the meeting at 5:49 p.m. Vote: Unanimous in favor.

TRUMBULL PUBLIC SCHOOLS
TRUMBULL, CONNECTICUT

Report to the Board of Education
Regular Meeting, July 11, 2023

Dr. Semmel

Agenda Item III-B

Personnel

Resignation – Certified

Hills, RayQuiner; special education teacher Madison Middle School since August 2022, resigning effective June 26, 2023.

Huffman, Cathy; elementary TAG teacher since September 2008, retiring effective August 1, 2023.

Stone, Megan; grade 2 teacher at Daniels Farm Elementary School since August 2018 resigning effective June 30, 2023.

Resignation – Non-Certified

Barrett, Lisa; Administrative Assistant in the Transportation Department since May 2000, retiring effective July 28, 2023.

Hackett, Jeffrey; Manager of Technology since January 1998, retiring effective August 4, 2023.

Recommendation: Accept.

TRUMBULL PUBLIC SCHOOLS
TRUMBULL, CONNECTICUT

Report to the Board of Education
Regular Meeting – July 11, 2023

Dr. Semmel

Agenda Item – III-C

District Improvement Plan (DIP) 2023-2024

Dr. Semmel will present the District Improvement Plan for 2023-2024.

Recommendation:

Review and Approve

Trumbull Public School District Improvement Plan 2023-2024

Goal 1- Ensuring the Physical, Social and Emotional Well-Being of All Students and Staff

Strategic Statement: To ensure physical, social, and emotional well-being at every school, Trumbull Public Schools will use resources and implement practices that maintain and/or further develop safe, inclusive, nurturing, and positive learning environments.

Trumbull Public Schools
Committed to Excellence

Actions to Support Physical, Social, and Emotional Well-Being of All Students & Staff				
District-Based Action Steps	**Timeframe**	**Who Will be Responsible?**	**What Resources Are Needed?**	**District Results-Based Accountability Indicator**
Complete school based safety assessments and identify next level of work	July 1, 2023 through October 15, 2023	Scott Sikora, SRO, District Safety Team	Trumbull Police Coordinate with Head of TPS Security	• A full report is completed using the State of CT checklist • The District team identifies next level of work and incorporates into 24-25 budget development
100% of mandated staff trainings are completed	November 1, 2023	Joe Chella	Coordination with Office of Teaching and Learning; Vector Solutions training Platform	• All active employees complete mandated training by November 1 or within 30-days of hire
In coordination with TPS Early Intervention Teams (EIT), PreK-8 Educators will use a consistent process and forms	August 2023 through June 2024	Dean Catalano, Krystina Dawson and team	• Pilot the DESSA in four schools to be used for identification of SEL	• Flowchart and forms will be used regularly in all PreK-8 Schools • A more consistent

for MTSS and Response to Intervention that supports the social, emotional and behavioral needs of our students			strengths and needs • Technical Support from Direct of Digital Learning to actualize new forms into Infinite Campus • Professional Development Time in Aug/Sept 2023 to roll out changes and TPS Flowchart • Check-ins with support specialist and providers to adjust if necessary	process, including use of the DESSA screening and solid PBIS strategies, will strengthen collective ownership of the students within schools and across the district • Completed K-5 Wellness Curriculum
Reduce chronic absenteeism at each school by 10% (from previous school year) through specific action steps identified in School Improvement Plans until achieving a chronic absenteeism rate below 5%	August 2023 through June 2024	Building Leadership Teams	• Access to State training on chronic absenteeism • Additional professional resources and tools regarding decreasing absenteeism	• Each school will reduce their chronic absenteeism by 10% as compared to the final chronic absenteeism rate identified for each school through the end of the year in Infinite Campus
Further ensure positive school climates are in place through information gathering • Coordination among district and school committees. • Collection of anecdotal and survey data	August 2023 through May 2024	Leading and Learning PLC Safe School Climate Committees (District and School)	• PBIS • School climate collaboration • Time to meet and review resources	• 2023-2024 Survey results showing improvements in targeted areas per individual school improvement plans

• Incorporation of at least two (2) goals into school improvement plans based on Safe School Climate Survey				

Goal 2: Optimize Teaching & Learning

Strategic Statement: Trumbull Public Schools will continue to provide high quality teaching that emphasizes the use of high-leverage instructional strategies in which educators deliver our TPS curriculum with fidelity.

Trumbull Public Schools
Committed to Excellence

Actions to Optimize Teaching & Learning				
District-Based Action Steps	**Timeframe**	**Who Will be Responsible?**	**What Resources Are Needed?**	**Results-Based Outcomes**
Further systematize the teaching and feedback provided as it relates to student acquisition of the skills and dispositions of the Vision of the Graduate (VOG)	June 2023 through June 2024	Sue Iwanicki, principals, VOG Committee members, educators and staff	• Updated reports cards K-5 • Revised Advisory Curriculum 6-8 • Digital e-portfolio and expectations for Gr 8-12 • Professional development to communicate expectations	• Students in K-5 will receive opportunities to learn about the skills and dispositions as well as feedback on their report cards • Grades 6-12 will receive instruction during advisory and complete reflections digitally

				• Additionally, curriculum guides will incorporate rubrics as is appropriate and applicable
Routinely examine outcomes and practices in order to reveal and address factors that may contribute to differential outcomes among students	August 2023 through May 2024 • Analyze Grade 3 data by subgroup in Fall 2023 to identify (as is possible) longitudinal trend data for impact on Advanced Credit Coursework with the DELT • Have curriculum writing teams pilot the new equity rubric for new curriculum guides written during the 2023-2024 school year • Create and train teachers to be a part of the district elementary SELT 23-24	Marty Semmel, Sue Iwanicki, Christina Hefele, Dean Catalano, Principals and members of the district and school-based leadership teams	• Analyze Grade 3 data by subgroup • Equity rubric training • Trainers for SELT members • Professional learning	• By the end of March 2024, identify if there are any causes and action steps related to elementary experiences that may impact participation in Advanced Credit Coursework • By June 2024, the DELT will gather feedback on the implementation of the TPS Curriculum Guide Equity Reflection Rubric and edit as needed • By June 2024, the elementary SELT will be trained and in place • By the end of the school year, all educators will participate in professional

				learning that encourages reflection on providing environments and meeting the needs of all students across populations
Ensure high-quality teaching and learning of Reading K-8 as well as compliance with state mandates related to literacy	June 2023 through June 2024	Sue Iwanicki, principals, K-5 ELA Program Leader, literacy consultants, instructional team leaders, K-8 educators	• Curriculum writing and professional learning time • DIBELS assessment and technology for delivery • Equitable libraries with resources/tools for the integration of the Science of Reading • Analysis of 22-23 SBA scores to identify and amplify instruction in areas needed by grade level. • Audit of Assessment Calendar • Meeting time to collaboratively review data and adjust instruction as needed. • Coaching professional development and support for educators	• K-3 Curriculum Guides will be revised to incorporate the Science of Reading • K-5 Assessment Calendar will contain the DIBELS as a measure • DIBELS outcomes will be incorporated in K-3 to plan teaching and learning • 76% (while striving for 80%) or more will meet benchmark or above on the ELA SBA Assessment; additional evidence may be shown through IABs, unit tests, or i-Ready as applicable
Ensure high-quality teaching	June 2023 through	Sue Iwanicki,K-5	• Curriculum writing	• Revised curriculum

and learning of Mathematics	June 2024	Math Program Leader, Math Specialists, Middle School Instructional and Team Leaders as well as K-12 Math Teachers	and professional learning time for revision of Gr 2-8 Mathematics curriculum guides as needed • Meeting time to collaboratively review data and adjust instruction as needed • Coaching professional development and support for educators	guides in Gr 2-8 • 72% (while striving for 80%) or more will meet benchmark or above on the Math SBA Assessment; additional evidence may be shown through IABs, unit tests, or i-Ready as applicable
Ensure high-quality teaching and learning of Science in grades 6-8 and reinvigoration of Science opportunities K-12	June 2023 through June 2024	Sue Iwanicki, principals,K-5 Science Program Leader, Middle School Team Leaders and K-12 Science Teachers	• Curriculum writing and professional learning time for revision of Gr 6-12 Science curriculum guides as needed • Amplify.technology for delivery of 6-8 units • Update to the electronic system and installation of a new planetarium system at Hillcrest and telescope at Middlebrook • Districtwide coordination to use spaces	• New curriculum guides that accommodate for integrated units of NGSS Science study in Gr 6-8 and shorter periods with more elective choices in Gr 9-12 • Increased purposeful use of Science spaces • 77% (while striving for 80%) or more will meet benchmark or above on the NGSS Assessment

			• Coaching professional development and support for educators	
Develop a high-quality evaluation system for certified teachers that attends to both professional learning and accountability needs	September 1, 2023 through May 30, 2024	Joe Chella, Sue Iwanicki and PDEC committee	• Professional meeting time • Final guidance on new TEVAL system from CSDE • An electronic or paper system to organize the new district wide TEVAL	• A new teacher evaluation system is developed that attends to both important elements of teacher evaluation • A tool will have been piloted to support the transition in 2024-2025
Develop a high-quality evaluation system for district administrators that attends to both professional learning and accountability needs	September 1, 2023 through May 30, 2024	Joe Chella, Marty Semmel and Admin Team	• Final guidance on new ADVAL system from CSDE	• A new administrator evaluation system is developed that attends to both important elements of admin evaluation
Brainstorm, identify, and share innovative ways to improve teaching and learning through continual reflection on key data, collaboration with others, exploration and sharing of research, and observations of practice	September 2023 through May 2024	Marty Semmel, Sue Iwanicki, Christina Hefele and the administrative team	• Professional development time • Key data • Informed research • Observations of practice/Instructional Rounds	• Administrators will create and collaborate regarding data and strategies used in their building • By May, 3 cycles of instructional rounds will be completed • Reflections and input will be used to draft the 2024-2025

				District Improvement Plan
Communicate ways in which A.I. can be navigated and used as a benefit to TPS teaching and learning K-12	July 2023 through June 2024	Christina Hefele, Technology Integrators, Library Media Specialists	• Professional Learning time • Resources for teachers, students and families	• Develop a full year Professional development plan for teachers to better understand AI and how it can be used to help teachers as well as teach students how to use it ethically and responsibly • Modify Library Curriculum to include teaching students about AI tools and how to use them ethically and responsibly • Develop a resource bank for AI tools for teachers and students that align with best practices in data privacy • Provide up-to-date information to parents on AI use in teaching and learning

Goal 3: Operational Excellence & Continuous Improvement

Strategic Statement: Trumbull Public Schools will implement coherent systems that generate leading and lagging data points to inform continuous improvement.

Actions that Ensure Excellence & Continuous Improvement				
District-Based Action Steps	**Timeframe**	**Who Will be Responsible?**	**What Resources Are Needed?**	**Results-Based Outcomes**
Pilot electronic platform for teacher evaluation and administrator evaluation	September 1, 2023 through June 30, 2024	Joe Chella, Christina Hefele, Sue Iwanicki	• Electronic evaluation systems selected to pilot	• Teachers and administrators in identified pilot schools use the new platform • Feedback is provided regarding utility, ease of use, and efficiency as well as the incorporation of the new TEVAL and ADVAL systems
Provide professional development and structures that encourage reflection (both individually and in teams) on providing	August 2023 through June 2024	Joe Chella, Sue Iwanicki, Christina Hefele, principals, educators, and staff	• Goal setting includes data regarding performance that is considered during goal setting, EIT	• School and district goals continue to disaggregate performance data and incorporate this

environments, lessons, and assessments that meet the needs of students across populations			meetings, and any district equity groups (DELT, SELT) • Review training on recognizing bias through our electronic platform • Articles, resources, and training that support equity • Coordination between HR and the Office of Teaching & Learning	lens in their work • All active employees complete the bias training module • Review of data and conversations/training result in meeting individual student needs to raise academic achievement and meet their goals
Increase visibility of TPS positions to candidates of color	July 1, 2023 through June 30, 2024	Joe Chella	• Access to statewide recruitment fairs	• Open TPS positions are shared with certified minority candidates through participation in minority recruitment fairs around the state; relationships with nearby universities
BOE adopts a vision for the renovation of the TPS schools	October 31, 2023	Facilities Committee, Dave Cote, Marty Semmel	• Tecton presentation at BOE meeting	• TPS develops a revised 5-year Capital Plan • TPS BOE adopts a long-range Master Facilities Plan • Adopted Plan is available on our website

Analyze school schedules for optimization of teaching and learning that considers the current staffing, and budgeting parameters	August 2023 through June 2024	Marty Semmel, Sue Iwanicki, Christina Hefele, Joe Chella and building principals, program leaders and instructional leaders (as needed)	• Scheduling models • Innovative teaching structures • Budget and contractual considerations for programmatic models (including Healthy School Start Times)	• Schedules will be updated as is possible for the 23-24 school year • Recommendations for 23-24 will be requested into the budget as is possible • Recommendations for future years will be made as needed
Analyze the paraprofessional model for efficiency in systematic use to support students in their least restrictive environment	August 2023 through June 2024 • Conduct an evaluation (either internal or with an outside provider) of the current process by January 2024 • Identify areas of strength and areas that need improvement (if any) by May 2024 • Reflect and gather feedback for any updates by June 1, 2024	Dean Catalano, PPS leadership, principals and staff	• System to capture information regarding the acquisition of paraeducator support • A standard rubric for analyzing IEP's to ensure they have the essential components related to paraeducator support and student independence	• Analysis shows 90% of IEP's have independence goals incorporated into the programming • 100% of students who require paraeducator support have supporting documentation reviewed by their supervisor
PPS Procedures - Develop a living digital space for all	June 1, 2024	Director of PPS, PSAL Team	• Continued collaboration time	• Presentation of living digital space at

guidance and procedures related to Special Education, Section 504, and MTSS related activities			between PPS leadership across all buildings and central office • Collaboration with digital learning to identify an efficient way of compiling resources	Leading & Learning meeting and/or Spring retreat • Website analytics will demonstrate high use
Implement and refine use of Position Control	September 1, 2023 through June 30, 2024	Joe Chella	Position Control Platform through Munis	• Capture FTE's for budget preparation • Utilize Position Control platform for staff tracking and ensure proper work flow

TRUMBULL PUBLIC SCHOOLS
TRUMBULL, CONNECTICUT

Report to the Board of Education
Regular Meeting – July 11, 2023

Agenda Item –III-D

Dr. Semmel, Dr. Iwanicki

Recommendation:

Review and Approve

Approval/ District Calendars 2024-2025 and 2025-2026

Based on the Calendar Committee's meeting on May 16, 2023 the Board of Education will be asked to adopt the proposed drafts as the approved calendars for the 2024-2025 and 2025-2026 school years.

Trumbull Public Schools Calendar 2024-2025

DRAFT 7/11/23

□	No school
○	No school for students; teacher work day
*	Early closing for students and staff
^	Early closing for grades PK-5
>	Early closing for grades PK-8
<	Early closing for grades 6-8
&	Early closing for grades 9-12

186 Teacher Days, 181 Student Days

JULY - 0 days

M	T	W	TH	F
1	2	3	**4**	5
8	9	10	11	12
15	16	17	18	19
22	23	24	25	26
29	30	31		

AUGUST - 4 days

M	T	W	TH	F
			1	2
5	6	7	8	9
12	13	14	15	16
19	○20	○21	○22	○23
○26	27	28	29	30

20-21 New Staff Orientation
22-23, 26 Teacher PD Days
27 First Day for Students (full day)

SEPTEMBER - 20 days

M	T	W	TH	F
□**2**	3	4	5	6
9	10	11	12	13
16	17	18	19	20
23	24	25	26	27
30				

2 Labor Day

OCTOBER - 20 days

M	T	W	TH	F
	1	2	□**3**	4
7	8	9	10	11
□**14**	15	16	17	18
21	22^	23	24>	25
28	29	30	□31	

3 Rosh Hashanah
14 Columbus/Indigenous Peoples
22 Afternoon Conf. PK-5
24 Afternoon Conf. PK-8
31 Diwali

NOVEMBER - 18 days

M	T	W	TH	F
				1
4	○5	6	7^	8
11	12	13	14<	15
18	19	20	21&	22
25	26	27*	□**28**	□**29**

5 Election Day, Teacher PD
7 Evening Conf. PK-5
14 Aft/Eve Conf. 6-8
21 Aft/Eve Conf. 9-12
28-29 Thanksgiving Recess

DECEMBER - 16 days

M	T	W	TH	F
2	3	4	5	6
9	10	11	12	13
16	17	18	19	20
23*	□24	□**25**	□26	□27
□30	□31			

24-27, 30-31 Winter Recess

JANUARY - 21 days

M	T	W	TH	F
		□**1**	2	3
6	7	8	9	10
13	14	15	16	17
□**20**	21	22	23	24
27	28	29	30	31

1 Final Day of Holiday Recess
20 Dr. Martin Luther King, Jr. Day

FEBRUARY - 18 days

M	T	W	TH	F
3	4	5	6	7
10	11	12	13	□**14**
□**17**	18	19	20	21
24	25	26	27	28

14 Long Weekend
17 Presidents' Day/ Washington's Birthday
14 Reserved as a "snow" make-up day

MARCH - 20 days

M	T	W	TH	F
3	4	5	6&	7
10	11<	12	13^	14
○17	18	19	20	21
24	25	26	27	28
31				

6 Aft/Eve Conf. 9-12
11 Aft/Eve Conf. 6-8
13 Aft/Eve Conf. PK-5
17 Teacher PD Day

APRIL - 17 days

M	T	W	TH	F
	1	2	3	4
7	8	9	10	11
14	15	16	17	**18**
21	22	23	24	25
28	29	30		

14-18 Vacation Week
18 Good Friday

MAY - 21 days

M	T	W	TH	F
			1	2
5	6	7	8	9
12	13	14	15	16
19	20	21	22	23
□**26**	27	28	29	30

26 Memorial Day

JUNE - 6 days

M	T	W	TH	F
2	3	4	5	6
9	10	11	12	13
16	17	18	□19	20
23	24	25	26	27

9 Planned last day of school
19 Juneteenth
Last 2 days of school are early closing for students.
10-18 Reserved as "snow" make-up days

June 9 is the planned last day of school. Snow days, up to a maximum of 7, will be added to the end of the school year. If needed, an additional day will be taken from the February Long Weekend: February 14. If an 8th day is needed, or if an additional day is needed after the February Long Weekend, that day will be recovered on the March PD Day, which will be a legal day. Teachers will then attend one more day in June.

K-12 progress reporting periods, and report card dates, are maintained and updated on the TPS website: "Teaching & Learning," then "Assessment."

Draft for BOE: 7/11/2023

DRAFT 7/11/23

Trumbull Public Schools Calendar 2025-2026

- No school
- No school for students; teacher work day
- * Early closing for students and staff
- ^ Early closing for grades PK-5
- > Early closing for grades PK-8
- < Early closing for grades 6-8
- & Early closing for grades 9-12

185 Teacher Days, 181 Student Days

JULY - 0 days

M	T	W	TH	F
	1	2	3	4
7	8	9	10	11
14	15	16	17	18
21	22	23	24	25
28	29	30	31	

AUGUST - 4 days

M	T	W	TH	F
				1
4	5	6	7	8
11	12	13	14	15
18	19	20	21	22
25	26	27	28	29

19, 20 New Staff Orientation
21,22,25 Teacher PD Days
26 First Day for Students (full day)

SEPTEMBER - 20 days

M	T	W	TH	F
1	2	3	4	5
8	9	10	11	12
15	16	17	18	19
22	23	24	25	26
29	30			

1 Labor Day
23 Rosh Hashana

OCTOBER - 20 days

M	T	W	TH	F
		1	2	3
6	7	8	9	10
13	14	15	16	17
20	21	22	23>	24
27	28^	29	30	31

2 Yom Kippur
13 Columbus/Indigenous Peoples
20 Diwali
23 Afternoon Conf. PK-8
28 Afternoon Conf. PK-5

NOVEMBER - 17 days

M	T	W	TH	F
3	4	5	6^	7
10	11	12	13<	14
17	18	19	20&	21
24	25	26*	27	28

4 Election Day, Teacher PD
6 Evening Conf. PK-5
13 Aft/Eve Conf. 6-8
20 Aft/Eve Conf. 9-12
27-28 Thanksgiving Recess

DECEMBER - 17 days

M	T	W	TH	F
1	2	3	4	5
8	9	10	11	12
15	16	17	18	19
22	23*	24	25	26
29	30	31		

24-26, 29-31 Winter Recess

JANUARY - 20 days

M	T	W	TH	F
			1	2
5	6	7	8	9
12	13	14	15	16
19	20	21	22	23
26	27	28	29	30

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19 Dr. Martin Luther King, Jr. Day

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Washington's Birthday
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2	3	4	5&	6
9	10<	11	12^	13
16	17	18	19	20
23	24	25	26	27
30	31			

5 Aft/Eve Conf. 9-12
10 Aft/Eve Conf. 6-8
12 Aft/Eve Conf. PK-5
19 Teacher PD
20 Eid al-Fitr

APRIL - 16 days

M	T	W	TH	F
		1	2	3
6	7	8	9	10
13	14	15	16	17
20	21	22	23	24
27	28	29	30	

3 Good Friday
13-17 Vacation Week

MAY - 20 days

M	T	W	TH	F
				1
4	5	6	7	8
11	12	13	14	15
18	19	20	21	22
25	26	27	28	29

25 Memorial Day

JUNE - 9 days

M	T	W	TH	F
1	2	3	4	5
8	9	10	11	12
15	16	17	18	19
22	23	24	25	26
29	30			

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19 Juneteenth
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12-23 Reserved as "snow" make-up days

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Draft for BOE: 7/11/2023

TRUMBULL PUBLIC SCHOOLS
TRUMBULL, CONNECTICUT

Report to the Board of Education
Regular Meeting – July 11, 2023

Mrs. Hefele

Agenda Item – III-E

1:1 Insurance Fees

Christina Hefele is requesting that the Board of Education set the 1:1 insurance fee for the 2023-2024 school year as follows:

Grades 5-8 1:1 Program - $30

THS Device Loaner Program - $50

This is the same fee charged in previous years. Please see attached memo for details on the 2022-2023 claims information.

Recommendation:

Review and Vote

Trumbull Public Schools

Christina L. Hefele
Director of Digital Learning

6254 Main St., Trumbull, CT 06611
Tel: 203-452-4318
chefele@trumbullps.org

Amended

TO: BoE Finance Committee

FROM: Christina Hefele, Director of Digital Learning

Jeff Hackett, Manager of Technology

DATE: July 6, 2023; Revised: 7/7/11

RE: 1:1 Device Insurance Fee for 2023-2024 school year

UPDATE: On Thursday, ~~July 6, 2023~~ the Finance Committee of the Board of Education met and voted to reduce the fee to $25 for the 1:1 program for students in grades 5-8 and $45 for the THS Loaner program based on the end of year balance in the insurance fee special revenue account and the claims information provided below. The Board will vote on these revised amounts at 7/11/23 BoE meeting.

Policy 5143.2/Student One-to-One Device Insurance Program states that each year the Board of Education shall approve the fee amount prior to the start of the school year. In 2017, we launched the 1:1 program for students in grades 5-8. We are requesting that the Board of Education set the device insurance fee at $30 for the 2023-2024 for all students in grades 5-8 participating in the 1:1 program.

During the 2021-2022 school year, Trumbull High School launched a Chromebook loaner program to provide district devices to students who do not currently have one. The cost for the program is $50 per year and includes a rental fee as well as the insurance. We are requesting that the Board of Education set the fee for the THS loaner program at $50 for the 2023-2024.

% of Students purchasing insurance for 2022-2023:	49% (981)
Total # of Claims (Sept – June):	227
# of individuals Students with Claim:	187 (19%)
# of students no insurance – billed for damage	249
Total Insurance Fees Collected:	$29,280
Total Repair Fees Collected:	$12,424
Average Cost of Repair Including Labor:	$85 – approximately
*Repairs/Parts Expenses Estimate thru 6/15/2023	$29,555

TRUMBULL PUBLIC SCHOOLS
TRUMBULL, CONNECTICUT

Report to the Board of Education
Regular Meeting – July 11, 2023

Agenda Item –III-F

Dr. Iwanicki, Mr. Chella

Recommendation:

Review

Teacher Evaluation Update

Dr. Iwanicki and Mr. Chella will share updates based on information from the State Department of Education and Jonathan Costa of Ed Advance regarding the future requirements of Teacher Evaluation Plans. Their presentation will provide an overview of recommended non-negotiables and best practices for implementation in the 2024-2025 school year as well as the E-Systems being considered by our Professional Development and Evaluation Committee (PDEC) to compliment the process.

TRUMBULL PUBLIC SCHOOLS

Teacher Evaluation Process Update

Susan Iwanicki, Ed.D
Assistant Superintendent
July 11, 2023

Mr. Joseph J. Chella
Director of Human Capital and Talent Development

Trumbull Public Schools
Committed to Excellence

State Department Updates Leading the Change

- CSDE formed the Educator Evaluation and Support (EES) Council to make recommendations
- Jonathan Costa, Assistant Executive Director of Ed Advance was part of the EES presented at the Connecticut Association of School (CAS) Leadership Retreat in March
- CSDE announced in May that these changes will be forthcoming
- Tonight's presentation is based on Mr. Costa's information in addition to our PDEC plans moving forward.

Educator Evaluation and Support (EES) Council

Rethinking Educator Evaluation & Support

EES Vision

All Connecticut educators have the opportunity for continuous learning and feedback, to develop and grow, both individually and collectively, through the educator evaluation and support system so that all Connecticut students experience growth and success.

The EES Council's Starting Assumptions

The current system was a response to Federal legislation and not on anyone's idea of what might work to improve learning.

ESS Council Design Process Steps

1. Background Explorations.
2. Identify and prioritize design principles.
3. Model review, selection or creation based on design principles alignment.
4. Model enhancement and final design.
5. Guideline and legislative alignment.

Listen to the Field

Constituent Feedback

EdAdvance
Educate • Collaborate • Innovate

What the research on teacher evaluation says:

Morgaen Donaldson UCONN

Accountability is an ineffective motivator…

Emphasis on growth and development…

Intrinsic motivation and educator agency…

Focus on things that matter…

EdAdvance
Educate • Collaborate • Innovate

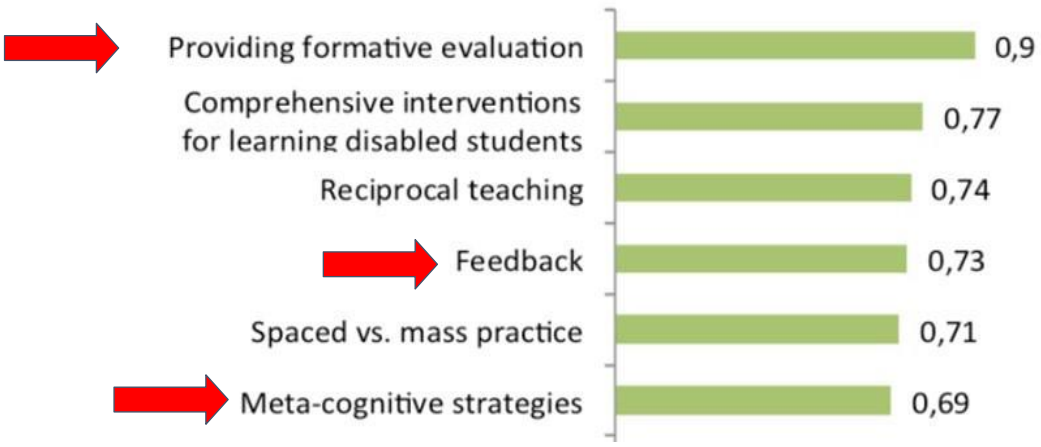
What the research on teacher evaluation says:

Hanover Research Meta-Study

- Providing specific and concrete feedback to teachers.
- Align evaluation practices with subsequent professional development.
- Incorporate action research and/or reflective action.

EdAdvance
Educate • Collaborate • Innovate

What the research on learning impact says: John Hattie

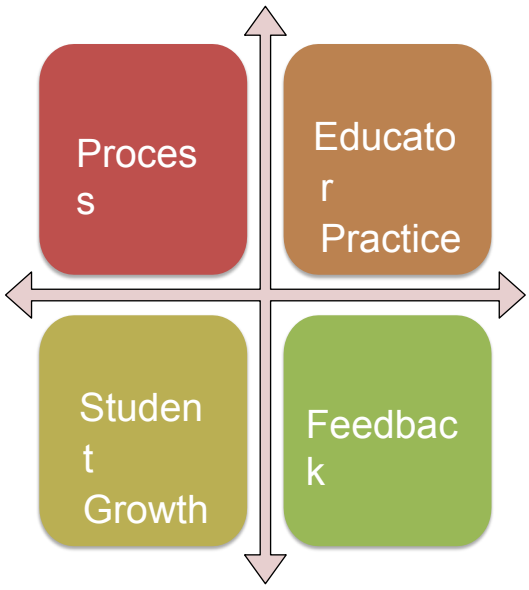


EdAdvance
Educate • Collaborate • Innovate

Exploring Other Models

- Massachusetts
- low
- Mansfiel
- Farmingto
- EdAdvanc
- CEA/AF

Design Categories



Design Principle Priorities

Allow for differentiation of roles (teachers, counselors, support staff and leaders - Central office, principal, vice principal)

Simplify and reduce the burden (eliminate the technical challenge, reduce the number of steps, paperwork)

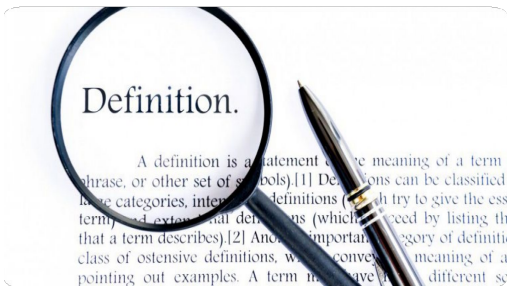
Focus on things that matter (Identify high leverage, mainstream goal focus areas)

Connected to best practices aimed at the development of the whole child (Academic, social, emotional, and physical)

Focus on educator growth and agency (meaningfully engage professionals by focusing on growth and practice in partnership with others aligned to a strategic focus (see above, focus on things matter))

Meaningful connections to professional learning (there are pathways for participants to improve their own practice in a way that is meaningful and impactful).

Specific, timely, accurate, actionable, and reciprocal feedback.



Non- Negotiables Things Districts must do.

Best Practices Things Districts should do.

Educator Practice Non-Negotiables

- ***Your new plan must…***
  - **Ensure that educator practice discussions are based on a set of national or state performance standards** set by professional organizations and agreed upon by the PDEC.

Educator Practice Best Practices

- ***Your new plan should…***
  - **Differentiate the standards based on the role of the professional involved in the process.**

Examples– Classroom Teachers, School Psychologists, Speech Pathologists (special service providers)

Educator Practice Best Practices

- ***Your new plan should…***
  - **Avoid the use of numerical ratings of teacher performance**.
  - There is still a judgment to be made, but it is about the participation in the process.

Student Growth Non-Negotiables

- *Your new plan must…*
  - Include multiple measures of student learning, growth, and achievement as mutually agreed upon during the goal-setting process.

Indicators of Academic Growth and Development (IAGD)
SMART Goals

Student Growth Best Practices

- *Your new plan should…*
  - Consider the use of standardized indicators, but they are no longer required.

Examples: Smarter Balanced Assessment, National Generation Science Standards (NGSS)

Process Non-Negotiables

- *Your new plan must…*
  - Ensure that evaluation and support will be an on-going, cyclical progress monitoring process with evaluator and educator(s)/teams conferences in the fall/winter/spring at least three times per year.

Process Non-Negotiables

- *Your new plan must…*
  - Follow timelines and guidelines developed by the PDEC –
    - Levels, groupings
    - Goal timelines
    - Number of observations, evidences

Process Non-Negotiables

- *Your new plan **must**…*
  - Provide for multiple levels of support (Tier 1, Tier 2, and Tier 3) and clear criteria for the use and exit from support plans.

Process Best Practices

- *Your new plan **should**…*
  - Allow for differentiation in terms of timelines, groupings, standards, and evidences.

Process
Best
Practices

- *Your new plan should…*
  - Reduce the burden of evaluation and TEAM on beginning teachers.

Module Goals could be actual goals for beginning teachers.

Process
Best Practices

- *Your new plan should…*
  - Have teacher goals that are aligned with the goals of the district.

Process Best Practices

- *Your district should…*
  - Ensure that your local PDEC has the tools and capacity it needs to make these critical decisions.

Feedback Best Practices

- *Your new plan should…*
  - Use single point competencies.

An educator either met the standard or did not.

Feedback Best Practices

- *Your new plan should…*
  - Provide for multiple opportunities for teachers to receive timely, accurate and meaningful feedback (written and verbal).

Feedback Best Practices

- *Your new plan should…*
  - Focus on building evaluator capacity and competency in providing high-quality feedback.

More Flexibility

Districts will have far more flexibility in this new design to innovate and design plans that work to improve professional practice.

Administrator Evaluation System?

A new leader model (administrator evaluation) that mirrors the teacher model is under development using the same timeline.

State Support

- A design team has been convened to plan for teacher, evaluator, and PDEC trainings in support of this new framework.
- These trainings will begin in the late summer and fall and PDECs will have all next year to redesign what they want to do.

Next Steps for Districts …

There are 3 Pathways…

1. ***Tweak existing model to ensure its compliance with the non- negotiables***
2. ***Adopt and adapt an alternative model that advances your practice and is consistent with the framework.***
3. ***Design a new model from scratch.***

Changes in the law and new regulations have been proposed and would need to be in place by the fall of 2024.

What happens next for TPS?

- ***During the 23-24 School Year, the TPS Professional Development and Evaluation Committee (PDEC) will:***
  - **Meet more frequently to review the legislation, standards, and evaluation models.**
  - **Draft an evaluation system for Board approval**
  - **Pilot an e-system to organize materials for full future implementation**

Ahead of the curve…

- ***During the 23-24 School Year, the TPS Professional Development and Evaluation Committee (PDEC) will:***
  - **Meet more frequently to review the legislation, standards, and evaluation models.**
  - **Draft an evaluation system for Board approval**
  - **Pilot an e-system to organize materials for full future implementation**

Ahead of the curve…

Joe Chella

- March 2023
  - PDEC Committee Develop Rubric to Use in Vendor Selection Process
  - 4 Vendors Selected to Provide Demo to Committee in May/June
- May/June 2023
  - 4 Vendors provided a demo to PDEC highlighting their tool
  - Committee used rubric to narrow it down to 2 vendors based on our priorities
- June 2023
  - PDEC members are testing both products to determine easier of use for teachers
  - Vendors working on pricing for 2023-2024 Pilot; 2024-2025 Full Implementation
- July 2023
  - Select Vendor/Sign Contract
- September - December 2023
  - PDEC builds new forms based on new state plan
  - Build out Pilot Site in new Product
  - Training of Pilot Group
- January - June 2024
  - Pilot Group Testing
- August 2024 - Full Implementation

TPS - TEval System Priorities

Joe Chella

- ➔ User friendliness for Teachers
- ➔ Knowledge of CT teacher evaluation process
- ➔ Customizable forms/workflows/rubrics
- ➔ Admin tools to maintain site, process, forms
- ➔ Reporting capability
- ➔ Admin Dashboard to track progress/completion
- ➔ Notification capabilities
- ➔ Compliance alerts
- ➔ Support multiple evaluators
- ➔ Support different evaluation process for teachers, paras, secretaries etc…

Vendor Selection Rubric Used

TRUMBULL PUBLIC SCHOOLS
TRUMBULL, CONNECTICUT

Report to the Board of Education
Regular Meeting – July 11, 2023

Agenda Item – III-G

Mrs. Petitti

Curriculum Committee Report
Curriculum Committee Meeting – June 15, 2023

Recommendation:

Review and Approve

Dr. Iwanicki

Approval/ Curriculum Guides

Based on the Curriculum Committee's meeting on June 15, 2023, the Board of Education will be asked to adopt curriculum guides for use as noted below:

Trumbull High School (Curriculum Guide Updates):

- *Grade 10 Biology*
- *Grade 11 Chemistry*
- *Grade 12 CP Physics*
- *Grade 12 ACP Physics*
- *Grade 9 English*

TRUMBULL PUBLIC SCHOOLS
TRUMBULL, CONNECTICUT

Curriculum Committee of the
Trumbull Board of Education

Regular Meeting

Thursday, June 15, 2023, 8:30 a.m.
Trumbull High School Main Office Conference room

Minutes

I. Call to Order/Introduction – The meeting was called to order to 8:33.

II. Public Comment- No public comment was received.

III. Approval/Minutes – Nuland motioned to approve the Regular Curriculum Committee Meeting Minutes from May 18, 2023. Ms. McNamee Seconded. The motional passed unanimously.

IV. New Business

a. Curriculum Guide Update- Grade 10 Biology- Trumbull High School (THS) Science teacher, Pat Tividar presented the Grade 10 Biology updates. She noted that the department added academic vocabulary and then considered how to move from the material covered in 1.25 credits to an amount of material that could be covered 1.0 credits. She provided various updates. For example, the biochemistry is a longer unit, so they integrated it into a cell unit. The unit involves creating a model cell by the end. The order of units was also changed. Mrs. Nuland asked if the course will lose any major aspects due to the shortening and Ms. Tividar shared that it remains to be seen, but they are hopeful that the new format will help students to make needed conceptual connections. Ms. McNamee shared the new format seemed to be more relatable for students. Mrs. Petitti asked how the schedule meeting times will impact the contact time. Ms. McNamee motioned to approve the updates to the Grade 10 Biology Curriculum Guide. Mrs. Nuland seconded. The motion passed unanimously.

b. Curriculum Guide Update- Grade 11 Chemistry- Trumbull High School (THS) Science teacher, Becky Giroux presented the new Grade 11 Chemistry. She expressed that NGSS standards were used to prioritize the reduction in time. The largest changes were in the electrons and periodic table units. The concepts around light are covered in other classes, so those concepts were removed. Students also cover light in 9th grade and will do so in Astronomy as well. The department has already talked about strategies that they can use to shorten the labs- premeasuring, reducing the number of elements covered, and other techniques will be further discussed to be sure students get the full experience within the new time periods. Mrs. Petitti shared that she hopes the school will prioritize time for teachers as professionals to discuss this implementation. Ms. McNamee shared that praise for the work the department has done so far in discussing ways to discuss the implement the labs in the

shorter time. Mrs. Nuland motioned to approve the updates to the Grade 11 Chemistry Curriculum Guide. Ms. McNamee seconded. The motion passed unanimously.

c. Curriculum Guide Updates- Grade 12 CP Physics & Grade 12 ACP Physics- Trumbull High School (THS) Science teacher, Jon Albers presented the new guides and shared the focus areas of condensing, while preserving hands on activities. The teachers opted to be sure the CP and ACP units were aligned in terms of the sequence. Mr. Albers provided the committee with specific examples. Mrs. Petitti asked if there has been a relationship between those students taking Physics and Astronomy. Mr. Albers shared that anecdotally there has been an interest. Ms. McNamee motioned to approve the changes to the 12th grade CP and ACP Physics Curriculum Units. Mrs. Nuland seconded. The motion passed unanimously.

d. Curriculum Guide Update- Grade 9 English- Trumbull High School (THS) English Teachers, Jeannette DeNunzio and Norma McFarland, joined English Dept Chair Adeline Marzialo to present the revised Grade 9 English Curriculum Guide. Ms. DeNunzio shared that they were motivated to revise the guide based on a vertical articulation meeting with the middle school teachers so that they can be sure skills are covered that students will need the most. The teacher revision team aimed to make the curriculum user friendly and more simplified. Dept Chair Mazialo also shared that the department also found a book through Advanced Placement (AP) training and Emily Cooper proposed that the team could rethink the curriculum from a standards-forward and humanities analysis approach. The four units now align with the Common Core State Standards and literary choices and build better alignment with the Advanced Placement classes. Ms. McNamee shared that the alignment is so important and she is pleased to see that happening. Mrs. Nuland noted that students sometimes do not understand the common language and asked them if student essays are currently reflecting the skills needed. Mrs. Marzialo shared that the new units are structured to build that academic language. Mrs. Petitti asked about the major differences from the last guide and this version. It was shared that last version has a lot of lists of choices and was less focused and aligned with the AP track. This version combines concepts around the four units and parallels with the skills that will be needed in AP. Mrs. McNamee asked about the protagonist of one of the books as they are younger and she wondered if the students would be interested at the high school level. Mrs. Marzialo shared that the text is a choice written by an African American author about the topic of discovering one's self and has an inspiring story of hope that will be accessible for those students who need the engagement at that Lexile level. Ms. McNamee motioned to accept the changes to the Grade 9 English Curriculum Guide and Mrs. Nuland seconded. The motion passed unanimously.

e. Assistant Superintendent's Report – Dr. Iwanicki shared that the district has hired Kate Engledrum as a replacement for Terry Buckingham, our K-5 ELA Program Leader. Additionally, the district's recently revised middle school ELA curriculum was well received by teachers in its first year of implementation. The grade 6 teacher will pilot a change next year and use one of the approved secondary texts, *Harbor Me* as a primary text. They will bring a curriculum revision forward if this is confirmed as a primary text after their pilot next year. Dr. Iwanicki also gave an overview of the curriculum writing projects in place for 2023-2024. She closed with an update that Trumbull Public Schools has not received any updates regarding their waiver submission for the adoption of a new reading curriculum in grades K-3.

TRUMBULL PUBLIC SCHOOLS

Trumbull, Connecticut

GRADE 10 BIOLOGY
Science Department

2023

(Last revision date: May 2023)

Curriculum Writing Team

Thomas Edwards	**Science Department Chairperson, Trumbull High School**
Kevin Boken	**Science Teacher, Trumbull High School**
Linda Goodman	**Science Teacher, Trumbull High School**
William Heher	**Science Teacher, Trumbull High School**
Gina Moriello	**Science Teacher, Trumbull High School**
Patricia Tivadar	**Science Teacher, Trumbull High School**
Jenny Xavier	**Science Teacher, Trumbull High School**
Susan C. Iwanicki, Ed.D.	**Assistant Superintendent, Trumbull Public Schools**

Grade 10 Biology
Table of Contents

CORE VALUES AND BELIEFS

The Trumbull School Community engages in an environment conducive to learning which believes that all students will **read** and **write effectively**, therefore communicating in an articulate and coherent manner. All students will participate in activities **that present problem- solving through critical thinking**. Students will use technology as a tool applying it to decision making. We believe that by fostering self-confidence, self-directed and student-centered activities, we will promote **independent thinkers and learners**. We believe **ethical conduct** to be paramount in sustaining the welcoming school climate that we presently enjoy.

Approved 8/26/2011

INTRODUCTION & PHILOSOPHY

Grade 10 Biology is consistent in the continued development of scientifically literate students. Authentic scientific and engineering experiences build on one another and increase in complexity throughout students' K-12 education. In 2015, the Connecticut State Board of Education adopted the Next-Generation Science Standards (NGSS), which embody the National Research Council's *Framework for K-12 Science Education* (2012). Both the *Framework* and the NGSS stress the importance of teaching classroom scientific inquiry as practiced by scientists and engineers. The *Framework* provides a vision for American science education in the 21st century, while the NGSS provides grade-level student performance expectations, disciplinary core ideas, and crosscutting concepts. The *Framework* and NGSS indicated a paradigm shift in science education, one in which teachers are to incorporate authentic learning experiences for students that reflect the nature of doing science and engineering.

The *Framework* and NGSS provide clarity to classroom scientific inquiry by stressing the importance of the eight practices of science and engineering. The practices were designed to help students understand how scientific knowledge develops, and to stimulate students' interest in and continued study of science. Three-dimensional learning facilitates student engagement with Science and Engineering Practices and Crosscutting Concepts to deepen their understanding of Disciplinary Core Ideas in order to explain phenomena and solve problems. Three-dimensional learning promotes development of student skills in the following areas:

- Knowing, using, and interpreting scientific explanations of the natural world (Disciplinary Core Ideas, and Crosscutting Concepts)
- Generating and evaluating scientific evidence and explanations (Science and Engineering Practices)
- Participating productively in scientific practices and discourse (Science and Engineering Practices)
- Understanding the nature and development of scientific knowledge (Science and Engineering Practices, and Crosscutting Concepts)

The shift of science education reflects the interconnected nature of science as it is practiced in the real world and builds coherently across grades K-12. The NGSS focus on deeper understanding of content as well as application of content with an alignment to the Connecticut

Core Standards. A deeper understanding and application of science and engineering practices prepare students for postsecondary success and citizenship in a world fueled by innovations in science and technology.

Most systems or processes depend at some level on physical and chemical subprocesses that occur within, whether the system in question is a star, Earth's atmosphere, a river, a bicycle, the human brain, or a living cell. Large-scale systems often have emergent properties that cannot be explained on the basis of atomic-scale processes; nevertheless, to understand the physical and chemical basis of a system, one must ultimately consider the structure of matter at the atomic and subatomic scales to discover how it influences the system's larger-scale structures, properties, and functions. Similarly, understanding a process at any scale requires awareness of the interactions occurring – in terms of the forces between objects, the related energy transfers, and their consequences. Biology has much in common with the other branches of science, but it also includes a unique set of scientific pursuits. Inquiries into biology (e.g., macromolecules, genetics, evolution, and ecology) have been pursued in part as a means of understanding the unity and diversity among organisms and how organisms interact with each other and with the nonliving components of the environment.

Grade 10 Biology is offered at three separate course levels: Honors, Advanced College Preparatory (ACP), and College Preparatory (CP). All levels will explore each unit of study. The courses are differentiated by pacing of curriculum, rigor of exploration, depth of content knowledge, and the application of quantitative reasoning. The honors course will explore topics with the greatest depth, most rigorous exploration, deepest study of content, and furthest application of quantitative reasoning. More support will be offered at the ACP course level, with the most support offered at the CP course level.

COURSE GOALS

The course goals derive from the 2013 Next-Generation Science Standards, the 2010 Connecticut Core Standards, and the ISTE (International Society for Technology in Education) Technology Standards. Goals are listed specific to each unit in this curriculum guide, and developed through unit lessons using the 5-E learning model (engage, explore, explain, elaborate, evaluate) in order to encourage student engagement and foster metacognitive learning strategies through a reflective process. An important role of science education is not to teach "all the facts," but rather to prepare students with sufficient core knowledge so that they can later acquire additional information on their own.

COURSE ENDURING UNDERSTANDINGS

Students will understand that . . .

- The process of science helps biologists investigate how nature works at all levels, from the molecules in cells to the biosphere.
- Cells are the basic unit of life; the processes that occur at the cellular level provide the energy and basic structure organisms need to survive.
- DNA is the universal code for life; it enables an organism to transmit hereditary information and, along with the environment, determines an organism's characteristics.

- The human body is a complex system. The coordinated functions of its many structures support life processes and maintain homeostasis.

- The diversity of life is the result of ongoing evolutionary change. Species alive today have evolved from ancient common ancestors.

- The existence of life on earth depends on interactions among organisms and between organisms and their environment.

COURSE ESSENTIAL QUESTIONS

- What are the basic chemical principles that affect living things?
- How do plants and other organisms capture, obtain, and store energy?
- How does a cell produce a new cell?
- How does a single undifferentiated cell lead to a complex multicellular organism?
- What is the structure of DNA, and how does it function in genetic inheritance?
- How do cells make proteins?
- How can we use genetics to study human inheritance?
- How do various body systems interact with each other and with the environment to maintain homeostasis?
- What are the four factors upon which the process of evolution is based?
- How does natural selection lead to evolution?
- How do biotic and abiotic factors shape ecosystems?
- How have human activities shaped local and global ecology?
- How does evolution lead to unity within diversity?

COURSE KNOWLEDGE & SKILLS

Students will understand:

- Patterns. Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them.

- Cause and effect: Mechanism and explanation. Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.

- Scale, proportion, and quantity. In considering phenomena, it is critical to recognize what is relevant at different measures of size, time, and energy and to recognize how changes in scale, proportion, or quantity affect a system's structure or performance.

- Systems and system models. Defining the system under study – specifying its boundaries and making explicit a model of that system – provides tools for understanding and testing ideas that are applicable throughout science and engineering.
- Energy and matter: Flows, cycles, and conservation. Tracking fluxes of energy and matter into, out of, and within systems helps one understand the systems' possibilities and limitations.
- Structure and function. The way in which an object or living thing is shaped and its substructure determine many of its properties and functions.
- Stability and change. For natural and built systems alike, conditions of stability and determinants of rates of change or evolution of a system are critical elements of study.

Students will be able to . . .

- ask questions (for science) and define problems (for engineering).
- develop and use models.
- plan and carry out investigations.
- analyze and interpret data.
- use mathematics and computational thinking.
- construct explanations (for science) and design solutions (for engineering).
- engage in arguments from evidence.
- obtain, evaluate, and communicate information

COURSE SYLLABUS

Course Name

Grade 10 Biology

Level

College-Preparatory, Advanced College-Preparatory, & Honors

Prerequisites

Successful completion of Grade 9 Integrated Physical Science

Materials Required

None

General Description of the Course

This course is aligned to the Next Generation Science Standards (NGSS) Disciplinary Core Ideas for Grade 10. Through the implementation of the Three Dimensions of NGSS (Disciplinary Core Ideas, Science and Engineering Practices and Cross Cutting Concepts), students will explore topics in life sciences. Students will engage in the Science and Engineering Practices throughout their studies in order to develop their ability to think critically, engage in analysis, effectively communicate and defend their understandings like a scientist or engineer. At the Honors level, algebraic reasoning and independent discovery are expected; the CP level mirrors the ACP level with additional guided inquiry.

Assured Assessments

Formative Assessments:

Formative assessments can include, but are not limited to:

- Questioning, discussion, and in-class activities

Summative Assessments:

- End-of-unit assessment with multiple-choice questions
- End-of-unit assessment with multiple-choice questions and interpreting and analyzing data
- Research and presentation on humans and Earth's ecosystems
- Midyear examination
- End-of-year examination

Core Texts

- Miller, Kenneth R., and Joseph S. Levine. *Biology*. New York: Pearson, 2014. Print.
- *Campbell Biology: Concepts & Connections*. 8th ed. New York: Pearson, 2015. Print.

UNIT 0
Introduction to Biology

Unit Goals
At the completion of this unit, students will:

- Be able to safely perform laboratory experiments in accordance with OSHA Lab Safety and National Fire Code Standards.
- Identify the characteristics required for determining if something is a living organism.
- Design and conduct scientific experiments

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Developing and Using Models: ● Planning and Carrying Out Investigations Planning and carrying out in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models. Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly . ● Use a model based on evidence to illustrate the relationships between systems or between components of a system. Constructing Explanations and Designing Solutions: ● Construct and revise an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.	LS1.A : Structure and Function: ● Systems of specialized cells within organisms help them perform the essential functions of life.	Energy and Matter: ● Changes of energy and matter in a system can be described in terms of energy and matter flows into, out of, and within that system. ● Energy cannot be created or destroyed – it only moves between one place and another place, between objects and/or fields, or between systems. ● Systems and System Models Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions— including energy, matter, and information flows—within and between systems at different scales. ● Cause and Effect Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects. (

Unit Essential Questions

- What is the nature of science?
- What is the language of science?
- What is biology?
- How do we safely perform experiments in the science laboratory?
- How is life organized?

Unit Essential Vocabulary

Periodic Table Of Elements
Atomic Number
Subatomic Particles
Proton
Neutron
Electron
Nucleus
Atom
Element
Molecule
Ion
Ionic Bond
Covalent Bond
Hierarchy
Homeostasis
Pseudoscience
Experimental Design
Hypothesis
Observation
Claim/Evidence/Reasoning

Scope and Sequence

- Safety & Equipment
    - Lab Introduction – Identify Equipment and Uses (Icebreaker) - Biology Corner
    - Introductory Activity on Using Science Equipment - Biology Corner
    - Flinn Safety Contract for Life Science
- Language of Science
- Characteristics of living things
    - Anchor: Worm vs rock
        - Students compare and suggest characteristics of life
        - Scavenger hunt outside - students from each table find an example that represents one characteristic of life (assigned).
- Hierarchy of life
    - Jigsaw with cards
    - Atomic Structure and Bonding
- Nature of Science & Experimentation
    - Science vs. Pseudoscience
    - Observation lab
    - Pill bugs lab
    - Flowchart - how can causal questions be answered
    - Assess- design experiment to answer a scientific question

Assured Assessments

Formative Assessments:

- Science Safety Assessment
- Hierarchy Jigsaw activity
- Design an experiment

Summative Assessment

- Students will participate in an assessment consisting of multiple-choice questions, and interpreting and analyzing data, related to introductory topics.

Resources

- Lab Introduction – Identify Equipment and Uses (Icebreaker) - Biology Corner
- Introductory Activity on Using Science Equipment - Biology Corner
- Flinn Safety Contract for Life Science
- Academic Integrity Activity (Biology Corner)
- Characteristics of Life
- Hierarchy of Life
- Atomic structure and bonding - PBS Learning Media: Chemthink interactives
    - atomic structure https://simbucket.com/chemthinkserver/chemthink/index.html?as
    - ionic bonding https://simbucket.com/chemthinkserver/chemthink/index.html?ib
    - covalent bonding https://simbucket.com/chemthinkserver/chemthink/index.html?cb
- Nature of Science - flowchart and sample scientific questions in Biology Corner
    - https://drive.google.com/file/d/0Bx72aSXCBO09bFpYU3RxTDBvS3M/view?resourcekey=0-VIQmD9xJNpRqAfc7Yxvd8Q
    - https://www.biologycorner.com/worksheets/sci_method_scenarios.html

Supplemental

Lab Template

Golden Rules of Experimentation

Academic Integrity - Biology Corner

Time Allotment

- Approximately 2 weeks

UNIT 1

What is a Cell: Structure & Function

Unit Goals

At the completion of this unit, students will:

NGSS.HS-LS1-2	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
NGSS.HS-LS1-5	Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.
NGSS.HS-LS1-6	Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.
NGSS.HS-LS1-7	Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed, resulting in a net transfer of energy.
NGSS.HS-LS2-3	Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.
CCS.ELA-Literacy.RST.9-10.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
CCS.5.MD.B	Represent and interpret data.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Developing and Using Models: ● Use a model based on evidence to illustrate the relationships between systems or between components of a system. (NGSS.HS-LS1-5, NGSS.HS-LS1-7) Constructing Explanations and Designing Solutions: ● Construct and revise an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (NGSS.HS-LS1-6)	LS1.C: Organization for Matter and Energy Flow in Organisms: ● The process of photosynthesis converts light energy to stored chemical energy by converting carbon dioxide plus water into sugars plus released oxygen. (NGSS.HS-LS1-5) ● The sugar molecules thus formed contain carbon, hydrogen, and oxygen: their hydrocarbon backbones are used to make amino acids and other carbon-based molecules that can be assembled into larger molecules (such as proteins and DNA), used for example to form new cells. (NGGS.HS-LS1-6) ● As matter and energy flow through different organizational levels of living systems, chemical elements are recombined in different ways to form different products. (NGSS.HS-LS1-6, NGSS.HS-LS1-7) ● As a result of these chemical reactions, energy is transferred from one system of interacting molecules to another. Cellular respiration is a chemical process in which the bonds of food molecules and oxygen molecules are broken and new compounds are formed that can transport energy to muscles. Cellular respiration also releases the energy needed to maintain body temperature despite ongoing energy transfer to the surrounding environment. (NGSS.HS-LS1-7)	Energy and Matter: ● Changes of energy and matter in a system can be described in terms of energy and matter flows into, out of, and within that system. (NGSS.HS- LS1-5, NGSS.HS-LS1-6) ● Energy cannot be created or destroyed – it only moves between one place and another place, between objects and/or fields, or between systems. (NGSS.HS-LS1-7)

Unit Essential Questions

- What is the basic unit of life?
- What are the major differences between prokaryotic and eukaryotic cells?
- What are the general patterns that are similar and different between plants and animals?
- Why are cells so small?
- How are cell structures adapted to their functions?
- How do specialized cells and tissues contribute to the overall function and organization of multicellular organisms? (honors)
- How do materials move into and out of a cell and what are the components of the cell membrane?
- What is an organelle?
- What are the functions of different organelles within a eukaryotic cell, and how do they work together to support cellular processes? How does each contribute to cellular homeostasis?
- How do cells harness & utilize energy?
    - What are the processes of cellular respiration and photosynthesis, and how do they relate to energy flow within cells and ecosystems?

Unit Essential Vocabulary

Cytoskeleton
Nucleus
Nuclear Pore
Active Transport
Carrier Protein
Concentration Gradient
Diffusion
Endocytosis
Exocytosis
Facilitated Diffusion
Fluid Mosaic Model
Isotonic
Homeostasis
Hypertonic
Hypotonic
Osmosis
Passive Transport
Selective Permeability
Vesicle
Carbohydrates
Proteins
Lipids
Nucleic Acids
Monosaccharides
Disaccharides
Polysaccharides
Amino Acids
Fatty Acids
Glycerol
Stomata
Guard Cells
ATP
ADP
Adenosine
Phosphate Group
Photosynthesis
Glycolysis
Lactic Acid Fermentation
Alcoholic Fermentation
Aerobic
Anaerobic

Scope and Sequence

- Light microscope
    - Microscope lab - letter “e”, colored thread
- Anchoring Phenomenon- Red Blood Cells and Sickle Cells
- Modeling red blood cells and sickle cells - clay
- Sickle Cell Case Study
- What is a cell?
    - Microscope lab- plant and animal cells
- Prokaryote vs. eukaryote cells
- Plant and animal cell similarities and differences
- Cell Model Project
    - Stage 1- Choose a cell type
    - Stage 2- Build a cell membrane
    - Stage 3- Adding in organelles
    - Stage 4- Adding in nuclear membrane

- Cell Membrane
  - Cell Size Lab
  - Tonicity lab
  - Dialysis tubing lab
  - Onion cell/elodea plasmolysis
- Organelles
- Mitochondria and chloroplasts
  - Yeast balloon lab
  - Elodea and snails lab
  - Plant in a bag lab
  - Cellular Respiration & Photosynthesis
  - Atomic bonding
- Nucleus and Nuclear membrane

Assured Assessments

Formative Assessments:

- Questioning, group discussion, and in-class activities
- Students will construct a complete model of either a plant or animal cell, and be able to discuss the structure and function of each component added.

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions and open-ended questions regarding the structures and functions of a cell.
- Completed cell model project (Rubric)

Resources

Core

- Miller and Levine, "Biology." Textbook
- Light Microscope Intro Lab
- Red Blood Cell and Sickle Cell Lab
- Sickle Cell Modeling
- Sickle Cell Case Study
- Cell Model Project
- Tonicity Lab
- Dialysis tubing lab
- Cell Size Lab
- Yeast Lab
- Elodea and Snail Lab
- Plant in a bag lab

Supplemental

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Time Allotment

- Approximately 6 Weeks

UNIT 2

Cell Processes

Unit Goals

At the completion of this unit, students will:

NGSS.HS-LS1-1	Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins, which carry out the essential functions of life through systems of specialized cells.
NGSS.HS-LS1-4	Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.
NGSS.HS-LS3-1	Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.
CCS.ELA-Literacy.RST.9-10.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics.
CCS.5.MD.B	Represent and interpret data.
ISTE Computational Thinker (Standard 5b)	Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Constructing Explanations and Designing Solutions: ● Construct an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (NGSS.HS-LS1-1) Developing and Using Models: ● Use a model based on evidence to illustrate the relationships between systems or between components of a system. (NGSS.HS-LS1-4	LS1.A: Structure and Function: ● Systems of specialized cells within organisms help them perform the essential functions of life. (NGSS.HS-LS1-1) ● All cells contain genetic information in the form of DNA molecules. Genes are regions in the DNA that contain the instructions that code for the formation of proteins, which carry out most of the work of cells. (NGGS.HS-LS1-1) LS1.B: Growth and Development of Organisms: ● In multicellular organisms individual cells grow and then divide via a process called mitosis, thereby allowing the organism to grow. The organism begins as a single cell (fertilized egg) that divides successively to produce many cells, with each parent cell passing identical genetic material (two variants of each chromosome pair) to both daughter cells. Cellular division and differentiation produce and maintain a complex organism, composed of systems of tissues and organs that work together to meet the needs of the whole organism. (NGSS.HS-LS1-4) LS3.A: Inheritance of Traits: ● Each chromosome consists of a single very long DNA molecule, and each gene on the chromosome is a particular segment of that DNA. The instructions for forming species' characteristics are carried in DNA. All cells in an organism have the same genetic content, but the genes used (expressed) by the cell may be regulated in different ways. Not all DNA codes for a protein; some segments of DNA are involved in regulatory or structural functions, and some have no as-yet known function. (NGSS.HS-LS3-)	Structure and Function: ● Investigating or designing new systems or structures requires a detailed examination of the properties of different materials, the structures of different components, and connections of components to reveal its function and/or solve a problem. (NGSS.HS-LS1- 1) Cause and Effect: ● Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects. (NGSS.HS-LS3-1) Systems and System Models: ● Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions – including energy, matter, and information flows – within and between systems at different scales. (NGSS.HS-LS1-4)

Unit Essential Questions

- What is the structure and function of DNA?
- How does DNA replication occur?
- How does cell reproduction differ in prokaryotic versus eukaryotic cells?
- What are the stages of the cell cycle?
- How does a complex, multicellular organism develop from a single cell?
- What happens during mitotic cell division?
- How does the structure of DNA determine the structure of proteins?

Unit Essential Vocabulary

Cell Cycle	Cytokinesis	Anticodon
Binary Fission	Purine	Protein Synthesis
Mitosis	Pyrimidine	Start Codon
Chromosomes	Helicase	Stop Codon
Chromatid	Polymerase	Adenine
Spindle Fiber	Transcription	Guanine
Centriole	Translation	Cytosine
Prophase	mRNA	Thymine
Metaphase	tRNA	Uracil
Anaphase	rRNA	Gene
Telophase	Codon	

Scope and Sequence

- Anchoring Phenomenon: Onion Root Tip
- Cell cycle / Mitosis
  - Model stages of mitosis
  - Cell cycle checkpoints and cancer [for Honors]
- DNA structure/replication
  - Creating a model of DNA
  - The structures and functions of the following enzymes: DNA polymerase, DNA helicase, Primase, RNase H, SSBPs, Gyrase [for Honors]
- Protein synthesis
  - transcription and translation model using their cell model from Unit 1

Assured Assessments

Formative Assessments:

- Modeling activities for students to demonstrate their understanding of the structure and replication of DNA
- Modeling stages of mitosis (chalk drawings)
- Modeling transcription and translation using cell model from unit 1

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, and interpreting and analyzing data, related to DNA structure, replication, cell cycle, and protein synthesis.

Resources

Core

- Miller, Kenneth R., and Joseph S. Levine. *Biology*. New York: Pearson, 2014. Print.
- Amoeba Sisters. "Specialized Cells: Significance and Examples." https://www.youtube.com/watch?v=wNe6RuK0FfA.
- "Modeling DNA Using Pop Beads."
- "Paper Model of DNA Replication."
- "Modeling Mitosis With Chalk and Pop-It Beads"
- "Modeling Transcription and Translation With Cell Model"

Supplemental

- Amoeba Sisters. "Introduction to Cells: The Grand Cell Tour.
- "DNA Extraction – Strawberry. https://www.biologycorner.com/worksheets/DNA_extraction.html.
- "Mitosis Flip Book." Trumbull High School.
- "Modeling Cell Cycle Petri Activity."
- "Pasta Mitosis."

Time Allotment

- Approximately 4 weeks

UNIT 3

Genetics

Unit Goals
At the completion of this unit, students will:

NGSS.HS-LS3-2	Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.
NGSS.HS-LS3-3	Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.
CCS.ELA-Literacy.RST.9-10.1	Cite specific textual evidence to support analysis of science and technical texts, attending to the precise detail of explanations or descriptions.
CCS.ELA-Literacy.RST.9-10.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
CCS.ELA-Literacy.RST.9-10.7	Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.
CCS.MP.5	Use appropriate tools strategically.
CCS.5.MD.B	Represent and interpret data.
CCS.HSS-CP.B.9	Use permutations and combinations to compute probabilities of compound events and solve problems.
ISTE Computational Thinker (Standard 5b)	Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
ISTE Creative Communicator (Standard 6b)	Create original works or responsibly repurpose or remix digital resources into new creations.
ISTE Creative Communicator (Standard 6d)	Publish or present content that customizes the message and medium for their intended audiences.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Analyzing and Interpreting Data: ● Apply concepts of statistics and probability (including determining function fits to data, slope, intercept, and correlation coefficient for linear fits) to scientific and engineering questions and problems, using digital tools when feasible. (NGSS.HS-LS3-3) Engaging in Argument from Evidence: ● Make and defend a claim based on evidence about the natural world that reflects scientific knowledge, and student- generated evidence. (NGSS.HS-LS3-2)	LS3.B: Variation of Traits: ● In sexual reproduction, chromosomes can sometimes swap sections during the process of meiosis (cell division), thereby creating new genetic combinations and thus more genetic variation. Although DNA replication is tightly regulated and remarkably accurate, errors do occur and result in mutations, which are also a source of genetic variation. Environmental factors can also cause mutations in genes, and viable mutations are inherited. (NGSS.HS-LS3-2) ● Environmental factors also affect expression of traits, and hence affect the probability of occurrences of traits in a population. Thus the variation and distribution of traits observed depends on both genetic and environmental factors. (NGGS.HS-LS3- 2, NHSS.HS-LS3-3)	Cause and Effect: ● Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects. (NGSS.HS-LS3-2) Scale, Proportion, and Quantity: ● Algebraic thinking is used to examine scientific data and predict the effect of a change in one variable on another (e.g., linear growth vs. exponential growth). (NGSS.HS-LS3-3) Science Is a Human Endeavor: ● Technological advances have influenced the progress of science and science has influenced advances in technology. (NGSS.HS-LS3-3) ● Science and engineering are influenced by society and society is influenced by science and engineering. (NGSS.HS-LS3-3)

Unit Essential Questions

- How are gametes produced?
- Where does an organism get its unique characteristics?
- How do crossing-over, independent assortment, mutations and random mating lead to genetic variation?
- How can we use statistics and probability to predict traits?
- What are the other modes of inheritance
- How is sex determined in humans?
- What patterns of inheritance are seen in human blood types?
- What are some of the major genetic disorders?

Unit Essential Vocabulary

Genetics
Gene
Trait
Allele
Hybrid
P- Parental Generation
F_1- First Filial
F_2- Second Filial
Homozygous
Heterozygous
Dominant
Codominance
Incomplete Dominance
Pleiotropy
Recessive
Genotype
Phenotype
Punnett Square
Monohybrid
Dihybrid
Law of Segregation
Law of Independent Assortment
Polygenic
Autosomes
X-Linked
Pedigree
Karyotype

Scope and Sequence

- Anchoring Phenomenon: Observable Human Traits & Pedigree
- Meiosis
- Mendelian genetics
- Non-Mendelian genetics (codominance, incomplete dominance, multiple alleles, sex- linked)
- Karyotype
- Pedigree
- Genetic disorders

Assured Assessments

Formative Assessments:

- Modeling activities for students to demonstrate their understanding of meiosis and non-Mendelian genetics

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, and interpreting and analyzing data, related to meiosis, genetics, genetic disorders, and pedigrees.

Resources

Core

- Miller, Kenneth R., and Joseph S. Levine. *Biology*. New York: Pearson, 2014. Print.
- "Baby Blood Typing Mystery." Trumbull High School.
- "Introduction to Non-Mendelian Genetics."

- “Karyotyping Analysis.”
- “Meiosis Modeling.”
- “Human Pedigree Analysis: Case Studies.”
- “Snurfle Meiosis and Genetics.” https://biomanbio.com/HTML5GamesandLabs/Genegames/snurflemeiosishtml5page.htm

Supplemental

- Amoeba Sisters. “Punnett Squares and Sex-Linked Traits.” https://www.youtube.com/watch?v=h2xufrHWG3E.
- “Genetic Disorder Project.”
- “Mendel’s Peas Genetics: Experiments That Changed the World.” https://www.youtube.com/watch?v=6NvESo3mG90.

Time Allotment

- Approximately 5 weeks

UNIT 4

Evolution

Unit Goals

At the completion of this unit, students will:

NGSS.HS-ESS2-7	Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth.
NGSS.HS-LS4-1	Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.
NGSS.HS-LS4-2	Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.
NGSS.HS-LS4-3	Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.
NGSS.HS-LS4-4	Construct an explanation based on evidence for how natural selection leads to adaptation of populations.
NGSS.HS-LS4-5	Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.
ISTE Computational Thinker (Standard 5b)	Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Engaging in Argument from Evidence: ● Construct an oral and written argument or counter-arguments based on data and evidence. (NGSS.HS-ESS2-7) Applying and Interpreting Data: ● Apply concepts of statistics and probability (including determining function fits to data, slope, intercept, and correlation coefficient for linear fits) to scientific and engineering questions and problems, using digital tools when feasible. (NGSS.HS-LS4-3) Constructing Explanations and Designing Solutions: ● Construct an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (NGSS.HS-LS-4-2, NGSS.HS-LS4-4) Engaging in Argument from Evidence: ● Evaluate the evidence behind currently accepted explanations or solutions to determine the merits of arguments. (NGSS.HS- LS4-5) Obtaining, Evaluating, and Communicating Information:	ESS2.E: Biogeology ● The many dynamic and delicate feedbacks between the biosphere and other Earth systems cause a continual co-evolution of Earth's surface and the life that exists on it. (NGGS.HS-ESS2-7) LS4.A: Evidence of Common Ancestry and Diversity: ● Genetic information provides evidence of evolution. DNA sequences vary among species, but there are many overlaps; in fact, the ongoing branching that produces multiple lines of descent can be inferred by comparing the DNA sequences of different organisms. Such information is also derivable from the similarities and differences in amino acid sequences and from anatomical and embryological evidence. (NGSS.HS-LS4-1) LS4.B: Natural Selection: ● Natural selection occurs only if there is both (1) variation in the genetic information between organisms in a population and (2) variation in the expression of that genetic information – that is, trait variation – that leads to differences in performance among individuals. (NGSS.HS-LS4-2, NGSS.HS-LS4-3) ● The traits that positively affect survival are more likely to be reproduced, and thus are more common in the population. (NGSS.HS-LS4-3)	Stability and Change: ● Much of science deals with constructing explanations of how things change and how they remain stable. (NGSS.HS-ESS2-7) Patterns: ● Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena. (NGSS.HS- LS4-1, NGSS.HS-LS4-3) Cause and Effect: ● Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects. (NGSS.HS-LS4-2, NGSS.HS-LS4-4, NGSS.HS-LS4-5) Connections to Nature of Science: Scientific Knowledge Assumes an Order and Consistency in Natural Systems: ● Scientific knowledge is based on the assumption that natural laws operate today as they did in the past and they will continue to do so in the future. (NGSS.HS-LS4-1, NGSS.HS-LS4-4) trait leads to an increase in the proportion of individuals in future generations that have the trait and to a decrease in the proportion of individuals that do not. (NGSS.HS-LS4-3, NGSS.HS-LS4-4)

● Communicate scientific information (e.g., about phenomena and/or the process of development and the design and performance of a proposed process or system) in multiple formats (including orally, graphically, textually, and mathematically). (NGSS.HS-LS4-1) Connections to Nature of Science: Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena: ● A scientific theory is a substantiated explanation of some aspect of the natural world, based on a body of facts that have been repeatedly confirmed through observation and experiment and the science community validates each theory before it is accepted. If new evidence is discovered that the theory does not accommodate, the theory is generally modified in light of this new evidence. (NGSS.HS-LS4-1)	LS4.C: Adaptation: ● Evolution is a consequence of the interaction of four factors (1) the potential for a species to increase in number, (2) the genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for an environment's limited supply of the resources that individuals need in order to survive and reproduce, and (4) the ensuing proliferation of those organisms that are better able to survive and reproduce in that environment. (NGSS.HS- LS4-2) ● Natural selection leads to adaptation, that is, to a population dominated by organisms that are anatomically, behaviorally, and physiologically well suited to survive and reproduce in a specific environment. That is, the differential survival and reproduction of organisms in a population that have an advantageous heritable	● Adaptation also means that the distribution of traits in a population can change when conditions change. (NGSS.HS-LS4- 3) ● Changes in the physical environment, whether naturally occurring or human induced, have thus contributed to the expansion of some species, the emergence of new distinct species as populations diverge under different conditions, and the decline – and sometimes the extinction – of some species. (NGSS.HS-LS4-5) ● Species become extinct because they can no longer survive and reproduce in their altered environment. If members cannot adjust to change that is too fast or drastic, the opportunity for the species' evolution is lost. (NGSS.HS-LS4-5)

Unit Essential Questions

- How has the evolution of Earth itself affected or influenced the evolution of living things on planet Earth?
- What is the importance of variation among organisms? How does this variation contribute to the survival and success of a species?
- What scientific information supports common ancestry and biological evolution?
- What are the four factors upon which the process of evolution is based?
- How does natural selection lead to adaptations of populations?
- How are new species formed?

Unit Essential Vocabulary

Species	Jean-Baptiste Lamarck	Speciation
Variations	Charles Darwin	Adaptive radiation
Evolution	Galapagos Islands	Punctuated equilibrium
Fossil	Natural selection	Divergent evolution
Homologous structures	Adaptations	Parallel evolution
Analogous structures	Gene pool	Convergent evolution
Vestigial structures	Gene flow	
	Genetic drift	

Scope and Sequence

- Introduction of evolution
- Evidence for evolution: Fossil record, homologous, analogous, vestigial structures, DNA analysis, biochemistry, etc.
- Charles Darwin and Jean-Baptiste Lamarck: Contributions to evolution
- Four factors that drive evolution (Darwin's postulates)
- Natural selection vs. artificial selection
- Adaptation (behavioral and physical)
- Types of evolution (divergent, convergent, parallel, coevolution)
- Phylogenetic trees and cladograms
- Coevolution of Earth's systems and life on Earth
- Hardy-Weinberg equilibrium [Honors]

Assured Assessments

Formative Assessments:

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Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, and interpreting and analyzing data, related to evolution.

Resources

Core

- Miller, Kenneth R., and Joseph S. Levine. *Biology*. New York: Pearson, 2014. Print.
- National Geographic. *One Strange Rock*. https://onestrangerock.com/.
- "Peppered Moths."

Supplemental

- "Evolution Mind Map."

- “Human Change through Time Lab Activity.” Trumbull High School.
- “What Is the Evidence for Evolution?” https://www.youtube.com/watch?v=lIEoO5KdPvg.

Time Allotment

- Approximately 4 weeks

UNIT 5

Comparative Anatomy & Homeostasis

Unit Goals

At the completion of this unit, students will:

NGSS.HS-LS1-2	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
NGSS.HS-LS1-3	Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.
ISTE Computational Thinker (Standard 5b)	Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Developing and Using Models: ● Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. (NGSS.HS-LS1-2) Planning and Carrying Out Investigations: ● Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly. (NGSS.HS- LS1-3) Scientific Investigations Use a Variety of Methods: ● Scientific inquiry is characterized by a common set of values that include: logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results, and honest and ethical reporting of findings. (NGSS.HS-LS-1-3)	LS1.A: Structure and Function: ● Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level. (NGSS.HS-LS1-2) ● Feedback mechanisms maintain a living system's internal conditions within certain limits and mediate behaviors, allowing it to remain alive and functional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) or discourage (negative feedback) what is going on inside the living system. (NGGS.HS-LS1- 3)	Systems and System Models: ● Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions – including energy, matter, and information flows – within and between systems at different scales. (NGSS.HS-LS1-2) Stability and Change: ● Feedback (negative or positive) can stabilize or destabilize a system. (NGSS.HS-LS1-3)

Sub Unit 5a: Reproduction

Unit Essential Questions:

- How is maintaining homeostasis essential for maintaining life?
- How do negative and positive feedback systems work to maintain homeostasis within the human body?
- What are the different ways by which single and multicellular organisms pass on their DNA?
- How do human reproductive systems interact with other systems in the body to maintain homeostasis?
- How do organ systems depend on each other to complete essential functions within the body?
    - What is the endocrine system, and why is it essential for homeostasis?

Essential Vocabulary:

Homeostasis	Estrogen	Oviduct
Target Cell	Testosterone	Ovulation
Negative Feedback	Growth Hormone	Ovule
Positive Feedback	Progesterone	Petal
Hormone	Hyper	Pistil
Receptor	Hypo	Pollen
Gland	Anther	Pollination
Binary Fission	Filament	Regeneration
Budding	Flower	Sepal
Vegetative Propagation	Follicle	Stamen
Endocrine Cascade	Menstrual cycle	Stigma
LH	Menstruation	Style
TSH	Ovary	

Scope and Sequence:

Homeostasis and positive/negative feedback mechanisms

Asexual/ Sexual Reproduction Comparison

- Binary Fission
- Budding
- Regeneration
- Vegetative Propagation

Reproductive System Structure & Function:

- Adaptations for Internal & External Fertilization & Development
- System Structure
- Menstrual Cycle- hormones involved; Stabilizing or Destabilizing a system

Resources:

Core

- “Introduction to Body Systems.”
- “Homeostasis of the Eye Lab.”
- “Homeostasis Lab.” Trumbull High School. [response to exercise]
- Lab: Flower Anatomy
- Lab: Stages of the Menstrual Cycle

Supplemental

- Amoeba Sisters. “Homeostasis and Negative/Positive Feedback.” https://www.youtube.com/watch?v=Iz0Q9nTZCw4.
- Lab: Regeneration (Planaria)

Assured Assessments:

Formative Assessments:

- Analyzing and interpreting data regarding menstrual cycle
- Develop a model (constructing a graph) illustrating the impact of hormone levels on strength of contractions.

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, and interpreting and analyzing data, related to human body systems.

Time Allotment:

- Approximately 2 weeks

UNIT 5

Sub Unit 5b: Digestion

Unit Essential Questions:

- How have different organisms evolved to take in nutrients, as we as digest and utilize those nutrients?
- How do specific nutrients impact the body's ability to maintain homeostasis and essential life functions?

Essential Vocabulary

Bile	Enzyme	Base
Chemical Digestion	Mechanical Digestion	Gizzard
Chyme	Substrate	Internal Digestion
Colon	Active Site	External Digestion
Stomach	pH	Nutrient
Crop	Acid	

Scope and Sequence

- Evolution of different adaptations to obtain food sources
- Macronutrients to functions within the body
    - Proteins & enzymes
    - Digestion/Absorption of nutrients within different structures

Activities:

LAB: Ingestion and Digestion in Protists

LAB: What can teeth tell you about Diet?

LAB: Potato or Liver Catalase

Comparative anatomy models of human, frog, earthworm, squid

LAB: Frog Dissection

Assured Assessments:

Formative:

- Analyzing and interpreting a model of the digestive system

Summative:

- Students will participate in an assessment consisting of multiple-choice questions, and interpreting and analyzing data, related to human body systems.

Resources:

Core

- Miller, Kenneth R., and Joseph S. Levine. *Biology*. New York: Pearson, 2014. Print.
- "Earthworm Dissection."
- "Frog Dissection."

Supplemental

- LAB: Protein Digestion
- Virtual Lab https://gizmos.explorelearning.com/find-gizmos/lesson-info?resourceId=1050

Time Allotment:

- Approximately 3 weeks

UNIT 6

Body Systems: Transport & Gas Exchange

Unit Essential Questions:

- How does the movement of materials and gas exchange differ between organisms?
- How do the structures of the human circulatory system work to maintain homeostasis?
- How does the circulatory system of animals work with other body systems?
- How and why is gas exchange important in maintaining homeostasis?

Scope and Sequence:

- Evolution of different adaptations to exchange gasses and transport materials
- Mechanisms of transport and gas exchange maintain homeostasis within the body

Essential Vocabulary

Aorta	Platelet	Bronchus
Artery	Red Blood Cell	Diaphragm
Atrium	Valve	Gill
Capillary	Vein	Lung
Guard Cell	Ventricle	Respiration
Stomata	Vessel	Trachea
Phloem	White Blood Cell	
Xylem	Alveolus	

Activities:

LAB: Effect of Exercise on CO_2 Release

LAB: Celery (Xylem and Phloem)

Graphing Activity: Elodea- How temperature, amount of light affect the transpiration rate?
https://iwant2study.org/ospsg/index.php/interactive-resources/biology/1061-transpiration

Assured Assessments:

Formative:

- Analyzing and interpreting a model of transport and gas exchange in different organisms.

Summative:

- Students will participate in an assessment consisting of multiple-choice questions, and interpreting and analyzing data, related to human body systems.

Resources:

Core

- Miller, Kenneth R., and Joseph S. Levine. *Biology*. New York: Pearson, 2014. Print.

Supplemental:

- LAB: Comparing causes of decreased function in the respiratory system

Time Allotment:

- Approximately 2 weeks

UNIT 7

Body Systems: Nervous System

Unit Essential Questions:

- How do the structures of the nervous system work to carry out the essential functions?
- How does the structure of the neuron aid in sending signals to the brain?

Essential Vocabulary:

Central Nervous System	Cerebrum	Synapse
Brain	Frontal Lobe	Neurotransmitters
Spinal Cord	Temporal Lobe	Mechanoreceptors
Peripheral Nervous System	Parietal Lobe	Photoreceptors
Somatic Nervous System	Occipital Lobe	Chemoreceptors
Autonomic Nervous System	Neuron	Reflex Arc
Motor Division	Cell Body	Interneuron
Sensory Division	Axon	Sensory & Motor Neuron
Brainstem	Dendrite	Nodes of Ranvier
Cerebellum	Myelin Sheath	

Scope and Sequence:

- Nervous system structure and functions
  - Divisions of the nervous system
  - Neurons
- Reflex arc
  - Responding to stimuli in an internal or external environment
  - Neurotransmitters and chemical signaling in plants

Assured Assessments:

Formative:

- Table comparing neurotransmitters or chemical signaling in plants and animals
- Modeling neurons, parts of the brain, and the flow of a reflex chart

Summative:

- Students will participate in an assessment consisting of multiple-choice questions, and interpreting and analyzing data, related to human body systems.

Resources:

Core

- Miller, Kenneth R., and Joseph S. Levine. *Biology*. New York: Pearson, 2014. Print.
- "Body Systems Organizer and Homeostasis Modeling."
- "Brain Hat."
- "Divisions of the Central Nervous System Graphic Organizer."
- "Factors that affect Reaction Rates Lab."
- Lab: Comparing the responses of plants and humans to a stimuli in the external environment

Supplemental

- "Neuron and Synapse Active Reading."
- "Parts of the Brain Active Reading."
- "Reflex Lab."

Time Allotment:

- Approximately 2 weeks

UNIT 8
Ecology and Human Impact

Unit Goals
At the completion of this unit, students will:

NGSS.HS-LS2-3	Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.
NGSS.HS-LS2-4	Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.
NGSS.HS-LS2-6	Evaluate claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.
NGSS.HS-LS2-8	Evaluate evidence for the role of group behavior on individual and species' chances to survive and reproduce.
NGSS.HS-LS2-1	Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.
NGSS.HS-LS2-2	Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.
NGSS.HS-LS2-7	Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
NGSS.HS-LS4-6	Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.
NGSS.HS-ESS3-4	Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
NGSS.HS-ESS3-3	Create a computational simulation to illustrate the relationships among the management of natural resources, the sustainability of human populations, and biodiversity.
NGSS.HS-LS2-5	Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere

CCS.ELA-Literacy.RST.9-10.1	Cite specific textual evidence to support analysis of science and technical texts, attending to the precise detail of explanations or descriptions.
ISTE Computational Thinker (Standard 5b)	Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Developing and Using Models: ● Develop a model based on evidence to illustrate the relationships between systems or components of a system. (NGSS.HS-LS2- 5) Using Mathematics and Computational Thinking: ● Use mathematical and/or computational representations of phenomena or design solutions to support explanations. (NGSS.HS-LS2-1) ● Use mathematical representations of phenomena or design solutions to support and revise explanations. (NGSS.HS-LS2-2) ● Use mathematical representations of phenomena or design solutions to support claims. (NGSS.HS-LS2-4) ● Create or revise a simulation of a phenomenon, designed device, process, or system. (NGSS.HS-LS4-6) ● Create a computational model or simulation of a phenomenon, designed device, process, or system. (NGSS.HS-ESS3-3) Constructing Explanations and Designing Solutions: ● Construct and revise an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own	LS2.B: Cycles of Matter and Energy Transfer in Ecosystems: ● Photosynthesis and cellular respiration (including anaerobic processes) provide most of the energy for life processes. (NGGS.HS-LS2-3) ● Plants or algae form the lowest level of the food web. At each link upward in a food web, only a small fraction of the matter consumed at the lower level is transferred upward, to produce growth and release energy in cellular respiration at the higher level. Given this inefficiency, there are generally fewer organisms at higher levels of a food web. Some matter reacts to release energy for life functions, some matter is stored in newly made structures, and much is discarded. The chemical elements that make up the molecules of organisms pass through food webs and into and out of the atmosphere and soil, and they are combined and recombined in different ways. At each link in an ecosystem, matter and energy are conserved. (NGSS.HS-LS2-4) ● Photosynthesis and cellular respiration are important components of the carbon cycle, in which carbon is exchanged among the biosphere, atmosphere, oceans, and geosphere through chemical, physical, geological, and biological processes. (NGSS.HS- LS2-5) PS3.D: Energy in Chemical Processes: ● The main way that solar energy is captured and stored on Earth is through the complex chemical process known as photosynthesis. (secondary to NGSS.HS- LS2-5)	Systems and System Models: ● Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions – including energy, matter, and information flows – within and between systems at different scales. (NGSS.HS-LS2-5) Energy and Matter: ● Energy cannot be created or destroyed – it only moves between one place and another place, between objects and/or fields, or between systems. (NGSS.HS-LS2-4) ● Energy drives the cycling of matter within and between systems. (NGSS.HS-LS2-3) Cause and Effect: ● Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects. (NGSS.HS-LS2-8, NGSS.HS-LS4-6) Scale, Proportion, and Quantity: ● The significance of a phenomenon is dependent on the scale, proportion, and quantity at which it occurs. (NGSS.HS-LS2-1) ● Using the concept of orders of magnitude allows one to understand how a model at one scale relates to a

investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (NGSS.HS-LS-2-3) ● Design, evaluate, and refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and trade off considerations. (NGSS.HS-LS2-7) ● Design or refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and tradeoff considerations. (NGSS.HS-ESS3-4) Engaging in Argument from Evidence: ● Evaluate the claims, evidence, and reasoning behind currently accepted explanations or solutions to determine the merits of arguments. (NGSS.HS-LS2-6) ● Evaluate the evidence behind currently accepted explanations to determine the merits of arguments. (NGSS.HS-LS2-8) Connections to Nature of Science: Scientific Knowledge Is Open to Revision in Light of New Evidence: ● Most scientific knowledge is quite durable, but is, in principle, subject to change based on new evidence and/or	LS2.A: Interdependent Relationships in Organisms: ● Ecosystems have carrying capacities, which are limits to the numbers of organisms and populations they can support. These limits result from such factors as the availability of living and nonliving resources and from such challenges as predation, competition, and disease. Organisms would have the capacity to produce populations of great size were it not for the fact that environments and resources are finite. This fundamental tension affects the abundance (number of individuals) of species in any given ecosystem. (NGSS.HS- LS2-1, NGSS.HS-LS2-2) LS2.C: Ecosystem Dynamics, Functioning, and Resilience: ● A complex set of interactions within an ecosystem can keep its numbers and types of organisms relatively constant over long periods of time under stable conditions. If a modest biological or physical disturbance to an ecosystem occurs, it may return to its more or less original status (i.e., the ecosystem is resilient), as opposed to becoming a very different ecosystem. Extreme fluctuations in conditions or the size of any population, however, can challenge the functioning of ecosystems in terms of resources and habitat availability. (NGSS.HS-LS2-2, NGSS.HS-LS2-6) ● Moreover, anthropogenic changes (induced by human activity) in the environment – including habitat destruction, pollution, introduction of invasive species, overexploitation, and climate change – can disrupt an ecosystem and threaten the survival of some species. (NGSS.HS-LS2-7)	model at another scale. (NGSS.HS-LS2-2) Stability and Change: ● Much of science deals with constructing explanations of how things change and how they remain stable. (NGSS.HS- LS2-6, NGSS.HS-LS2-7) ● Change and rates of change can be quantified and modeled over very short or very long periods of time. Some system changes are irreversible. (NGSS.HS-ESS3-3) ● Feedback (negative or positive) can stabilize or destabilize a system. (NGSS.HS-ESS3-4) Connections to Engineering, Technology, and Applications of Science: Influence of Engineering, Technology, and Science on Society and the Natural World: ● Modern civilization depends on major technological systems. (NGSS.HS-ESS3-3) ● Engineers continuously modify these technological systems by applying scientific knowledge and engineering design practices to increase benefits while decreasing costs and risks. (NGSS.HS-ESS3-4) ● New technologies can have deep impacts on society and the environment, including some that were not anticipated. (NGSS.HS-ESS3-3)

reinterpretation of existing evidence. (NGSS.HS-LS2- 2, NGSS.HS-LS2-3) ● Scientific argumentation is a mode of logical discourse used to clarify the strength of relationships between ideas and evidence that may result in revision of an explanation. (NGSS.HS-LS2-6, NGSS.HS-LS2-8)	LS2.D: Social Interactions and Group Behavior: ● Group behavior has evolved because membership can increase the chances of survival for individuals and their genetic relatives. (NGSS.HS-LS2-8) LS4.C: Adaptation: ● Changes in the physical environment, whether naturally occurring or human induced, have thus contributed to the expansion of some species, the emergence of new distinct species as populations diverge under different conditions, and the decline – and sometimes the extinction – of some species. (NGSS.HS-LS4-5) ● Species become extinct because they can no longer survive and reproduce in their altered environment. If members cannot adjust to change that is too fast or drastic, the opportunity for the species' evolution is lost. (NGSS.HS-LS4-6) LS4.D: Biodiversity and Humans: ● Biodiversity is increased by the formation of new species (speciation) and decreased by the loss of species (extinction). (secondary to NGSS.HS- LS2-7) ● Humans depend on the living world for the resources and other benefits provided by biodiversity. But human activity is also having adverse impacts on biodiversity through overpopulation, overexploitation, habitat destruction, pollution, introduction of invasive species, and climate change. Thus sustaining biodiversity so that ecosystem functioning and productivity are maintained is essential to supporting and enhancing life on Earth. Sustaining biodiversity also aids humanity by	Science Is a Human Endeavor: ● Science is a result of human endeavors, imagination, and creativity. (NGSS.HS- ESS3-3)

	preserving landscapes of recreational or inspirational value. (secondary to NGSS.HS-LS2-7) ETS1.B: Developing Possible Solutions: ● When evaluating solutions, it is important to take into account a range of constraints, including cost, safety, reliability, and aesthetics, and to consider social, cultural, and environmental impacts. (secondary to NGSS.HS-LS2-7, secondary to NGSS.HS- LS4-6, secondary to NGSS.HS-ESS3-4) ● Both physical models and computers can be used in various ways to aid in the engineering design process. Computers are useful for a variety of purposes, such as running simulations to test different ways of solving a problem or to see which one is most efficient or economical; and in making a persuasive presentation to a client about how a given design will meet his or her needs. (secondary to NGSS.HS- LS4-6) ESS3.C: Human Impacts on Earth Systems: ● The sustainability of human societies and the biodiversity that supports them requires responsible management of natural resources. (NGSS.HS- ESS3-3) ● Scientists and engineers can make major contributions by developing technologies that produce less pollution and waste and that preclude ecosystem degradation. (NGSS.HS-ESS3-4)	

Unit Essential Questions

- Why are biogeochemical cycles essential in ecosystems?
- What is the relationship between energy and matter in an ecosystem?
- What are the components of an ecosystem, and how are they interdependent?
- How do biotic and abiotic factors interact within an ecosystem?
- How do limiting factors affect the carrying capacity of ecosystems?
- What is the role of group behavior on individuals' and species' chances to survive and reproduce?
- In what ways do human activities affect ecosystems?

Essential Vocabulary:

Carbon Cycle	Food web	Carnivore
Nitrogen Cycle	Organism	10 % rule
Nitrogen Fixation	Producer	Gross Primary
Nitrification	Consumer	Productivity (GPP)
Denitrification	Herbivore	Net Primary Productivity
Food chain	Omnivore	(NPP)
Population	Symbiosis	Invasive Species
Birth Rate	Predation	Biodiversity
Death Rate	Competition	Primary Succession
Immigration	Parasitism	Secondary Succession
Emigration	Mutualism	Disturbance
Carrying Capacity	Commensalism	Bioaccumulation
Community	Keystone Species	Biomagnification

Scope and Sequence

- Biogeochemical cycles (carbon and nitrogen)
- Food webs, food chains, and energy pyramids (10% rule)
- GPP (Gross Primary Productivity) and NPP (Net Primary Productivity)
- Population dynamics: Four factors that influence population growth, limiting factors, carrying capacity, survivorship curves
- Relationships in a community: Mutualism, commensalism, parasitism, predation, and competition
- Costs and benefits of group behavior: Flocking, herding, swarming, schooling
- Ecological succession: Primary vs. secondary
- Biodiversity: Invasive species, keystone species
- Human impact on ecosystems and biodiversity: Climate change, bioaccumulation/ biomagnification, eutrophication, habitat destruction, invasive species

Assured Assessments

Formative Assessments:

Constructing and Interpreting a food web

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, and interpreting and analyzing data, related to ecology.

Resources

Core

- Miller, Kenneth R., and Joseph S. Levine. *Biology*. New York: Pearson, 2014. Print.
- "Analyzing Group Behavior." Trumbull High School..
- "Carbon/Nitrogen Cycle Diagrams Guided Questioning." Trumbull High School.
- "Energy Flow in an Ecosystem." Trumbull High School.
- "Importance of Biodiversity and Invasive Species." Trumbull High School.
- "Introduction to Ecological Succession." Trumbull High School.
- "Marine Energy Pyramid." Trumbull High School.
- Human Impact Research Project- research and defend methods of mitigation

Supplemental

- Avril Gulf Tuna Population Simulation." https://sepuplhs.org/high/sgi/teachers/fishery_sim.html. Accessed January 21, 2020. Web.
- "Turtle Case Study."
- "Lesson of the Kaibab."
- "Symbiotic Scenarios."
- Avril Gulf Tuna Population Simulation."
- "Symbiotic Relationships Woods Walk."

Time Allotment

- Approximately 4 weeks

COURSE CREDIT

1.00 credits in science
Three classes every four days, for a full year

ASSURED STUDENT PERFORMANCE RUBRICS

- Trumbull High School School-Wide Writing Rubric (attached)
- Trumbull High School School-Wide Problem-Solving Rubric (attached)
- Trumbull High School School-Wide Independent Learning and Thinking Rubric (attached)

Trumbull High School School-Wide Writing Rubric

Category/ Weight	Exemplary 4 Student work:	Goal 3 Student work:	Working Toward Goal 2 Student work:	Needs Support 1-0 Student work:
Purpose X____	● Establishes and maintains a clear purpose ● Demonstrates an insightful understanding of audience and task	● Establishes and maintains a purpose ● Demonstrates an accurate awareness of audience and task	● Establishes a purpose ● Demonstrates an awareness of audience and task	● Does not establish a clear purpose ● Demonstrates limited/no awareness of audience and task
Organization X__	● Reflects sophisticated organization throughout ● Demonstrates logical progression of ideas ● Maintains a clear focus ● Utilizes effective transitions	● Reflects organization throughout ● Demonstrates logical progression of ideas ● Maintains a focus ● Utilizes transitions	● Reflects some organization throughout ● Demonstrates logical progression of ideas at times ● Maintains a vague focus ● May utilize some ineffective transitions	● Reflects little/no organization ● Lacks logical progression of ideas ● Maintains little/no focus ● Utilizes ineffective or no transitions
Content X____	● Is accurate, explicit, and vivid ● Exhibits ideas that are highly developed and enhanced by specific details and examples	● Is accurate and relevant ● Exhibits ideas that are developed and supported by details and examples	● May contain some inaccuracies ● Exhibits ideas that are partially supported by details and examples	● Is inaccurate and unclear ● Exhibits limited/no ideas supported by specific details and examples
Use of Language X _____	● Demonstrates excellent use of language ● Demonstrates a highly effective use of standard writing that enhances communication ● Contains few or no errors. Errors do not detract from meaning	● Demonstrates competent use of language ● Demonstrates effective use of standard writing conventions ● Contains few errors Most errors do not detract from meaning	● Demonstrates use of language ● Demonstrates use of standard writing conventions ● Contains errors that detract from meaning	● Demonstrates limited competency in use of language ● Demonstrates limited use of standard writing conventions ● Contains errors that make it difficult to determine meaning

Trumbull High School School-Wide Problem-Solving Rubric

Category/ Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Understanding X___	● Student demonstrates clear understanding of the problem and the complexities of the task	● Student demonstrates sufficient understanding of the problem and most of the complexities of the task	● Student demonstrates some understanding of the problem but requires assistance to complete the task	● Student demonstrates limited or no understanding of the fundamental problem after assistance with the task
Research X___	● Student gathers compelling information from multiple sources including digital, print, and interpersonal	● Student gathers sufficient information from multiple sources including digital, print, and interpersonal	● Student gathers some information from few sources including digital, print, and interpersonal	● Student gathers limited or no information
Reasoning and Strategies X_____	● Student demonstrates strong critical thinking skills to develop a comprehensive plan integrating multiple strategies	● Student demonstrates sufficient critical thinking skills to develop a cohesive plan integrating strategies	● Student demonstrates some critical thinking skills to develop a plan integrating some strategies	● Student demonstrates limited or no critical thinking skills and no plan
Final Product and/or Presentation X__	● Solution shows deep understanding of the problem and its components ● Solution shows extensive use of 21st-century technology skills	● Solution shows sufficient understanding of the problem and its components ● Solution shows sufficient use of 21st-century technology skills	● Solution shows some understanding of the problem and its components ● Solution shows some use of 21st-century technology skills	● Solution shows limited or no understanding of the problem and its components ● Solution shows limited or no use of 21st-century technology skills

Trumbull High School School-Wide Independent Learning and Thinking Rubric

Category/ Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Proposal X___	● Student demonstrates a strong sense of initiative by generating compelling questions, creating uniquely original projects/work	● Student demonstrates initiative by generating appropriate questions, creating original projects/work	● Student demonstrates some initiative by generating questions, creating appropriate projects/work	● Student demonstrates limited or no initiative by generating few questions and creating projects/work
Independent Research & Development X _____	● Student is analytical, insightful, and works independently to reach a solution	● Student is analytical, and works productively to reach a solution	● Student reaches a solution with direction	● Student is unable to reach a solution without consistent assistance
Presentation of Final Product X_	● Presentation shows compelling evidence of an independent learner and thinker ● Solution shows deep understanding of the problem and its components ● Solution shows extensive and appropriate application of 21st-century skills	● Presentation shows clear evidence of an independent learner and thinker ● Solution shows adequate understanding of the problem and its components ● Solution shows adequate application of 21st-century skills	● Presentation shows some evidence of an independent learner and thinker ● Solution shows some understanding of the problem and its components ● Solution shows some application of 21st-century skills	● Presentation shows limited or no evidence of an independent learner and thinker ● Solution shows limited or no understanding of the problem and its components ● Solution shows limited or no application of 21st-century skills

TRUMBULL PUBLIC SCHOOLS

Trumbull, Connecticut

GRADE 11 CHEMISTRY
Science Department

2023

(Last revision date: 2020)

Curriculum Revision Writing Team

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Grade 11 Chemistry
Table of Contents

The Trumbull Board of Education promotes non-discrimination in all of its programs, including educational opportunities and services provided to students, student assignment to schools and classes, and educational offerings and materials.

CORE VALUES AND BELIEFS

The Trumbull School Community engages in an environment conducive to learning which believes that all students will **read** and **write effectively**, therefore communicating in an articulate and coherent manner. All students will participate in activities **that present problem-solving through critical thinking**. Students will use technology as a tool applying it to decision making. We believe that by fostering self-confidence, self-directed and student-centered activities, we will promote **independent thinkers and learners**. We believe **ethical conduct** to be paramount in sustaining the welcoming school climate that we presently enjoy.

Approved 8/26/2011

INTRODUCTION & PHILOSOPHY

Grade 11 Chemistry is consistent in the continued development of scientifically literate students, with a concentration on matter, energy, and changes. Authentic scientific and engineering experiences build on one another and increase in complexity throughout students' K-12 education. In 2015, the Connecticut State Board of Education adopted the Next-Generation Science Standards (NGSS), which embody the National Research Council's *Framework for K-12 Science Education* (2012). Both the *Framework* and the NGSS stress the importance of teaching classroom scientific inquiry as practiced by scientists and engineers. The *Framework* provides a vision for American science education in the 21st century, while the NGSS provides grade-level student performance expectations, disciplinary core ideas, and crosscutting concepts.

The *Framework* and NGSS provide clarity to classroom scientific inquiry by stressing the importance of the eight practices of science and engineering. The practices were designed to help students understand how scientific knowledge develops, and to stimulate students' interest in and continued study of science. Three-dimensional learning facilitates student engagement with Science and Engineering Practices and Crosscutting Concepts to deepen their understanding of Disciplinary Core Ideas in order to explain phenomena and solve problems. Three-dimensional learning promotes development of student skills in the following areas:

- Knowing, using, and interpreting scientific explanations of the natural world (Disciplinary Core Ideas, and Crosscutting Concepts)
- Generating and evaluating scientific evidence and explanations (Science and Engineering Practices)
- Participating productively in scientific practices and discourse (Science and Engineering Practices)
- Understanding the nature and development of scientific knowledge (Science and Engineering Practices, and Crosscutting Concepts)

The shift of science education reflects the interconnected nature of science as it is practiced in the real world and builds coherently across grades K-12. The NGSS focus on deeper

understanding of content as well as application of content with an alignment to the Connecticut Core Standards. A deeper understanding and application of science and engineering practices prepare students for postsecondary success and citizenship in a world fueled by innovations in science and technology.

In Grade 11 Chemistry, students will further explore many of the systems and processes of the physical and chemical world by investigating the underlying submicroscopic interactions of matter through the topics of general chemistry. By focusing on the changes in matter and energy, scientifically literate students can use this deeper understanding to make predictions, analyze scientific data, and contribute to the greater scientific community.

Grade 11 Chemistry is offered at three separate course levels: Honors, Advanced College Preparatory (ACP), and College Preparatory (CP). All levels will explore each unit of study. The courses are differentiated by pacing of curriculum, rigor of exploration, depth of content knowledge, and the application of quantitative reasoning. The honors course will explore topics with the greatest depth, most rigorous exploration, deepest study of content, and furthest application of quantitative reasoning. More support will be offered at the ACP course level, with the most support offered at the CP course level.

COURSE GOALS

The course goals derive from the 2013 Next-Generation Science Standards, the 2010 Connecticut Core Standards, and the ISTE (International Society for Technology in Education) Technology Standards. Goals are listed specific to each unit in this curriculum guide, and developed through unit lessons using the 5-E learning model (engage, explore, explain, elaborate, evaluate) in order to encourage student engagement and foster metacognitive learning strategies through a reflective process. An important role of science education is not to teach "all the facts," but rather to prepare students with sufficient core knowledge so that they can later acquire additional information on their own.

COURSE ENDURING UNDERSTANDINGS

Students will understand that . . .

- Each atom has a charged substructure consisting of a nucleus, which is made of protons and neutrons, surrounded by electrons. The periodic table orders elements horizontally by the number of protons in the atom's nucleus and places those with similar chemical properties in columns. The repeating patterns of this table reflect patterns of outer electron states. The structure and interactions of matter at the bulk scale are determined by electrical forces within and between atoms. Stable forms of matter are those in which the electric and magnetic field energy is minimized. A stable molecule has less energy,

by an amount known as the binding energy, than the same set of atoms separated; one must provide at least this energy in order to take the molecule apart.

- Chemical processes, their rates, and whether or not energy is stored or released can be understood in terms of the collisions of molecules and the rearrangements of atoms into new molecules, with consequent changes in total binding energy (i.e., the sum of all bond energies in the set of molecules) that are matched by changes in kinetic energy. In many situations, a dynamic and condition-dependent balance between a reaction and the reverse reaction determines the numbers of all types of molecules present.

- The fact that atoms are conserved, together with knowledge of the chemical properties of the elements involved, can be used to describe and predict chemical reactions. Chemical processes and properties of materials underlie many important biological and geophysical phenomena.

- Nuclear processes, including fusion, fission, and radioactive decays of unstable nuclei, involve changes in nuclear binding energies. The total number of neutrons plus protons does not change in any nuclear process. Strong and weak nuclear interactions determine nuclear stability and processes. Spontaneous radioactive decays follow a characteristic exponential decay law. Nuclear lifetimes allow radiometric dating to be used to determine the ages of rocks and other materials from the isotope ratios present.

- Attraction and repulsion between electric charges at the atomic scale explain the structure, properties, and transformations of matter, as well as the contact forces between material objects. The strong and weak nuclear interactions are important inside atomic nuclei – for example, they determine the patterns of which nuclear isotopes are stable and what kind of decays occur for unstable ones.

- Energy is a quantitative property of a system that depends on the motion and interactions of matter and radiation within that system. That there is a single quantity called energy is due to the fact that a system's total energy is conserved, even as, within the system, energy is continually transferred from one object to another and between its various possible forms. At the macroscopic scale, energy manifests itself in multiple ways, such as in motion, sound, light, and thermal energy. "Chemical energy" generally is used to mean the energy that can be released or stored in chemical processes.

- The abundance of liquid water on Earth's surface and its unique combination of physical and chemical properties are central to the planet's dynamics. These properties include water's exceptional capacity to absorb, store, and release large amounts of energy; transmit sunlight; expand upon freezing; dissolve and transport materials; and lower the viscosities and melting points of rocks.

- Global climate models incorporate scientists' best knowledge of physical and chemical processes and of the interactions of relevant systems. Current models predict that, although future regional climate changes will be complex and varied, average global temperatures will continue to rise. The outcomes predicted by global climate models strongly depend on the amounts of human-generated greenhouse gases added to the atmosphere each year and on the ways in which these gases are absorbed by the ocean and the biosphere. Hence the outcomes depend on human behaviors as well as on

natural factors that involve complex feedbacks among Earth's systems.

- Global climate models are often used to understand the process of climate change because these changes are complex and can occur slowly over Earth's history. Though the magnitudes of humans' impacts are greater than they have ever been, so too are humans' abilities to model, predict, and manage current and future impacts. Through computer simulations and other studies, important discoveries are still being made about how the ocean, the atmosphere, and the biosphere interact and are modified in response to human activities, as well as to changes in human activities. Thus science and engineering will be essential both to understanding the possible impacts of global climate change and to informing decisions about how to slow its rate and consequences – for humanity as well as for the rest of the planet.

COURSE ESSENTIAL QUESTIONS

- What is matter and how is it organized?
- How does the arrangement of subatomic particles affect the properties of matter?
- How does energy transfer in matter interactions?
- How is the Earth influenced by natural and man-made factors?
- How can submicroscale interactions be used to explain macroscopic observations?
- How do scientists quantitatively relate particles of matter to other properties of matter?
- How do intermolecular and intramolecular forces determine the properties of matter?
- What determines the nature of a chemical reaction?

COURSE KNOWLEDGE & SKILLS

Students will understand . . .

- Patterns. Observed patterns of forms and events guide organization and classification, and they prompt questions about relationships and the factors that influence them.
- Cause and effect: Mechanism and explanation. Events have causes, sometimes simple, sometimes multifaceted. A major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.
- Scale, proportion, and quantity. In considering phenomena, it is critical to recognize what is relevant at different measures of size, time, and energy and to recognize how changes in scale, proportion, or quantity affect a system's structure or performance.
- Systems and system models. Defining the system under study – specifying its boundaries and making explicit a model of that system – provides tools for understanding and

testing ideas that are applicable throughout science and engineering.

- Energy and matter: Flows, cycles, and conservation. Tracking fluxes of energy and matter into, out of, and within systems helps one understand the systems' possibilities and limitations.
- Structure and function. The way in which an object or living thing is shaped and its substructure determine many of its properties and functions.
- Stability and change. For natural and built systems alike, conditions of stability and determinants of rates of change or evolution of a system are critical elements of study.

Students will be able to . . .

- ask questions (for science) and define problems (for engineering).
- develop and use models.
- plan and carry out investigations.
- analyze and interpret data.
- use mathematics and computational thinking.
- construct explanations (for science) and design solutions (for engineering).
- engage in arguments from evidence.
- obtain, evaluate, and communicate information

COURSE SYLLABUS

Course Name

Grade 11 Chemistry

Level

College-Preparatory, Advanced College-Preparatory, & Honors

Prerequisites

Successful completion of Grade 10 Biology

Materials Required

None

General Description of the Course

This course is aligned to the Next Generation Science Standards (NGSS) Disciplinary Core Ideas for Grade 11. Through the implementation of the Three Dimensions of NGSS (Disciplinary Core Ideas, Science and Engineering Practices, and Cross Cutting Concepts), students will further explore many of the systems and processes of the physical and chemical world by investigating the underlying submicroscopic interactions of matter through the topics of general chemistry. By focusing on the changes in matter and energy, scientifically literate students can use this deeper understanding to make predictions, analyze scientific data, and contribute to the greater scientific community. At the Honors level, algebraic reasoning and independent discovery are expected; the CP level mirrors the ACP level with additional guided inquiry.

Assured Assessments

Formative Assessments:
Formative assessments can include, but are not limited to:

- Individual and group lists of safety lessons learned
- Construction of models
- Lab activities
- Creation of a periodic table
- Covalent bonding model kit activity
- Data collection and analysis

Summative Assessments:

- End-of-unit assessment with multiple-choice questions
- End-of-unit assessment with multiple-choice questions, free-response questions, and interpreting and analyzing data
- Midyear examination
- End-of-year examination

Core Texts and Resources

- Davis, Raymond E., Regina Frey, Mickey Sarquis, and Jerry L. Sarquis. *Modern Chemistry*. Austin: Holt, 2006. Print. [Honors]
- Phillips, John S., Victor S. Strozak, and Cheryl Wistrom. *Chemistry: Concepts and Applications*. Columbus: Glencoe, 2005. Print. [CP]
- Wilbraham, Anthony C., Dennis D. Staley, Michael S. Matta, and Edward L. Waterman.
- *Prentice Hall Chemistry*. Upper Saddle River, NH: Prentice Hall, 2005. Print. [ACP]
- University of Colorado Boulder. *PhET Interactive Simulations*. https://phet.colorado.edu/en/simulations/category/new. Accessed January 21, 2020. Web.
- *Uranium: Twisting the Dragon's Tail*. Dir. Wain Fimeri, PBS, 2015. Film.

UNIT 1

Introduction to Matter & the Chemistry Laboratory

Unit Goals
At the completion of this unit, students will be able to:

Be able to safely perform laboratory experiments in accordance with OSHA Lab Safety and National Fire Code Standards.

NGSS.HS-PS1-2	Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.
NGSS.HS-PS1-7	Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
NGSS.HS-PS3-2	Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motion of particles (objects) and energy associated with the relative position of particles (objects).
CCS.ELA-Literacy.RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
CCS.ELA-Literacy.RST.11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
ISTE Empowered Learner (Standard 1c)	Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Empowered Learner (Standard 1d)	Understand the fundamental concepts of technology operations, demonstrate the ability to choose, use, and troubleshoot current technologies, and be able to transfer their knowledge to explore emerging technologies.
ISTE Creative Communicator (Standard 6a)	Choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

Unit Essential Questions

- How do we safely perform experiments in the science laboratory?
- How are properties of matter used to classify matter?
- What distinguishes a physical property from a chemical property?
- What distinguishes a physical change from a chemical change?
- How can particles of matter be represented?
- How can properties be used to identify a sample of matter?

Scope and Sequence

1. Common lab equipment
2. Lab techniques
3. Lab safety rules
4. Locations and use of safety equipment
5. Safety Data Sheets
6. Classifications of matter
7. Physical versus chemical properties and changes
8. States of matter
9. Mixtures versus pure substances
10. Particle pictures

Assured Assessments

Formative Assessment:

- Individual and group lists of safety lessons learned from Calais Weber (or similar) story
- Bunsen burner explanation and ignition
- Activity using Safety Data Sheets to determine an unknown substance
- Construction of models to demonstrate understanding on the microscopic level
- Lab activity differentiating chemical from physical properties/changes
- Lab activity based on methods of separating a mixture
- Qualitative analysis lab activity

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions related to safety in the chemistry lab. Students must score a 100% on the assessment before performing a lab experiment in the classroom.
- Students will participate in an assessment consisting of multiple-choice questions, free-response questions, and interpreting and analyzing data, related to matter.

Vocabulary:

Atom	Filtrate	Precipitate
Beaker	Filtration	Pure Substances
Boiling Point	Flask	Qualitative Results
Bunsen burner	Heterogeneous Mixture	Quantitative Results
Chemical Formula	Homogeneous Mixture	Recrystallization
Chemical Properties/Changes	Hot plate	Ring Stand
Chemical Reaction	Mass	SDS
Chemical Symbol	Matter	Solubility
Chemistry	Melting Point	Test Tube
Compound	Mixtures	Volume
Density	Molecules	Well plate
Distillation	Physical Properties/Changes	Wire Gauze
Element	Pipette (pipet)	

Resources

Core

- *Flinn Scientific Safety Contract*. Print.
- *Flinn Scientific Safety Data Sheets*. https://www.flinnsci.com/sds/. Accessed January 21, 2020. Web.
- Davis, Raymond E., Regina Frey, Mickey Sarquis, and Jerry L. Sarquis. *Modern Chemistry*. Austin: Holt, 2006. Print. [Honors]
- Phillips, John S., Victor S. Strozak, and Cheryl Wistrom. *Chemistry: Concepts and Applications*. Columbus: Glencoe, 2005. Print. [CP]
- Wilbraham, Anthony C., Dennis D. Staley, Michael S. Matta, and Edward L. Waterman. *Prentice Hall Chemistry*. Upper Saddle River, NH: Prentice Hall, 2005. Print. [ACP]

Supplemental

- *After the Rainbow*. https://www.bing.com/videos/search?q=youtube+after+the+rainbow&view=detail&mid=F8646A3D7B5AC00206D1F8646A3D7B5AC00206D1&FORM=VIRE. Accessed January 21, 2020. Web.
- Modeling kits
- Online interactive review and reinforcement questions

Time Allotment

- Approximately 15 periods

UNIT 2

Atomic Structure and the Mole

Unit Goals

At the completion of this unit, students will:

NGSS.HS-PS1-1	Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.
NGSS.HS-PS1-2	Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.
NGSS.HS-PS1-7 [Honors only]	Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
CCS.ELA-Literacy.RST.11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
CCS.ELA-Literacy.RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
ISTE Knowledge Constructor (Standard 3d)	Build knowledge by actively exploring real-world issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- What defines an atom?
- How are elements identified and represented?
- What factors make one element different from another?
- How can scientists quantitatively represent groups of atoms? [Honors only]

Scope and Sequence

1. Subatomic particles
2. Periodic table and element symbolization

3. Nuclear pull
4. Mole-Mass relationships [Honors only]
5. Dimensional analysis [Honors only]

Assured Assessments

Formative Assessment:

- Simulation activity to build atoms
- Lab activity based on scientists' use of the mole to quantify very small things like atoms and molecules [Honors only]
- Lab activity analyzing the law of conservation of matter [Honors only]
- Lab activity calculating mole-mass conversions [Honors only]
- Lab activity interpreting chemical equations with the mole [Honors only]

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, free-response questions, and interpreting and analyzing data, related to atomic structure and the mole.

Vocabulary:

Atomic Number	Energy Levels	Nuclear Symbol
Average Atomic Mass	Isotope	Nucleus
Electron	Mass Number	Proton
Electron Cloud	Neutron	

Resources

Core

- Davis, Raymond E., Regina Frey, Mickey Sarquis, and Jerry L. Sarquis. *Modern Chemistry*. Austin: Holt, 2006. Print. [Honors]
- Phillips, John S., Victor S. Strozak, and Cheryl Wistrom. *Chemistry: Concepts and Applications*. Columbus: Glencoe, 2005. Print. [CP]
- Wilbraham, Anthony C., Dennis D. Staley, Michael S. Matta, and Edward L. Waterman. *Prentice Hall Chemistry*. Upper Saddle River, NH: Prentice Hall, 2005. Print. [ACP]
- University of Colorado Boulder. *PhET Interactive Simulations: Build an Atom*. https://phet.colorado.edu/en/simulation/build-an-atom. Accessed January 21, 2020. Web.

Supplemental

- Online interactive review and reinforcement questions
- NOVA. *Hunting the Elements*. https://www.pbs.org/wgbh/nova/video/hunting-the-elements. Accessed January 21, 2020. Web.
- "Starstruck." Adapted from Ruth, Carolyn. "Where Do Chemical Elements Come From?" *ChemMatters* October 2009: 6-8. Print.

Time Allotment

- Approximately 12 periods

UNIT 3

Nuclear Chemistry

Unit Goals

At the completion of this unit, students will:

NGSS.HS-PS1-8	Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.
CCS.ELA-Literacy.RST.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
CCS.ELA-Literacy.RST.11-12.8	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
ISTE Empowered Learner (Standard 1c)	Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Empowered Learner (Standard 1d)	Understand the fundamental concepts of technology operations, demonstrate the ability to choose, use, and troubleshoot current technologies, and be able to transfer their knowledge to explore emerging technologies.
ISTE Knowledge Constructor (Standard 3d)	Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.
ISTE Innovative Designer (Standard 4d)	Exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.

Unit Essential Questions

- What are the differences between nuclear reactions and chemical reactions?
- What happens to atoms during nuclear decay?
- What are the characteristics of alpha, beta, and gamma radiation?

- What are the benefits of and drawbacks from the use of nuclear energy in society?
- What are the differences between nuclear fission and fusion?
- How do nuclear power plants generate electricity?

Scope and Sequence

1. Early understanding and discovery of radiation
2. Isotope stability
3. Radioactive decay
4. Types of radiation
5. Fission and fusion reactions
6. Nuclear weapons
7. Nuclear power
8. Ionizing radiation
9. Applications of radiation

Assured Assessments

Formative Assessment:

- Students will participate in "check in" assignments consisting of multiple-choice questions, free- response questions, and interpreting and analyzing data, related to nuclear chemistry.

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, free-response questions, and interpreting and analyzing data, related to nuclear chemistry.

Vocabulary:

Alpha Decay / Emission
Background Radiation
Band of Stability
Beta Decay / Emission
Chain Reaction
Control Rods
Critical Mass
Gamma Decay / Emission
Geiger Counters
Ionization Radiation
Manhattan Project
Nuclear Meltdown
Nuclear Fission
Nuclear Fusion
Nuclear Power Plants
Radiation
Radioactivity

Resources

<u>Core</u>

- Davis, Raymond E., Regina Frey, Mickey Sarquis, and Jerry L. Sarquis. *Modern Chemistry*. Austin: Holt, 2006. Print. [Honors]
- Phillips, John S., Victor S. Strozak, and Cheryl Wistrom. *Chemistry: Concepts and Applications*. Columbus: Glencoe, 2005. Print. [CP]
- Wilbraham, Anthony C., Dennis D. Staley, Michael S. Matta, and Edward L. Waterman. *Prentice Hall Chemistry*. Upper Saddle River, NH: Prentice Hall, 2005. Print. [ACP]
- *Uranium: Twisting the Dragon's Tail*. Dir. Wain Fimeri, PBS, 2015. Film.

Supplemental

- Activity to evaluate personal perception of risk compared to the risk of exposure to radiation
- Activity to investigate applications of nuclear chemistry
- "The Death of Alexander Litvinenko." Adapted from Keown, Audrey. "The Death of Alexander Litvinenko." *ChemMatters* April 2007: 18-19. Print.
- Lab activity on applications of nuclear reactions
- Marder, Jenny. "Mechanics of a Nuclear Meltdown Explained." *Science* March 15, 2011. https://www.pbs.org/newshour/science/mechanics-of-a-meltdown-explained. Accessed January 21, 2020. Web.
- Weatherall, Steve. "Radioactivity: Expect the Unexpected." https://www.youtube.com/watch?v=TJgc28csgV0. Accessed January 21, 2020. Web.

Time Allotment

- Approximately 12 periods

UNIT 4

The Periodic Table

Unit Goals

At the completion of this unit, students will:

NGSS.HS-PS1-1	Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.
NGSS.HS-PS1-2	Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.
NGSS.HS-PS1-3	Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.
NGSS.HS-PS4-4	Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.
NGSS.HS-PS4-5	Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.
NGSS.HS-ESS3-1	Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
NGSS.HS-ESS3-4	Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
CCSS.ELA-Literacy.RST.11-12.8	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
ISTE Empowered Learner (Standard 1c)	Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.

ISTE Knowledge Constructor (Standard 3d)	Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.
ISTE Innovative Designer (Standard 4d)	Exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.
ISTE Computational Thinker (Standard 5c)	Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

Unit Essential Questions

- How does an atom's electron configuration/ valence shell affect its chemical properties?
- What is the significance of core electrons versus valence electrons, and how can that be represented? [Honors only]
- What patterns exist in atoms' radii on different groups and periods of the periodic table?
- How is an element's electron configuration affected by its need for stability?
- How is the periodic table organized?
- How can physical and chemical properties be predicted and explained based on periodic table location?
- How can the periodic law be used to select materials to meet societal needs?

Scope and Sequence

1. Electron configurations and orbital diagrams [Honors only]
2. Valence electrons and stability
3. Periods and groups
4. Periodic law
5. Atomic and ionic size trend
6. Reactivity trend
7. Ionization energy and trend [for Honors & ACP only]
8. Electronegativity and trend [for Honors & ACP only]

Assured Assessments

Formative Assessment:

- Activity creating a periodic table
- Lab activity exploring periodic trends
- Lab activity investigating alloys

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, free-response questions, and interpreting and analyzing data, related to electrons and the periodic table organization.

Vocabulary:

Alkali Metals	Ion	Nuclear Pull
Alkaline earth metals	Ionization Energy	Octet Rule
Atomic & Ionic Size	Malleable	Periodic Law
Ductile	Metalloids	Periods
Electronegativity	Metals	Sea of Electrons
Groups	Noble Gases	Shielding Effect
Halogens	Nonmetals	Valence Electrons

Resources

Core

- Davis, Raymond E., Regina Frey, Mickey Sarquis, and Jerry L. Sarquis. *Modern Chemistry*. Austin: Holt, 2006. Print. [Honors]
- Phillips, John S., Victor S. Strozak, and Cheryl Wistrom. *Chemistry: Concepts and Applications*. Columbus: Glencoe, 2005. Print. [CP]
- Wilbraham, Anthony C., Dennis D. Staley, Michael S. Matta, and Edward L. Waterman. *Prentice Hall Chemistry*. Upper Saddle River, NH: Prentice Hall, 2005. Print. [ACP]

Supplemental

- Lab activity based on properties of metals and nonmetals
- "Activity: From Mine to Mobile." Trumbull High School. Adapted from Prendergast, John, and Sasha Lezhnev. "From Mine to Mobile Phone: The Conflict Minerals Supply Chain." The Enough Project, n.p.: 2009. https://enoughproject.org/files/minetomobile.pdf. Accessed January 21, 2020. Print.
- NOVA. *Hunting the Elements*. https://www.pbs.org/wgbh/nova/video/hunting-the-elements. Accessed January 21, 2020. Web.
- "Secrets of the Super Elements." Dir. Laura Mulholland. BBC, 2017. https://www.bbc.co.uk/programmes/b08rv9r6. Accessed January 21, 2020. Web.
- "TBQ: The Nature of Things." Adapted from Goho, Alexandra. "The Nature of Things." *Science News* Oct. 21, 2003. https://www.sciencenews.org/article/nature-things. Accessed January 21, 2020. Web.

Time Allotment

- Approximately 15 class periods

UNIT 5

Bonding: Intramolecular Attraction

Unit Goals

At the completion of this unit, students will:

NGSS.HS-PS1-2	Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.
NGSS.HS-PS1-3	Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.
NGSS.HS-PS1-4	Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
ISTE Empowered Learner (Standard 1c)	Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	Build knowledge by actively exploring real-world issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- Why do most atoms form chemical bonds while a few do not?
- How can the positions of elements on the periodic table be used to predict how they form compounds with other elements?
- How are ionic and covalent bonds formed, and how does the bond type influence the properties of compounds?

Scope and Sequence

1. Octet Rule and valence electrons
2. Ion formation and electrostatic attraction between ions
3. Naming and writing formulas for ionic compounds
4. Naming and writing formulas for covalent compounds
5. Representing covalent molecules in drawings
6. Differences in properties of atoms, ionically bonded compounds, and covalently bonded compounds
7. Determining percent composition. [Honors and ACP only]
8. Determining empirical formulas [Honors only]

Assured Assessments

Formative Assessment:

- Lab activity forming ionic compounds
- Lab activity identifying a hydrate [for Honors]
- Covalent bonding model kit activity

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, free-response questions, and interpreting and analyzing data, related to bonding.

Vocabulary:

Anion	Double Bond	Tetrahedral
Bent	Ionic Bond	Trigonal Planar
Bohr Model	Lewis Dot Diagrams	Trigonal Pyramidal
Cation	Linear	Triple Bond
Covalent Bond	Polyatomic Ions	
Diatomic Molecules	Single Bond	

Resources

Core

- Davis, Raymond E., Regina Frey, Mickey Sarquis, and Jerry L. Sarquis. *Modern Chemistry*. Austin: Holt, 2006. Print. [Honors]
- Phillips, John S., Victor S. Strozak, and Cheryl Wistrom. *Chemistry: Concepts and Applications*. Columbus: Glencoe, 2005. Print. [CP]
- Wilbraham, Anthony C., Dennis D. Staley, Michael S. Matta, and Edward L. Waterman. *Prentice Hall Chemistry*. Upper Saddle River, NH: Prentice Hall, 2005. Print. [ACP]
- University of Colorado Boulder. *PhET Interactive Simulations*. https://phet.colorado.edu/en/simulations/category/new. Accessed January 21, 2020. Web. [for online molecule simulations]

Supplemental

- Lab activity making esters
- "Speed Match: Practice with Ionic Names/Formulas." Trumbull High School.
- "ChemThink Ionic Bonding" https://cptv.pbslearningmedia.org/resource/lsps07.sci.phys.matter.ionicbonding/ionic-bonding/ Interactive tutorial. Accessed May 15, 2023. Web.
- "ChemThink Covalent Bonding" https://cptv.pbslearningmedia.org/resource/lsps07.sci.phys.matter.covalentbond/covalent-bonding/ Interactive tutorial. Accessed May 15, 2023. Web.
- "TBQ: How Does Your Nose Know?" SAT practice article adapted from Börsch, Angelika. "Small Molecules Make Scents." *Science in School* 6 (Sept. 18, 2007). https://www.scienceinschool.org/2007/issue6/scents. Accessed January 21, 2020. Web.
- "TBQ: Paintball." Adapted from Rohrig, Brian. "Paintball: Chemistry Hits Its Mark." *ChemMatters* April 2007: 4-7. Print.

Time Allotment

- Approximately 26 class periods

UNIT 6

Intermolecular Forces

Unit Goals

At the completion of this unit, students will:

NGSS.HS-PS1-2	Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.
NGSS.HS-PS1-3	Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.
NGSS.HS-PS3-2	Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motion of particles (objects) and energy associated with the relative position of particles (objects).
NGSS.HS-ESS3-1	Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
NGSS.HS-ESS3-5	Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth's systems.
NGSS.HS-ESS3-6	Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.
ISTE Empowered Learner (Standard 1c)	Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	Build knowledge by actively exploring real-world issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How do electronegativity and molecular shape determine the polarity of a molecule?
- How do the type of bond and the polarity of a molecule determine the interactions between neighboring molecules, the characteristics of different substances, and the formation of solutions?
- What properties make water essential for life on planet Earth?
- How can the energy involved in changes in state be quantified and expressed through models?

Scope and Sequence

1. Electronegativity values and determination of bond type
2. Polarity of bonds
3. Polarity of molecules
4. Intermolecular forces between neighboring molecules due to polarity
5. Shape, polarity, and properties of water
6. Solubility, solute, solvent, and formation of solutions
7. Relationships among intermolecular forces, energy, and state of matter
8. Phase changes

Assured Assessments

Formative Assessment:

- Lab activity exploring polar and nonpolar interactions
- Lab activity determining boiling point or freezing point of substances

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, free-response questions, and interpreting and analyzing data, related to intermolecular forces.

Vocabulary

Absolute Zero
Adhesion
Boiling
Capillary action
Cohesion
Condensation
Deposition
Dipole interactions
Electronegativity
Evaporation
Freezing
Heat of Fusion
Heat of Vaporization
Hydrogen bonding
Intermolecular forces (IMF)
Melting
Nonpolar
Phase Change
Polar
Sublimation
Surface Tension
Surfactant
Vaporization

Resources

Core

- Davis, Raymond E., Regina Frey, Mickey Sarquis, and Jerry L. Sarquis. *Modern Chemistry*. Austin: Holt, 2006. Print. [Honors]
- Phillips, John S., Victor S. Strozak, and Cheryl Wistrom. *Chemistry: Concepts and Applications*. Columbus: Glencoe, 2005. Print. [CP]
- Wilbraham, Anthony C., Dennis D. Staley, Michael S. Matta, and Edward L. Waterman. *Prentice Hall Chemistry*. Upper Saddle River, NH: Prentice Hall, 2005. Print. [ACP]

Supplemental

- Lab activity creating a non-Newtonian fluid
- Guided activity on water and its properties
- Online interactive review and reinforcement questions
- *Meltdown*. The Weather Channel, 2019. https://www.youtube.com/watch?v=8SwtW97xuiI Accessed May 15, 2023. Web.

Time Allotment

- Approximately 14 class periods

UNIT 7

Chemical Reactions

Unit Goals

At the completion of this unit, students will:

NGSS.HS-PS1-7 [ACP and CP]	Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
NGSS.HS-PS1-2	Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.
NGSS.HS-ESS2-2	Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.
NGSS.HS-ESS2-4	Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.
NGSS.HS-ESS2-6	Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.
NGSS.HS-ESS2-7	Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth.
NGSS.HS-ESS3-1	Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
NGSS.HS-ESS3-4	Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
NGSS.HS-ESS3-5	Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth's systems.
NGSS.HS-ESS3-6	Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.

CCS.ELA-Literacy.RST.11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
CCS.ELA-Literacy.RST.11-12.8	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
CCS.ELA-Literacy.RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
ISTE Empowered Learner (Standard 1c)	Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3b)	Evaluate the accuracy, perspective, credibility, and relevance of information, media, data, or other resources.
ISTE Knowledge Constructor (Standard 3d) and	Build knowledge by actively exploring real-world issues and problems, developing ideas and theories pursuing answers and solutions.
ISTE Computational Thinker (Standard 5b)	Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
ISTE Computational Thinker (Standard 5c)	Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

Unit Essential Questions

- How can scientists quantitatively represent groups of atoms in chemical reactions? [ACP and CP]
- What are the characteristics of the five basic reaction types?
- How can an activity series be used to predict the outcome of a single replacement reaction?
- How can a solubility chart be used to predict the outcome of a double replacement reaction?
- What are the natural parts of the carbon cycle?
- What is the difference between complete combustion and incomplete combustion?

- How does carbon monoxide affect the human body?
- What is the influence of fossil fuel combustion on the carbon cycle
- How does the greenhouse effect work?
- What is the relationship between an industrial society and rising atmospheric temperatures?
- What evidence do we have that the Earth's changing climate is due to human activity?
- How is the level of CO_2 dissolved in the ocean affected by climate change, and what impact does this have on Earth's systems?

Scope and Sequence

1. Identifying the parts of a chemical equation
2. Mole-Mass relationships [ACP and CP]
3. Dimensional analysis [ACP and CP]
4. Characteristics and general form of reaction types
5. Using an activity series
6. Using a solubility chart
7. Natural carbon cycle
8. Human influence on the carbon cycle
9. Complete combustion vs. incomplete combustion
10. Carbon monoxide
11. Types of greenhouse gases and how they are measured
12. Greenhouse effect
13. Effects of climate change

Assured Assessments

Formative Assessment:

- Lab activity analyzing the law of conservation of matter [ACP and CP]
- Lab activity calculating mole-mass conversions [ACP and CP]
- Lab activity interpreting chemical equations with the mole [ACP and CP]
- Lab activity showing chemical reactions in solution
- Lab activity/demonstration showing each type of chemical reaction
- Data collection and analysis of greenhouse gases

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, free-response questions, and interpreting and analyzing data, related to chemical reactions.

Vocabulary

Activity Series
Carbon cycle
Carbon source vs. Sink
Climate change
Combination/Synthesis Reaction
Combustion reaction
Decomposition reaction
Double replacement reaction
Greenhouse gas
Insoluble
Precipitate
Products
Reactants
Single replacement reaction
Soluble

Resources

Core

- Davis, Raymond E., Regina Frey, Mickey Sarquis, and Jerry L. Sarquis. *Modern Chemistry*. Austin: Holt, 2006. Print. [Honors]
- Phillips, John S., Victor S. Strozak, and Cheryl Wistrom. *Chemistry: Concepts and Applications*. Columbus: Glencoe, 2005. Print. [CP]
- Wilbraham, Anthony C., Dennis D. Staley, Michael S. Matta, and Edward L. Waterman. *Prentice Hall Chemistry*. Upper Saddle River, NH: Prentice Hall, 2005. Print. [ACP]

Supplemental

- Online interactive review and reinforcement questions
- *Cosmos: A Spacetime Odyssey: The World Set Free*. Dir. Brannon Braga. National Geographic, 2014. Film.

Time Allotment

- Approximately 12 periods

UNIT 8

Stoichiometry

Unit Goals

At the completion of this unit, students will:

NGSS.HS-PS1-7	Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
CCS.ELA-Literacy.RST.11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
ISTE Empowered Learner (Standard 1c)	Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d) and	Build knowledge by actively exploring real-world issues and problems, developing ideas and theories pursuing answers and solutions.
ISTE Innovative Designer (Standard 4a) innovative	Know and use a deliberate design process for generating ideas, testing theories, creating artifacts, or solving authentic problems.
ISTE Computational Thinker digital (Standard 5b)	Collect data or identify relevant data sets, use tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
ISTE Computational Thinker (Standard 5c)	Break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

Unit Essential Questions

- How is the law of conservation of matter represented in chemical reactions?
- How is the ideal mole ratio related to the quantity of reactants or products in a chemical reaction?
- How can we use a balanced equation to calculate chemical quantities during a reaction?
- What causes reactions to stop?
- How is the actual yield in a reaction related to the predicted yield?

Scope and Sequence

1. Translating sentences into chemical equations
2. Balancing equations and the law of conservation of matter
3. Stoichiometry, limiting reactants, and excess reactants
4. Why reactions continue, why they stop
5. Percent yield [for Honors]

Assured Assessments

Formative Assessment:

- Lab activity qualitatively determining limiting and excess reactants
- Lab activity quantitatively using the law of conservation of matter

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, free-response questions, and interpreting and analyzing data, related to stoichiometry.

Resources

Core

- Davis, Raymond E., Regina Frey, Mickey Sarquis, and Jerry L. Sarquis. *Modern Chemistry*. Austin: Holt, 2006. Print. [Honors]
- Phillips, John S., Victor S. Strozak, and Cheryl Wistrom. *Chemistry: Concepts and Applications*. Columbus: Glencoe, 2005. Print. [CP]
- Wilbraham, Anthony C., Dennis D. Staley, Michael S. Matta, and Edward L. Waterman. *Prentice Hall Chemistry*. Upper Saddle River, NH: Prentice Hall, 2005. Print. [ACP]

Supplemental

- Online interactive review and reinforcement questions

Time Allotment

- Approximately 8 periods weeks

UNIT 9

Energy

Unit Goals

At the completion of this unit, students will:

NGSS.HS-PS1-4	Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.
NGSS.HS-PS3-1	Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.
NGSS.HS-PS3-2	Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motion of particles (objects) and energy associated with the relative position of particles (objects).
NGSS.HS-ESS2-4	Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.
ISTE Empowered Learner (Standard 1c)	Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d) of	Build knowledge by actively exploring real-world issues and problems, including the anchoring event the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- What causes some physical and chemical changes to release energy while others gain energy?
- How is the law of conservation of energy expressed in chemical systems?
- How can the energy transferred in chemical and physical systems be quantified and expressed graphically?

Scope and Sequence

1. System vs. surroundings
2. Different types of energy (kinetic, potential, chemical, thermal)
3. Conservation of energy
4. Enthalpy changes and endothermic vs. exothermic reactions
5. Graphically depicting energy involved in physical and chemical changes
6. Calculations with heat, mass, change in temperature, and specific heat
7. Calculating the heat of chemical processes using calorimetry

Assured Assessments

Formative Assessment:

- Lab activity observing energy changes in chemical reactions
- Lab activity measuring energy changes in chemical reactions

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, free-response questions, and interpreting and analyzing data, related to energy.

Resources

Core

- Davis, Raymond E., Regina Frey, Mickey Sarquis, and Jerry L. Sarquis. *Modern Chemistry*. Austin: Holt, 2006. Print. [Honors]
- Phillips, John S., Victor S. Strozak, and Cheryl Wistrom. *Chemistry: Concepts and Applications*. Columbus: Glencoe, 2005. Print. [CP]
- Wilbraham, Anthony C., Dennis D. Staley, Michael S. Matta, and Edward L. Waterman. *Prentice Hall Chemistry*. Upper Saddle River, NH: Prentice Hall, 2005. Print. [ACP]

Supplemental

- Online interactive review and reinforcement questions
- *Making Stuff Colder*. PBS, 2013. https://www.pbs.org/wgbh/nova/video/making-stuff-colder/. Accessed January 21, 2020. Web.

Time Allotment

- Approximately 12 periods

UNIT 10

Gases

Unit Goals

At the completion of this unit, students will:

ISTE Empowered Learner (Standard 1c)	Use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	Build knowledge by actively exploring real-world issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- What are the properties of gases?
- How are the properties of gases related?
- How can the properties of gases be mathematically represented and calculated?

Scope and Sequence

1. Assumptions of gases
2. Ideal gas law
3. Changes in conditions
4. Partial pressures of gases

Assured Assessments

Formative Assessment:

- Data analysis to determine trends between air pressure and altitude
- Lab activity exploring the relationships among pressure, volume, and temperature of a sample of gas

Summative Assessment:

- Students will participate in an assessment consisting of multiple-choice questions, free-response questions, and interpreting and analyzing data, related to gases.
- Following Unit 13, students will participate in the end-of-year examination.

Resources

Core

- Davis, Raymond E., Regina Frey, Mickey Sarquis, and Jerry L. Sarquis. *Modern Chemistry*. Austin: Holt, 2006. Print. [Honors]

- Phillips, John S., Victor S. Strozak, and Cheryl Wistrom. *Chemistry: Concepts and Applications*. Columbus: Glencoe, 2005. Print. [CP]
- Wilbraham, Anthony C., Dennis D. Staley, Michael S. Matta, and Edward L. Waterman. *Prentice Hall Chemistry*. Upper Saddle River, NH: Prentice Hall, 2005. Print. [ACP]
- Online simulations demonstrating relationships among pressure, volume, and temperature of a gas

<u>Supplemental</u>

- Online interactive review and reinforcement questions
- *Everest*. Dir. Greg MacGillivray. MacGillivray Freeman, 1998. Film.
- "Everest to Deep Sea." Adapted from:
    - Belleman, Melissa. "Scuba: The Chemistry of an Adventure." *ChemMatters* February 2001: 7-9. Print.
    - Rohrig, Brian. "Climbing into Thin Air." *ChemMatters* February 2000: 4-6. Print.
- "Would a Vacuum Work in a Vacuum?" Adapted from Becker, Bob. "Question from the Classroom." *ChemMatters* October 2003: 4-5. Print.

Time Allotment

- Approximately 12 periods

COURSE CREDIT

1 credit in science

ASSURED STUDENT PERFORMANCE RUBRICS

- Trumbull High School School-Wide Writing Rubric (attached)
- Trumbull High School School-Wide Problem-Solving Rubric (attached)
- Trumbull High School School-Wide Independent Learning and Thinking Rubric (attached)

Trumbull High School School-Wide Writing Rubric

Category / Weight	Exemplary 4 Student work:	Goal 3 Student work:	Working Toward Goal 2 Student work:	Needs Support 1-0 Student work:
Purpose X_____	● Establishes and maintains a clear purpose ● Demonstrates an insightful understanding of audience and task	● Establishes and maintains a purpose ● Demonstrates an accurate awareness of audience and task	● Establishes a purpose ● Demonstrates an awareness of audience and task	● Does not establish a clear purpose ● Demonstrates limited/no awareness of audience and task
Organization X_____	● Reflects sophisticated organization throughout ● Demonstrates logical progression of ideas ● Maintains a clear focus ● Utilizes effective transitions	● Reflects organization throughout ● Demonstrates logical progression of ideas ● Maintains a focus ● Utilizes transitions	● Reflects some organization throughout ● Demonstrates logical progression of ideas at times ● Maintains a vague focus ● May utilize some ineffective transitions	● Reflects little/no organization ● Lacks logical progression of ideas ● Maintains little/no focus ● Utilizes ineffective or no transitions
Content X_____	● Is accurate, explicit, and vivid ● Exhibits ideas that are highly developed and enhanced by specific details and examples	● Is accurate and relevant ● Exhibits ideas that are developed and supported by details and examples	● May contain some inaccuracies ● Exhibits ideas that are partially supported by details and examples	● Is inaccurate and unclear ● Exhibits limited/no ideas supported by specific details and examples
Use of Language X_____	● Demonstrates excellent use of language ● Demonstrates a highly effective use of standard writing that enhances communication ● Contains few or no errors. Errors do not detract from meaning	● Demonstrates competent use of language ● Demonstrates effective use of standard writing conventions ● Contains few errors Most errors do not detract from meaning	● Demonstrates use of language ● Demonstrates use of standard writing conventions ● Contains errors that detract from meaning	● Demonstrates limited competency in use of language ● Demonstrates limited use of standard writing conventions ● Contains errors that make it difficult to determine meaning

Trumbull High School School-Wide Problem-Solving Rubric

Category / Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Understanding X_____	● Student demonstrates clear understanding of the problem and the complexities of the task	● Student demonstrates sufficient understanding of the problem and most of the complexities of the task	● Student demonstrates some understanding of the problem but requires assistance to complete the task	● Student demonstrates limited or no understanding of the fundamental problem after assistance with the task
Research X_____	● Student gathers compelling information from multiple sources including digital, print, and interpersonal	● Student gathers sufficient information from multiple sources including digital, print, and interpersonal	● Student gathers some information from few sources including digital, print, and interpersonal	● Student gathers limited or no information
Reasoning and Strategies X_____	● Student demonstrates strong critical thinking skills to develop a comprehensive plan integrating multiple strategies	● Student demonstrates sufficient critical thinking skills to develop a cohesive plan integrating strategies	● Student demonstrates some critical thinking skills to develop a plan integrating some strategies	● Student demonstrates limited or no critical thinking skills and no plan
Final Product and/or Presentation X_____	● Solution shows deep understanding of the problem and its components ● Solution shows extensive use of 21st-century technology skills	● Solution shows sufficient understanding of the problem and its components ● Solution shows sufficient use of 21st-century technology skills	● Solution shows some understanding of the problem and its components ● Solution shows some use of 21st-century technology skills	● Solution shows limited or no understanding of the problem and its components ● Solution shows limited or no use of 21st-century technology skills

Trumbull High School School-Wide
Independent Learning and Thinking Rubric

Category/ Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Proposal X _____	● Student demonstrates a strong sense of initiative by generating compelling questions, creating uniquely original projects/work	● Student demonstrates initiative by generating appropriate questions, creating original projects/work	● Student demonstrates some initiative by generating questions, creating appropriate projects/work	● Student demonstrates limited or no initiative by generating few questions and creating projects/work
Independent Research & Development X_____	● Student is analytical, insightful, and works independently to reach a solution	● Student is analytical, and works productively to reach a solution	● Student reaches a solution with direction	● Student is unable to reach a solution without consistent assistance
Presentation of Final Product X_____	● Presentation shows compelling evidence of an independent learner and thinker ● Solution shows deep understanding of the problem and its components ● Solution shows extensive and appropriate application of 21st-century skills	● Presentation shows clear evidence of an independent learner and thinker ● Solution shows adequate understanding of the problem and its components ● Solution shows adequate application of 21st-century skills	● Presentation shows some evidence of an independent learner and thinker ● Solution shows some understanding of the problem and its components ● Solution shows some application of 21st-century skills	● Presentation shows limited or no evidence of an independent learner and thinker ● Solution shows limited or no understanding of the problem and its components ● Solution shows limited or no application of 21st-century skills

TRUMBULL PUBLIC SCHOOLS

Trumbull, Connecticut

CP Physics Grade 12

2023

(Last revision date: 2022)

Curriculum Writing Team

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CP Physics

Grade 12

Table of Contents

The Trumbull Board of Education will continue to take Affirmative Action to ensure that no persons are discriminated against in its employment.

CORE VALUES AND BELIEFS

The Trumbull High School community engages in an environment conducive to learning which believes that all students will **read** and **write effectively**, therefore communicating in an articulate and coherent manner. All students will participate in activities **that present problem-solving through critical thinking**. Students will use technology as a tool applying it to decision making. We believe that by fostering self-confidence, self-directed and student-centered activities, we will promote **independent thinkers and learners**. We believe **ethical conduct** to be paramount in sustaining the welcoming school climate that we presently enjoy.
Approved 8/26/2011

INTRODUCTION & PHILOSOPHY

In Grade 12 Physics, students will explore many of the systems and processes of the physical world by investigating the macroscopic interactions of matter through the topics of general physics. By focusing on the changes in matter and energy, scientifically literate students can use this deeper understanding to make predictions, analyze scientific data, and contribute to the greater scientific community. Students in this course will typically have completed CP Chemistry with a focus on the microscopic interactions of matter.

This curriculum has been modified most recently (2021) to remain consistent in the continued development of scientifically literate students, with a concentration on matter, energy, and changes. Authentic scientific and engineering experiences build on one another and increase in complexity throughout students' K-12 education. In 2015, the Connecticut State Board of Education adopted the Next-Generation Science Standards (NGSS), which embody the National Research Council's *Framework for K-12 Science Education* (2012). Both the *Framework* and the NGSS stress the importance of teaching classroom scientific inquiry as practiced by scientists and engineers. The *Framework* provides a vision for American science education in the 21st century, while the NGSS provides grade-level student performance expectations, disciplinary core ideas, and crosscutting concepts. The *Framework* and NGSS indicated a paradigm shift in science education, one in which teachers are to incorporate authentic learning experiences for students that reflect the nature of doing science and engineering.

The *Framework* and NGSS provide clarity to classroom scientific inquiry by stressing the importance of eight practices of science and engineering. The practices were designed to help students understand how scientific knowledge develops, and to stimulate students' interest in and continued study of science. Three-dimensional learning facilitates student engagement with Science and Engineering Practices and Crosscutting Concepts to deepen their understanding of Disciplinary Core Ideas in order to explain phenomena and solve problems. Three-dimensional learning promotes development of student skills in the following areas:

- Knowing, using, and interpreting scientific explanations of the natural world (Disciplinary Core Ideas, and Crosscutting Concepts)
- Generating and evaluating scientific evidence and explanations (Science and Engineering Practices)
- Participating productively in scientific practices and discourse (Science and Engineering Practices)

- Understanding the nature and development of scientific knowledge (Science and Engineering Practices, and Crosscutting Concepts)

The shift of science education reflects the interconnected nature of science as it is practiced in the real world and builds coherently across grades K-12. The NGSS focus on deeper understanding of content as well as application of content with an alignment to the Connecticut Core Standards. A deeper understanding and application of science and engineering practices prepare students for postsecondary success and citizenship in a world fueled by innovations in science and technology. In accordance with the NGSS Science and Engineering Practices, students will be asked to . . .

- ask questions (for science) and define problems (for engineering).
- develop and use models.
- plan and carry out investigations.
- analyze and interpret data.
- use mathematics and computational thinking.
- construct explanations (for science) and design solutions (for engineering).
- engage in arguments from evidence.
- obtain, evaluate, and communicate information.

Grade 12 Physics is offered at two separate course levels: Advanced College Preparatory (ACP) and College Preparatory (CP). Both levels will explore each unit of study. The courses are differentiated by pacing of curriculum, rigor of exploration, depth of content knowledge, and the application of quantitative reasoning. The ACP course will explore topics with the greatest depth, most rigorous exploration, deepest study of content, and furthest application of quantitative reasoning. More support will be offered at the CP course level. In addition, study of physics principles is offered through an early college experience collaborative (UCONN Physics) and two Advanced Placement courses: Physics C (AP-C) and Physics 1 (AP-1). These advanced courses follow a different curriculum, and demand a much higher rigor of exploration, depth of content knowledge, and the application of quantitative reasoning.

COURSE GOALS

The following course goals derive from the 2021 Next Generation Science Standards.

HS-PS2-1.	Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-2.	Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.
HS-PS2-3.	Apply science and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.
HS-PS2-4.	Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-5.	Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.
HS-PS2-6.	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
HS-PS3-1	Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.
HS-PS3-2.	Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motion of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

HS-PS3-4.	Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).
HS-PS3-5.	Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.
HS-PS4-1.	Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.
HS-PS4-5.	Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

The following course goals derive from the 2010 Connecticut Common Core State Standards for English Language Arts and Literacy in History/Social Studies, Science and Technical Subjects

CCSS.ELA-LITERACY.RST.11-12.1	Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
CCSS.ELA-LITERACY.RST.11-12.2	Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
CCSS.ELA-LITERACY.RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
CCSS.ELA-LITERACY.RST.11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.

CCSS.ELA-LITERACY.RST.11-12.5	Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
CCSS.ELA-LITERACY.RST.11-12.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.
CCSS.ELA-LITERACY.RST.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
CCSS.ELA-LITERACY.RST.11-12.8	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
CCSS.ELA-LITERACY.RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible
CCSS.ELA-LITERACY.RST.11-12.10	By the end of grade 12, read and comprehend science/technical texts in the grades 11-CCR text complexity band independently and proficiently.

The following course goals derive from the 2010 Connecticut Core Standards for Literacy.

CCSS.ELA-LITERACY.RI.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
CCSS.ELA-LITERACY.RI.11-12.2	Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.

CCSS.ELA-LITERACY.RI.11-12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
CCSS.ELA-LITERACY.RI.11-12.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.
CCSS.ELA-LITERACY.W.11-12.1.B	Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.
CCSS.ELA-LITERACY.W.11-12.1.D	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
CCSS.ELA-LITERACY.W.11-12.2.B	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
CCSS.ELA-LITERACY.W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCSS.ELA-LITERACY.W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
CCSS.ELA-LITERACY.W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter

	time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.
CCSS.ELA-LITERACY.SL.11-12.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data
CCSS.ELA-LITERACY.SL.11-12.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
CCSS.ELA-LITERACY.L.11-12.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
CCSS.ELA-LITERACY.L.11-12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression

The following course goals derive from the 2016 International Society for Technology in Education (ISTE) Technology Standards

ISTE Standard 1 - Empowered Learner	Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.
ISTE Standard 2 - Digital Citizen	Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.
ISTE Standard 3 - Knowledge Constructor	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
ISTE Standard 4 - Innovative Designer	Students use a variety of technologies within a

	design process to identify and solve problems by creating new, useful or imaginative solutions.
ISTE Standard 5 - Computational Thinker	Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions
ISTE Standard 6 - Creative Communicator	Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals
ISTE Standard 7 - Global Collaborator	Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally

COURSE ENDURING UNDERSTANDINGS

Students will understand that…

- scientific knowledge is acquired through inquiry, experimentation, data analysis, and interpretation.
- scientific conclusions and explanations are based on research data, and scientific results may be assessed based on the design of the investigation.
- scientific ideas and concepts evolve over time.
- the credibility of scientific information found in various media can vary.
- mathematical operations and procedures may be used to calculate, analyze, and present data and ideas.
- science and technology affect the quality of our lives.

Also, in accordance with the NGSS Cross-Cutting Concepts, students will work to understand . . .

- how observed patterns of forms and events guide organization and classification, and prompt questions about relationships and the factors that influence them.
- events have causes, sometimes simple, sometimes multifaceted and that a major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.
- scale, proportion, and quantity in considering phenomena. It is critical to recognize what is relevant at different measures of size, time, and energy and to recognize how changes in scale, proportion, or quantity affect a system's structure or performance.
- that defining the system under study – specifying its boundaries and making explicit a model of that system – provides tools for understanding and testing ideas that are applicable throughout science and engineering.
- that the tracking of fluxes of energy and matter into, out of, and within systems helps one understand the systems' possibilities and limitations.
- structure and function, in such that the way in which an object or living thing is shaped and its substructure determine many of its properties and functions.
- that for natural and built systems alike, conditions of stability and determinants of rates of change or evolution of a system are critical elements of study.

COURSE ESSENTIAL QUESTIONS

From Study.com:

- How are graphical and mathematical models created from experimental data?
- How are fields used to model physics phenomena?
- How can rules and relationships be used to predict what happens in a physical situation?
- How can physics be applied to understanding everyday life?
- How can abstract mathematics be used to describe phenomena?
- How can abstract mathematics be used to represent relationships between variables?
- To what extent does physics explain phenomena at the wide variety of scales?
- How can physics be used to solve problems?
- How does physics explain change and constancy in the universe?
- What is the value in separating the universe into systems when trying to explain it?
- Why are system boundaries important to define?
- Why are assumptions and approximations important in physics? To what extent does this limit the usefulness of your results?
- To what extent does physics explain cause and effect?
- How can scientific ideas be used to solve problems?
- How is matter and energy related?
- How is the universe constructed from the tiny scales to the largest?
- How can physics be used to create models and simulations?
- Why is correlation and causation not the same thing?
- How are physics and engineering related?
- How can scientific knowledge be communicated?
- How can scientific arguments be evaluated?
- How should scientific investigations be designed?

From NGSS (Physical Science):

- How can one explain and predict interactions of objects and systems of objects?
- How can one predict an object's continued motion, change in motion,or stability?
- What underlying forces explain the variety of interactions observed?
- Why are some physical systems more stable than others?
- How is energy transferred and conserved?
- What is meant by conservation of energy?
- How is energy transferred between objects or systems?
- How are forces related to energy?
- If energy is conserved,why do people say it is produced or used?
- How are waves used to transfer energy and information?
- What are the characteristic properties and behaviors of waves?

- What is light?
- How can one explain the varied effects that involve light?
- What other forms of electromagnetic radiation are there?
- How are instruments that transmit and detect waves used to expand human senses?

COURSE KNOWLEDGE & SKILLS

The following core knowledge and skills will be developed through students' work in this course:

Students will know . . .

- the appropriate techniques and procedures to use in a laboratory setting.
- the difference between scalar and vector quantities.
- the difference between distance and displacement.
- the difference between speed and velocity.
- the definition of the term acceleration.
- Newton's Laws of Motion.
- the various types of forces.
- the definitions of momentum and momentum conservation.
- the definition of impulse and its relationship to momentum change.
- the relationship between momentum conservation and Newton's laws of motion.
- the differences between various types of energy (kinetic, gravitational potential, elastic potential, thermal).
- the relationship between work and the change in energy of a system.
- that power is calculated as the rate at which work is done (rate of energy conversion).
- that charging of an object is the separation, not the creation, of electrical charges.
- that electrically charged objects exert forces, both attractive and repulsive.
- the ways objects become charged.
- the definition of electrical force as it relates to the charges on objects and the distance between them.
- the definitions of electric current, potential difference, resistance, and power, and their relationships to each other.
- the properties of magnets and the origin of magnetism in materials.
- the relationship between magnetic induction and the direction of force on a current-carrying wire in a magnetic field.
- the design and operation of an electric motor.
- how wave phenomena are described, using the following terms: amplitude, wave pulse, periodic wave, wavelength, frequency, period, and wave speed.
- the differences between transverse and longitudinal waves, and provide examples of each.

- what happens when two or more waves attempt to occupy the same location in a medium.
- the definition of wave resonance and its relation to an object's natural frequency.
- how light travels.
- that light is part of the electromagnetic spectrum.
- that when light strikes an object, it is absorbed, reflected from or transmitted through the substance and what happens when these occur.
- the dual nature of light.

Students will be able to . . .

- abide by the safety rules and regulations set forth by the safety contract.
- use appropriate tools and techniques to make observations and gather data.
- articulate conclusions and explanations based on research data, and assess results based on the design of the investigation.
- describe the motion of an object with constant velocity vs. constant acceleration.
- use the kinematic equations to complete one-dimensional motion problems.
- create and interpret position vs. time graphs.
- create and interpret velocity vs. time graphs.
- describe the motion of a freely-falling object.
- use the kinematic equations to complete free fall motion problems.
- describe the motion of a projectile.
- use the kinematic equations to complete two-dimensional motion problems.
- describe how friction affects the motion of two objects that are in contact with each other.
- draw free body diagrams of objects with arrows identifying the forces acting on the object.
- use a free body diagram and vector addition to determine the net force acting on an object.
- use Newton's Second Law to predict the acceleration of an object given its mass and the net force acting upon it.
- solve problems relating an object's mass, forces acting on it and its motion.
- solve collision and explosion problems using the conservation of momentum.
- quantify the amount of each type of energy a system possesses.
- quantify the amount of work done by a force.
- use the work-energy theorem to solve problems.
- use conservation of energy to solve problems.
- solve electrostatics problems using the conservation of charge.
- describe the requirements for electric current flow in circuits.
- diagram simple electric circuits.
- solve problems involving current, potential difference, resistance, power, and the use and cost of electric energy.

- compare various magnetic fields.
- solve problems involving magnetic field strength and forces on current-carrying wires, and on moving, charged particles in magnetic fields.
- solve problems involving magnetic field strength and forces and induced EMF in moving wires.
- apply the phenomenon of induced EMF to the construction of generators and transformers.
- calculate the intensity (in W/m^2 and decibels) of a sound wave.
- explain and draw how standing waves can form on a string.
- explain and draw how standing waves can form in a closed pipe.

COURSE SYLLABUS

Course Name

CP Physics

Level

College Prep

Prerequisites

CP Prerequisite: Successful completion of CP Chemistry or ACP Chemistry.

General Description of the Course

This course consists of a practical study of mechanics, heat, sound, electricity, magnetism, light, atomic physics and astrophysics, stressing technological application. The CP level is similar to ACP Physics except that there is less of a need for mathematical skills. It is designed to acquaint the student with physics, as it is applicable in everyday life. Recommended for students planning to attend college, but who are not planning to major in science. The ACP level comprises a quantitative study of mechanics, wave phenomena, optics, heat, electricity and magnetism. The course demonstrates the mathematical relationships in physics concepts and applies these relationships to problem solving situations.

Assured Assessments

Formative assessments can include, but are not limited to:

- Individual and group lists of safety lessons learned (Unit 1)
- Construction of models (Unit 2)
- Lab activities (Units 2, 3, 4, 5, 6, 7, 8, 9, 10)
- Data collection and analysis (Units 2, 3, 4, 5, 6, 7, 8, 9, 10)

Summative Assessments:

- End-of-unit assessment with multiple-choice questions (Unit 1)
- End-of-unit assessment with multiple-choice questions, free-response questions, and interpreting and analyzing data (Units 2, 3, 4, 5, 6, 7, 8, 9, 10)
- Midyear examination
- End-of-year examination

UNIT 1
Mathematical Tools

Unit Goals

At the completion of this unit, students will:

- **collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making (ISTE Technology Standards – Computational Thinking – Standard 5b)**

- know how to conduct experiments safely with a variety of physics-related equipment and technologies in accordance with the Connecticut State Department of Education (SDE) guidance document which can be found at the following link: https://portal.ct.gov/SDE/Publications/Connecticut-High-School-Science-Safety/Physics - Laboratory-Safety-Specifications

Unit Essential Questions

- How do scientists experiment safely?
- How are tools selected and utilized to gather valid data in science?

Unit Essential Vocabulary

- Accuracy
- Precision
- Error
- Observation
- Conclusion/Inference

Unit Scope and Sequence

- Scientists develop models based on observation and data to explain natural phenomena and predict the results of actions.
- Data is collected through observation and measurement, using human senses or measuring devices.
- Measuring devices are calibrated to agree with each other or agree with an accepted value.
- The accuracy of a measurement or calculation refers to its agreement with other measurements or calculations, or to an accepted value for that quantity.
- The precision of a measurement refers to the "exactness" of the quantity, and is determined by the measuring device used.
- Data trends are best conveyed and communicated through the creation of a graph.

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental

processes on the topics of scientific measurement.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to mathematical scientific tools.

Resources

Core

- Conceptual Physics textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental

- Flinn Scientific's Student Safety Contract Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 1-2 Weeks

UNIT 2
Kinematics

Unit Goals

At the completion of this unit, students will:

NGSS Practices (Developing and Using Models):

- **develop and/or use a model to generate data to support explanations, analyze systems, or solve problems.** *Example: A ball's motion is represented using graphical and pictorial models. Students are required to use one or more of these models to analyze the ball's motion, to give explanations, and to solve problems*

NGSS Practices (Analyzing and Interpreting Data):

- analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution. *Example: With pictorial and graphical data representations of a ball's motion, students are asked to analyze data and make meaning of the patterns that emerge from the data sets. Students also use information from one graph in combination with data from another to determine an unknown quantity or relationship.*

NGSS Crosscutting Concepts (Patterns):

- recognize that different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena. *Example: As gravity affects a ball's motion both on its way up as well as on its way back down, students discover that a ball's downward motion is just a 'mirror image' of its upward motion. This symmetry becomes clear in the ball's dot diagram, the position vs. time graph, and in the velocity vs. time graph. Such patterns are not only helpful in solving kinematics problems, they speak to gravity's constant effect on any object in free fall.*

ISTE Technology Standards

ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How is motion quantified?
- How is motion predictable?

Unit Essential Vocabulary

- Scalar
- Vector
- Position
- Distance
- Displacement
- Speed
- Velocity
- Acceleration

Unit Scope and Sequence

- Scalar quantities can be described completely with magnitude alone; vector quantities are described
- completely with magnitude and direction.
- Position is a vector quantity that describes where an object is at some moment in time.
- Displacement is a vector quantity that describes how far and in what direction an object has moved; distance is a scalar quantity that describes how far an object traveled in total to get from its starting to ending location.
- Velocity is a vector quantity that describes the direction and rate at which an object changes position, usually measured in "meters per second" (m/s). Speed is a scalar quantity that is either (1) the rate at which distance traveled changes, or (2) the magnitude of the velocity.
- Instantaneous velocity refers to the velocity at one particular moment in time, regardless of previous or future moments. Average velocity refers to the average rate of change in position over a given time interval.
- Acceleration is a vector quantity that describes the direction and rate at which an object's velocity changes, usually measured in "(meters per second) per second" (or m/s^2). Instantaneous acceleration refers to the acceleration at one particular moment in time, regardless of previous or future moments; average acceleration refers to the average rate of change in velocity over a given time interval.
- A ticker tape diagram (or oil drop diagram) can be used to visually represent the motion of an object. Concepts such as displacement, velocity, and acceleration can be inferred from these diagrams.
- A position vs. time graph displays the location of an object as a function of time. The slope of this graph represents the average velocity of the object.
- A velocity vs. time graph displays the velocity of an object as a function of time. The slope of this graph represents the average acceleration of the object. The area bounded by this graph and the time axis represents the displacement of the object.
- An object is said to be in free fall any time the force of gravity is the only force acting

on the object. This includes objects dropped, objects through up or down, and projectiles (always assuming air resistance is negligible). While in free fall near the surface of the Earth, all objects experience a constant downward acceleration of approximately 9.8 m/s^2.

- The kinematic equations are a set of four mathematical equations that can be used to describe the one-dimensional motion of any object experiencing constant acceleration. The equations relate the object's acceleration, initial velocity, velocity at some time t, displacement at some time t, and time.
- Vector quantities can be added visually using either the tail-to-tip method or the parallelogram method. These methods are especially useful when the vectors are not collinear.
- An object's measured velocity and displacement are dependent on both the object's motion and the relative motion of the object and observer. The observed acceleration of the object, however, is independent of the observer's motion (as long as the observer is not accelerating).
- The two-dimensional motion of an object can be described as two independent one-dimensional motions. Commonly these two dimensions are either (1) horizontal and vertical, or (2) north-south and east-west.
- A projectile in two-dimensional motion near the surface of the Earth experiences constant velocity in the horizontal direction and a constant acceleration of 9.8 m/s^2 downward in the vertical direction.
- The kinematic equations can be used to describe two-dimensional motion by treating the motion in each dimension separately.

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of constant speed, constant velocity and uniformly accelerated motion, including the acceleration of free-fall. Experimental work with projectile motion will also occur. Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to the kinematics of moving objects in one and two dimensions.

Resources

<u>Core</u>

- Conceptual Physics textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

<u>Supplemental</u>

Online resources

- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.

- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 1-2 weeks

UNIT 3
Forces

Unit Goals

At the completion of this unit, students will:

HS-PS2-1.	**Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.**
HS-PS2-4.	Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-6.	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How do Newton's Motion Laws predict the effect of forces on an object's motion?

Unit Essential Vocabulary

- Force
- Net Force
- Inertia
- Normal
- Friction
- Gravitational Field Strength
- Tension
- Weight

Unit Scope and Sequence

- Forces are defined as pushes or pulls on an object.
- Forces are classified as contact versus field forces. These are further categorized as gravitational, electromagnetic, strong nuclear and weak nuclear.
- Forces are expressed as vectors having magnitude and direction.
- Friction force acts between objects that contact each other. Friction acts parallel to the contacting surface in a direction that opposes the objects' sliding relative to each other.
- Normal force between objects that contact each other. Normal force acts perpendicular to the contacting surface.
- Friction force is directly proportional to normal force.
- The proportionality constant between friction and normal force is the friction coefficient, which is a property of any two contacting surfaces.
- Static (objects not sliding past each other) friction coefficients are generally greater than kinetic (objects sliding past each other) friction coefficients.
- Forces acting on an object combine to exert a net force.
- Net force is quantified through the use of a free body diagram of an isolated object with arrows indicating the forces exerted on the object.
- A net force is necessary to change the motion state of an object. (Newton's First Law of Motion)
- All objects have mass, the measurement of the object's inertia, its tendency to maintain its motion state.
- Acceleration, the change of an object's motion, is directly proportional to the net force acting on an object and inversely proportional to the mass of an object. (Newton's Second Law of Motion)
- Forces act in pairs between two objects. The paired forces are equal in magnitude and opposite in direction. (Newton's Third Law of Motion).

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of force (including weight, tension, friction and normal force) and Newton's Laws. Experimental work on vector force addition will also occur.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to force and Newton's Laws of mechanics.

Resources

Core

- Conceptual Physics textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental

Online resources

- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 2-3 weeks

UNIT 4
Momentum

Unit Goals

At the completion of this unit, students will:

HS-PS2-2.	**Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.**
HS-PS2-3.	Apply science and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- What is momentum?
- How does momentum conservation determine the motion of objects interacting with each other?

Unit Essential Vocabulary

- Momentum
- Impulse
- Inelastic Collision
- Elastic Collision

Unit Scope and Sequence

- Impulse is defined as a force exerted on an objects over a period of time
- Impulse causes a change in an object's momentum. An object's momentum change is equal in magnitude and direction to the impulse exerted on it.
- The impulse/momentum change equation is the original expression of Newton's Second Law.
- Momentum is always conserved. This means that the total momentum of an isolated

system of objects remains constant.
- Momentum conservation results from Newton's Third Law of Motion.
- Momentum conservation is applied to collision and explosion problems to determine objects' motion before or after a collision or explosion.

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of impulse and conservation of momentum.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to momentum, its transfer and its conservation.

Resources

Core
- Conceptual Physics textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental
Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 1-2 weeks

UNIT 5
Energy

Unit Goals

At the completion of this unit, students will:

HS-PS3-1	**Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.**
HS-PS3-2.	Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motion of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How will the increasing demand for energy be met in the future?

Unit Essential Vocabulary

- Kinetic Energy
- Gravitational Potential Energy
- Elastic Potential Energy
- Work
- Power

Unit Scope and Sequence

- Energy is an abstract, scalar quantity possessed by an object (or system of objects) that comes in a variety of forms. The SI unit for energy is the joule (J), named after James Prescott Joule, and is equivalent to N•m or kg•m^2/s^2. Energy is also commonly measured in calories
- Energy can be converted from one form to another through the process of work, but it cannot be created nor destroyed. The total amount of energy in the universe is constant.
- Kinetic energy is energy associated with the translational motion of an object/system. A faster moving object has more kinetic energy than an identical slower moving object. A massive object has more kinetic energy than a less massive object moving at the same speed.
- Gravitational potential energy is energy associated with the interaction (attraction) between objects with mass. The farther apart two masses are the more gravitational potential energy there is.
- Elastic potential energy is energy associated with the stretching or compressing of a spring (or other elastic substance). The more stretched/compressed a spring, the more elastic potential energy it has stored. A stiffer spring will possess more elastic potential energy than a looser spring for the same amount of stretching or compression.
- The Law of Conservation of Energy states that energy cannot be created nor destroyed, but it can be converted between the different types.
- Power is the rate at which work is done (or the rate at which energy is converted from one form to another).

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of work, power and conservation of energy.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to energy, its transfer and its conservation.

Resources
Core
- Conceptual Physics textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental
Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.

- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 2-3 week

UNIT 6
Electrostatics

Unit Goals

At the completion of this unit, students will:

HS-PS2-4.	Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-6.	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
HS-PS3-5.	**Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.**

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How does electrical charge interact with matter?
- What rules govern how charge pushes and pulls on the world?

Unit Essential Vocabulary

- Electric Charge
- Coulomb (Unit)
- Electron
- Proton
- Electric Force
- Electrical Polarization
- Electrical Induction
- Electrical Grounding
- Electrical Insulator/Conductor
- Electric Field
- Electric Field Strength
- Electric Field Potential Difference

Unit Scope and Sequence

- There are two kinds of electrical charge, positive and negative
- Electrical charge is not created or destroyed; it is conserved.
- Objects can be charged by the transfer of electrons.
- Charges added to one part of an insulator remain on that part.
- Charges added to a conductor quickly spread over the surface of the object.
- Charged objects exert forces on other charged objects. Like charges repel; unlike charges attract
- An object can be charged by conduction by touching a charged object to it
- To charge an object by induction, a charged object is first brought nearby, causing a separation of charges. Then the object to be charged is separated, trapping opposite charges on the two halves.
- Coulomb's law states that force between two charged objects varies directly with the product of their charges and inversely with the square of the distance between them.
- The SI unit of charge is the coulomb. One coulomb © is the magnitude of the charge of 6.25×10^{18} electrons or protons. The elementary charge, the charge of the proton or electron, is 1.60×10^{-19} C.
- A charged object of either sign can produce separation of charge in a neutral body. Thus a charged object attracts a neutral one.
- An electric field exists around any charged object. The field produces forces on other charged objects.
- The electric field intensity is the force per unit charge. The direction of the electric field is the direction of the force on a tiny, positive test charge.
- Electric field lines provide a picture of the electric field. They are directed away from the positive charges and toward negative charges.
- Electric potential difference is the change in potential energy per unit charge in an electric field, and is measured in volts.
- A charged object can have its excess charge removed by touching it to Earth or to an object touching Earth. This is called grounding.

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of electrostatics.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to electrostatic interactions.

Resources

<u>Core</u>

- Conceptual Physics textbook

- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental
Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 2-3 weeks

UNIT 7
Electric Current

Unit Goals

At the completion of this unit, students will:

HS-PS2-6.	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
HS-PS3-1	Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.
HS-PS3-3.	**Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.**

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How is energy transferred in electric circuits?

Unit Essential Vocabulary

- Electrical Circuit
- Electrical Voltage Source
- Emf (Electro-Motive Force)
- Volt (Unit)
- Electrical Resistance
- Ohm (Unit)
- Resistivity
- Electrical Current
- Ampere (Unit)
- Electrical Power
- Series Connection
- Parallel Branch

Unit Scope and Sequence

- Batteries, generators, and solar cells convert various forms of energy to electric energy
- In an electric circuit, electric energy is transmitted from a device that produces electric energy to a resistor or other device that converts electrical energy to the form needed.
- As a charge moves through resistors in a circuit, its potential energy is reduced. The energy released when the charge moves around the remainder of the circuit equals the work done to give the charge its initial potential energy.
- The SI unit for electric current is the ampere (A). One ampere is one coulomb per second.
- Ohm's law states that the resistance (R) of a device is the ratio of the voltage (V) across it divided by the current (I) through it, or R = V/I.
- In a device that obeys Ohm's law, the resistance remains constant as the voltage and current change.
- The current in a circuit can be varied by changing either the voltage or the resistance, or both.
- In a circuit diagram, conventional current is used. This is the direction in which a positive charge would move.
- In long-distance transmission, current is reduced without power being reduced by increasing voltage.
- Current is the same everywhere in a series circuit.
- The equivalent resistance of a series circuit is the sum of the resistances of its parts.
- The sum of the voltage drops across resistors in series is equal to the potential difference applied across the combination.
- The voltage drops across all branches of a parallel circuit are the same.
- In a parallel circuit, the total current is equal to the sum of the currents in the branches.
- The reciprocal of the equivalent resistance of parallel resistors is equal to the sum of the reciprocals of the individual resistances.
- If any branch of a parallel circuit is opened, there is no current in that branch. The current in the other branches is unchanged.
- A fuse or circuit breaker, placed in series with appliances, creates an open circuit when dangerously high currents flow.
- An ammeter is used to measure current in a branch or part of a circuit. An ammeter always has a low resistance and is connected in series.
- A voltmeter is used to measure a potential difference (voltage) across any part or combination of parts of a circuit. A voltmeter always has high resistance and is connected in parallel with the part of the circuit being measured.

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of electrical circuitry, including Ohm's Law and series and parallel circuits.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:

Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to electrical current and its control.

Resources

Core
- Conceptual Physics textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental
Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 2-3 weeks

UNIT 8
Magnetism

Unit Goals

At the completion of this unit, students will:

HS-PS2-5.	**Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.**
HS-PS2-6.	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
HS-PS3-1	Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.
HS-PS3-3.	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.
HS-PS3-5.	**Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.**

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How are magnetism, electric charge and electricity related?
- How is electromagnetism harnessed to produce mechanical work?

Unit Essential Vocabulary

- Magnetic Field
- Tesla (Unit)
- Magnetic Force
- Magnetic Domain
- Magnetic Pole
- Electromagnet
- Motor Effect
- Electromagnetic Induction
- Generator Effect
- Transformer

Unit Scope and Sequence

- Like magnetic poles repel; unlike magnetic poles attract
- Magnetic fields exit from the north pole of a magnet and enter its south pole.
- Magnetic field lines always form closed loops.
- A magnetic field exists around any wire that carries current.
- A coil of wire that carries a current has a magnetic field. The field about the coil is like the field about a permanent magnet.
- When a current-carrying wire is placed in a magnetic field, there exists a force on the wire that is perpendicular to both the field and the wire.
- The strength of a magnetic field (B) is measured in teslas (one newton per ampere per meter).
- The force a magnetic field exerts on a current-carrying wire is the product of the magnetic field, B, the current through the wire, I, the length of the wire, L, and the sine of the angle between the magnetic field and the direction of current flow.
- An electric motor consists of a coil of wire placed in a magnetic field. When there is current in the coil, the coil rotates as the result of the force on the wire in the magnetic field.
- The force a magnetic field exerts on a charged particle depends on the velocity and charge of the particle and the strength of the field. The direction of force is perpendicular to both the field and the particle's velocity.
- Electromotive force (EMF) is the potential difference created across the moving wire, and is measured in volts.
- The EMF in a straight length of wire moving through a uniform magnetic field is the product of the magnetic field, B, the length of wire, L, and the component of the velocity of the moving wire, v, perpendicular to the field.
- A generator and a motor are similar devices. A generator converts mechanical energy to electrical energy; a motor converts electrical energy to mechanical energy.
- A transformer has two coils wound about the same core. An AC current through

the primary coil induces an alternating EMF in the secondary coil. The voltages in alternating-current circuits may be increased or decreased by transformers.

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of magnetism, including electro-magnetic induction.

Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to magnetic interactions.

Resources

Core
- Conceptual Physics textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental
Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 2-3 weeks

UNIT 9
Waves and Sound

Unit Goals

At the completion of this unit, students will:

HS-PS4-1.	**Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.**
HS-PS4-5.	Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How does our understanding of wave phenomena affect human society?

Unit Essential Vocabulary

- Period
- Frequency
- Hertz
- Wavelength
- Amplitude
- Medium
- Transverse Wave
- Longitudinal Wave
- Wave Pulse
- Decibel
- Superposition
- Constructive Interference
- Destructive Interference
- Resonance
- Standing Wave

Unit Scope and Sequence

- A wave is a disturbance or vibration in matter that results in the transfer of energy between locations without the bulk transfer of matter.
- Most waves require a medium (matter) to travel through; energy is transmitted from particle to particle in the medium. Electromagnetic waves (light) are an exception to this as they can travel through a vacuum.
- Transverse waves are waves in which the individual particles in the medium vibrate perpendicularly to the direction the energy is traveling. Examples include light and "the wave" done during sporting events.
- Longitudinal waves are waves in which the individual particles in the medium vibrate parallel to the direction the energy is traveling, resulting in compressions and expansions of the particles. Sound is an example of a longitudinal wave.
- The amplitude of a wave is measured based on the maximum distance the particles are displaced from their rest position. Amplitude is related to the amount of energy being transmitted; a wave with a greater amplitude transmits more energy than a wave with a smaller amplitude.
- A wave pulse is a single disturbance or vibration. A periodic wave results when wave pulses occur at a regular interval/rate.
- Wave speed is the rate at which the disturbance moves through the medium. As with any speed, it is often measured in meters per second. Wave speed is determined by the properties of the medium (for example sound travels faster in water than in air due to the different properties of those media).
- Frequency is a measurement associated with a periodic wave, and it is the rate at which wave pulses are created (how many waves per second). Frequency is measured in hertz (Hz), and is determined by the source of the disturbance.
- Period is a measurement associated with a periodic wave, and it is the number of seconds between wave pulses. Period and frequency are thus inversely related to one another (seconds per wave vs. waves per second).
- Wavelength is a measurement associated with a periodic wave, and it is the distance between successive wave pulses. Wavelength is measured in meters, and is dependent upon the wave speed and frequency.
- Wave speed, wavelength, and frequency are related to each other through the wave equation: $v = \lambda f$. This equation can be used to describe any type of wave phenomena.
- Intensity is a measurement of the rate of energy delivered by a wave per unit area.
- The lowest intensity perceptible to the human ear is approximately 10^{-12} W/m^2, and the greatest intensity (when sound starts to be painful) is 1 W/m^2. Due to this huge range of values, the Decibel scale is often used.
- The Decibel scale is a logarithmic scale, where 0 dB is the threshold of hearing and 120 dB is the threshold of pain.
- When more than one wave occupies the same location in a medium, superposition occurs and the amplitudes of the waves combine. Constructive interference occurs when the overall amplitude is greater than the individual amplitudes; destructive interference occurs when the overall amplitude is smaller than the individual amplitudes.
- Standing waves can be formed in a medium under the right conditions of constructive and destructive interference. A standing wave appears to oscillate in place as the individual wave pulses travel back and forth. Certain locations in the medium (called nodes) always have destructive interference occurring, resulting in minimal vibration of

the medium. Other locations in the medium (called antinodes) alternate between destructive interference and constructive interference, resulting in maximum vibration of the medium.
- The speed of waves on a string, wire, or spring is dependent on the tension and linear mass density of the medium. Standing waves can be formed on a string, wire, or spring when the length of the medium is a multiple of half wavelengths of the periodic wave (with a node existing at each end).
- The speed of sound in air is directly related to the temperature of the air. At room temperature, the speed of sound is approximately 343 m/s.
- Standing sound waves can be created in an open pipe (open to the atmosphere at both ends) when the length of the pipe is a multiple of half wavelengths of the sound waves (with an antinode existing at each end).
- Standing sound waves can be created in a closed pipe (open to the atmosphere at only one end) when the length of the pipe is an odd multiple of quarter wavelengths of the sound waves (with a node at the closed end and an antinode at the open end).

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of waves and sound, including resonance and standing waves.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to waves and sound.

Resources

<u>Core</u>
- Conceptual Physics textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

<u>Supplemental</u>
Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 2-3 weeks

UNIT 10
Light

Unit Goals

At the completion of this unit, students will:

HS-PS4-1.	**Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.**
HS-PS4-5.	Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- What is the nature of light?
- How does light interact with substances?
- How can light properties be used?

Unit Essential Vocabulary

- Electromagnetic Spectrum
- Photon
- Reflection
- Refraction
- Refraction Index
- Angle Of Incidence
- Snell's Law
- Critical Angle
- Total Internal Reflection
- Real Image
- Virtual Image

Unit Scope and Sequence

- Light is part of the electromagnetic spectrum of waves that travel through space in essentially straight lines at 3 x 10^8 meters per second.
- Light also exhibits properties of particles. These particles are called photons which contain a certain amount of energy and momentum as indicated by their frequency.
- Reflected light leaves an object's surface at the same angle it hit the object's surface.
- Refraction index of a substance indicates the degree to which the light is slowed down when it is transmitted through the substance.
- When light enters an object at an angle, its direction is changed according to Snell's law and the refraction index.
- Light striking the surface can experience total internal reflection if the incident angle is greater than the critical angle.
- Light reflected off the surface of an object can be directed to form an image.
- Light refracted through an object can be directed to form an image.
- These images can be real (projectable) or virtual (not projectable)

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of light optics, including image formation.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to light and optics.

Resources

<u>Core</u>
- Conceptual Physics textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

<u>Supplemental</u>
Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 2-3 weeks

CREDIT

1.0 credits in science
One class period for a full year

PREREQUISITES

Successful completion of CP or ACP Chemistry

ASSURED STUDENT PERFORMANCE RUBRICS

- Trumbull High School School-Wide Problem Solving Through Critical Thinking Rubric
- Trumbull High School School-Wide Writing Rubric
- Trumbull High School School-Wide Independent Learning and Thinking Rubric

Trumbull High School School-Wide Problem Solving Through Critical Thinking Rubric

Category/ Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Understanding X_____	• Student demonstrates clear understanding of the problem and the complexities of the task	• Student demonstrates sufficient understanding of the problem and most of the complexities of the task	• Student demonstrates some understanding of the problem but requires assistance to complete the task	• Student demonstrates limited or no understanding of the fundamental problem after assistance with the task
Research X_____	• Student gathers compelling information from multiple sources including digital, print, and interpersonal	• Student gathers sufficient information from multiple sources including digital, print, and interpersonal	• Student gathers some information from few sources including digital, print, and interpersonal	• Student gathers limited or no information
Reasoning and Strategies X_____	• Student demonstrates strong critical thinking skills to develop a comprehensive plan integrating multiple strategies	• Student demonstrates sufficient critical thinking skills to develop a cohesive plan integrating strategies	• Student demonstrates some critical thinking skills to develop a plan integrating some strategies	• Student demonstrates limited or no critical thinking skills and no plan
Final Product and/or Presentation X_____	• Solution shows deep understanding of the problem and its components • Solution shows extensive use of 21st-century technology skills	• Solution shows sufficient understanding of the problem and its components • Solution shows sufficient use of 21st-century technology skills	• Solution shows some understanding of the problem and its components • Solution shows some use of 21st-century technology skills	• Solution shows limited or no understanding of the problem and its components • Solution shows limited or no use of 21st-century technology skills

Trumbull High School School-Wide Writing Rubric

Category/ Weight	Exemplary 4 Student work:	Goal 3 Student work:	Working Toward Goal 2 Student work:	Needs Support 1-0 Student work:
Purpose X_____	• Establishes and maintains a clear purpose • Demonstrates an insightful understanding of audience and task	• Establishes and maintains a purpose • Demonstrates an accurate awareness of audience and task	• Establishes a purpose • Demonstrates an awareness of audience and task	• Does not establish a clear purpose • Demonstrates limited/no awareness of audience and task
Organization X_____	• Reflects sophisticated organization throughout • Demonstrates logical progression of ideas • Maintains a clear focus • Utilizes effective transitions	• Reflects organization throughout • Demonstrates logical progression of ideas • Maintains a focus • Utilizes transitions	• Reflects some organization throughout • Demonstrates logical progression of ideas at times • Maintains a vague focus • May utilize some ineffective transitions	• Reflects little/no organization • Lacks logical progression of ideas • Maintains little/no focus • Utilizes ineffective or no transitions
Content X_____	• Is accurate, explicit, and vivid • Exhibits ideas that are highly developed and enhanced by specific details and examples	• Is accurate and relevant • Exhibits ideas that are developed and supported by details and examples	• May contain some inaccuracies • Exhibits ideas that are partially supported by details and examples	• Is inaccurate and unclear • Exhibits limited/no ideas supported by specific details and examples
Use of Language X_____	• Demonstrates excellent use of language • Demonstrates a highly effective use of standard writing that enhances communication • Contains few or no errors. Errors do not detract from meaning	• Demonstrates competent use of language • Demonstrates effective use of standard writing conventions • Contains few errors Most errors do not detract from meaning	• Demonstrates use of language • Demonstrates use of standard writing conventions • Contains errors that detract from meaning	• Demonstrates limited competency in use of language • Demonstrates limited use of standard writing conventions • Contains errors that make it difficult to determine meaning

Trumbull High School School-Wide Independent Learning and Thinking Rubric

Category/ Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Proposal X_____	• Student demonstrates a strong sense of initiative by generating compelling questions, creating uniquely original projects/work	• Student demonstrates initiative by generating appropriate questions, creating original projects/work	• Student demonstrates some initiative by generating questions, creating appropriate projects/work	• Student demonstrates limited or no initiative by generating few questions and creating projects/work
Independent Research & Development X_____	• Student is analytical, insightful, and works independently to reach a solution	• Student is analytical, and works productively to reach a solution	• Student reaches a solution with direction	• Student is unable to reach a solution without consistent assistance
Presentation of Final Product X_____	• Presentation shows compelling evidence of an independent learner and thinker • Solution shows deep understanding of the problem and its components • Solution shows extensive and appropriate application of 21st-century skills	• Presentation shows clear evidence of an independent learner and thinker • Solution shows adequate understanding of the problem and its components • Solution shows adequate application of 21st-century skills	• Presentation shows some evidence of an independent learner and thinker • Solution shows some understanding of the problem and its components • Solution shows some application of 21st-century skills	• Presentation shows limited or no evidence of an independent learner and thinker • Solution shows limited or no understanding of the problem and its components • Solution shows limited or no application of 21st-century skills

TRUMBULL PUBLIC SCHOOLS

Trumbull, Connecticut

ACP Physics Grade 12

2023

(Last revision date: 2022)

Curriculum Writing Team

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ACP Physics

Grade 12

Table of Contents

The Trumbull Board of Education will continue to take Affirmative Action to ensure that no persons are discriminated against in its employment.

CORE VALUES AND BELIEFS

The Trumbull High School community engages in an environment conducive to learning which believes that all students will **read** and **write effectively**, therefore communicating in an articulate and coherent manner. All students will participate in activities **that present problem-solving through critical thinking**. Students will use technology as a tool applying it to decision making. We believe that by fostering self-confidence, self-directed and student-centered activities, we will promote **independent thinkers and learners**. We believe **ethical conduct** to be paramount in sustaining the welcoming school climate that we presently enjoy.
Approved 8/26/2011

INTRODUCTION & PHILOSOPHY

In Grade 12 Physics, students will explore many of the systems and processes of the physical world by investigating the macroscopic interactions of matter through the topics of general physics. By focusing on the changes in matter and energy, scientifically literate students can use this deeper understanding to make predictions, analyze scientific data, and contribute to the greater scientific community. Students in this course will typically have completed ACP Chemistry with a focus on the microscopic interactions of matter.

This curriculum has been modified most recently (2021) to remain consistent in the continued development of scientifically literate students, with a concentration on matter, energy, and changes. Authentic scientific and engineering experiences build on one another and increase in complexity throughout students' K-12 education. In 2015, the Connecticut State Board of Education adopted the Next-Generation Science Standards (NGSS), which embody the National Research Council's *Framework for K-12 Science Education* (2012). Both the *Framework* and the NGSS stress the importance of teaching classroom scientific inquiry as practiced by scientists and engineers. The *Framework* provides a vision for American science education in the 21st century, while the NGSS provides grade-level student performance expectations, disciplinary core ideas, and crosscutting concepts. The *Framework* and NGSS indicated a paradigm shift in science education, one in which teachers are to incorporate authentic learning experiences for students that reflect the nature of doing science and engineering.

The *Framework* and NGSS provide clarity to classroom scientific inquiry by stressing the importance of eight practices of science and engineering. The practices were designed to help students understand how scientific knowledge develops, and to stimulate students' interest in and continued study of science. Three-dimensional learning facilitates student engagement with Science and Engineering Practices and Crosscutting Concepts to deepen their understanding of Disciplinary Core Ideas in order to explain phenomena and solve problems. Three-dimensional learning promotes development of student skills in the following areas:

- Knowing, using, and interpreting scientific explanations of the natural world (Disciplinary Core Ideas, and Crosscutting Concepts)
- Generating and evaluating scientific evidence and explanations (Science and Engineering Practices)
- Participating productively in scientific practices and discourse (Science and Engineering Practices)

- Understanding the nature and development of scientific knowledge (Science and Engineering Practices, and Crosscutting Concepts)

The shift of science education reflects the interconnected nature of science as it is practiced in the real world and builds coherently across grades K-12. The NGSS focus on deeper understanding of content as well as application of content with an alignment to the Connecticut Core Standards. A deeper understanding and application of science and engineering practices prepare students for postsecondary success and citizenship in a world fueled by innovations in science and technology. In accordance with the NGSS Science and Engineering Practices, students will be asked to . . .

- ask questions (for science) and define problems (for engineering).
- develop and use models.
- plan and carry out investigations.
- analyze and interpret data.
- use mathematics and computational thinking.
- construct explanations (for science) and design solutions (for engineering).
- engage in arguments from evidence.
- obtain, evaluate, and communicate information.

Grade 12 Physics is offered at two separate course levels: Advanced College Preparatory (ACP) and College Preparatory (CP). Both levels will explore each unit of study. The courses are differentiated by pacing of curriculum, rigor of exploration, depth of content knowledge, and the application of quantitative reasoning. The ACP course will explore topics with the greatest depth, most rigorous exploration, deepest study of content, and furthest application of quantitative reasoning. More support will be offered at the CP course level. In addition, study of physics principles is offered through an early college experience collaborative (UCONN Physics) and two Advanced Placement courses: Physics C (AP-C) and Physics 1 (AP-1). These advanced courses follow a different curriculum, and demand a much higher rigor of exploration, depth of content knowledge, and the application of quantitative reasoning.

This newest revision of the ACP Physics curriculum has been adjusted to reflect the loss of dedicated laboratory time for the course, effectively reducing in-school contact time by 26%.

COURSE GOALS

The following course goals derive from the 2021 Next Generation Science Standards.

HS-PS2-1.	Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
HS-PS2-2.	Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.
HS-PS2-3.	Apply science and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.
HS-PS2-4.	Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-5.	Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.
HS-PS2-6.	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
HS-PS3-1	Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.
HS-PS3-2.	Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motion of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

HS-PS3-4.	Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).
HS-PS3-5.	Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.
HS-PS4-1.	Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.
HS-PS4-5.	Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

The following course goals derive from the 2010 Connecticut Common Core State Standards for English Language Arts and Literacy in History/Social Studies, Science and Technical Subjects

CCSS.ELA-LITERACY.RST.11-12.1	Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
CCSS.ELA-LITERACY.RST.11-12.2	Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
CCSS.ELA-LITERACY.RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
CCSS.ELA-LITERACY.RST.11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.

CCSS.ELA-LITERACY.RST.11-12.5	Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
CCSS.ELA-LITERACY.RST.11-12.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.
CCSS.ELA-LITERACY.RST.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
CCSS.ELA-LITERACY.RST.11-12.8	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
CCSS.ELA-LITERACY.RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible
CCSS.ELA-LITERACY.RST.11-12.10	By the end of grade 12, read and comprehend science/technical texts in the grades 11-CCR text complexity band independently and proficiently.

The following course goals derive from the 2010 Connecticut Core Standards for Literacy.

CCSS.ELA-LITERACY.RI.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
CCSS.ELA-LITERACY.RI.11-12.2	Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.

CCSS.ELA-LITERACY.RI.11-12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
CCSS.ELA-LITERACY.RI.11-12.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness or beauty of the text.
CCSS.ELA-LITERACY.W.11-12.1.B	Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases.
CCSS.ELA-LITERACY.W.11-12.1.D	Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
CCSS.ELA-LITERACY.W.11-12.2.B	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
CCSS.ELA-LITERACY.W.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCSS.ELA-LITERACY.W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
CCSS.ELA-LITERACY.W.11-12.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences

CCSS.ELA-LITERACY.SL.11-12.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data
CCSS.ELA-LITERACY.SL.11-12.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
CCSS.ELA-LITERACY.L.11-12.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
CCSS.ELA-LITERACY.L.11-12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression

The following course goals derive from the 2016 International Society for Technology in Education (ISTE) Technology Standards

ISTE Standard 1 - Empowered Learner	Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.
ISTE Standard 2 - Digital Citizen	Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.
ISTE Standard 3 - Knowledge Constructor	Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
ISTE Standard 4 - Innovative Designer	Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

ISTE Standard 5 - Computational Thinker	Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions
ISTE Standard 6 - Creative Communicator	Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals
ISTE Standard 7 - Global Collaborator	Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally

COURSE ENDURING UNDERSTANDING

Students will understand that…

- scientific knowledge is acquired through inquiry, experimentation, data analysis, and interpretation.
- scientific conclusions and explanations are based on research data, and scientific results may be assessed based on the design of the investigation.
- scientific ideas and concepts evolve over time.
- the credibility of scientific information found in various media can vary.
- mathematical operations and procedures may be used to calculate, analyze, and present data and ideas.
- science and technology affect the quality of our lives.

Also, in accordance with the NGSS Cross-Cutting Concepts, students will work to understand...

- how observed patterns of forms and events guide organization and classification, and prompt questions about relationships and the factors that influence them.
- events have causes, sometimes simple, sometimes multifaceted and that a major activity of science is investigating and explaining causal relationships and the mechanisms by which they are mediated. Such mechanisms can then be tested across given contexts and used to predict and explain events in new contexts.
- scale, proportion, and quantity in considering phenomena. It is critical to recognize what is relevant at different measures of size, time, and energy and to recognize how changes in scale, proportion, or quantity affect a system's structure or performance.
- that defining the system under study – specifying its boundaries and making explicit a model of that system – provides tools for understanding and testing ideas that are applicable throughout science and engineering.
- that the tracking of fluxes of energy and matter into, out of, and within systems helps one understand the systems' possibilities and limitations.
- structure and function, in such that the way in which an object or living thing is shaped and its substructure determine many of its properties and functions.
- that for natural and built systems alike, conditions of stability and determinants of rates of change or evolution of a system are critical elements of study.

COURSE ESSENTIAL QUESTIONS

From Study.com:

- How are graphical and mathematical models created from experimental data?
- How are fields used to model physics phenomena?
- How can rules and relationships be used to predict what happens in a physical situation?
- How can physics be applied to understanding everyday life?
- How can abstract mathematics be used to describe phenomena?
- How can abstract mathematics be used to represent relationships between variables?
- To what extent does physics explain phenomena at the wide variety of scales?
- How can physics be used to solve problems?
- How does physics explain change and constancy in the universe?
- What is the value in separating the universe into systems when trying to explain it?
- Why are system boundaries important to define?
- Why are assumptions and approximations important in physics? To what extent does this limit the usefulness of your results?
- To what extent does physics explain cause and effect?
- How can scientific ideas be used to solve problems?
- How is matter and energy related?
- How is the universe constructed from the tiny scales to the largest?
- How can physics be used to create models and simulations?
- Why is correlation and causation not the same thing?
- How are physics and engineering related?
- How can scientific knowledge be communicated?
- How can scientific arguments be evaluated?
- How should scientific investigations be designed?

From NGSS (Physical Science):

- How can one explain and predict interactions of objects and systems of objects?
- How can one predict an object's continued motion, change in motion,or stability?
- What underlying forces explain the variety of interactions observed?
- Why are some physical systems more stable than others?
- How is energy transferred and conserved?
- What is meant by conservation of energy?
- How is energy transferred between objects or systems?
- How are forces related to energy?
- If energy is conserved,why do people say it is produced or used?
- How are waves used to transfer energy and information?
- What are the characteristic properties and behaviors of waves?

- What is light?
- How can one explain the varied effects that involve light?
- What other forms of electromagnetic radiation are there?
- How are instruments that transmit and detect waves used to expand human senses?

COURSE KNOWLEDGE & SKILLS

The following core knowledge and skills will be developed through students' work in this course:

Students will know . . .

- the appropriate techniques and procedures to use in a laboratory setting.
- the difference between scalar and vector quantities.
- the difference between distance and displacement.
- the difference between speed and velocity.
- the definition of the term acceleration.
- Newton's Laws of Motion.
- the various types of forces.
- the definitions of momentum and momentum conservation.
- the definition of impulse and its relationship to momentum change.
- the relationship between momentum conservation and Newton's laws of motion.
- the differences between various types of energy (kinetic, gravitational potential, elastic potential, thermal).
- the relationship between work and the change in energy of a system.
- that power is calculated as the rate at which work is done (rate of energy conversion).
- that charging of an object is the separation, not the creation, of electrical charges.
- that electrically charged objects exert forces, both attractive and repulsive.
- the ways objects become charged.
- the definition of electrical force as it relates to the charges on objects and the distance between them.
- the definitions of electric current, potential difference, resistance, and power, and their relationships to each other.
- the properties of magnets and the origin of magnetism in materials.
- the relationship between magnetic induction and the direction of force on a current-carrying wire in a magnetic field.
- the design and operation of an electric motor.
- how wave phenomena are described, using the following terms: amplitude, wave pulse, periodic wave, wavelength, frequency, period, and wave speed.
- the differences between transverse and longitudinal waves, and provide examples of each.

- what happens when two or more waves attempt to occupy the same location in a medium.
- the definition of wave resonance and its relation to an object's natural frequency.
- how light travels.
- that light is part of the electromagnetic spectrum.
- that when light strikes an object, it is absorbed, reflected from or transmitted through the substance and what happens when these occur.
- the dual nature of light.

Students will be able to . . .

- abide by the safety rules and regulations set forth by the safety contract.
- use appropriate tools and techniques to make observations and gather data.
- articulate conclusions and explanations based on research data, and assess results based on the design of the investigation.
- describe the motion of an object with constant velocity vs. constant acceleration.
- use the kinematic equations to complete one-dimensional motion problems.
- create and interpret position vs. time graphs.
- create and interpret velocity vs. time graphs.
- describe the motion of a freely-falling object.
- use the kinematic equations to complete free fall motion problems.
- describe the motion of a projectile.
- use the kinematic equations to complete two-dimensional motion problems.
- describe how friction affects the motion of two objects that are in contact with each other.
- draw free body diagrams of objects with arrows identifying the forces acting on the object.
- use a free body diagram and vector addition to determine the net force acting on an object.
- use Newton's Second Law to predict the acceleration of an object given its mass and the net force acting upon it.
- solve problems relating an object's mass, forces acting on it and its motion.
- solve collision and explosion problems using the conservation of momentum.
- quantify the amount of each type of energy a system possesses.
- quantify the amount of work done by a force.
- use the work-energy theorem to solve problems.
- use conservation of energy to solve problems.
- solve electrostatics problems using the conservation of charge.
- describe the requirements for electric current flow in circuits.
- diagram simple electric circuits.
- solve problems involving current, potential difference, resistance, power, and the use and cost of electric energy.

- compare various magnetic fields.
- solve problems involving magnetic field strength and forces on current-carrying wires, and on moving, charged particles in magnetic fields.
- solve problems involving magnetic field strength and forces and induced EMF in moving wires.
- apply the phenomenon of induced EMF to the construction of generators and transformers.
- calculate the intensity (in W/m^2 and decibels) of a sound wave.
- explain and draw how standing waves can form on a string.
- explain and draw how standing waves can form in a closed pipe.

COURSE SYLLABUS

Course Name

ACP Physics

Level

Advanced College Prep

Prerequisites

ACP Prerequisite: Successful completion of ACP Chemistry.
(CP Prerequisite: Successful completion of CP Chemistry or ACP Chemistry.)

General Description of the Course

This course consists of a practical study of mechanics, heat, sound, electricity, magnetism, light, atomic physics and astrophysics, stressing technological application. The CP level is similar to ACP Physics except that there is less of a need for mathematical skills. It is designed to acquaint the student with physics, as it is applicable in everyday life. Recommended for students planning to attend college, but who are not planning to major in science. The ACP level comprises a quantitative study of mechanics, wave phenomena, optics, heat, electricity and magnetism. The course demonstrates the mathematical relationships in physics concepts and applies these relationships to problem solving situations.

Assured Assessments

Formative assessments can include, but are not limited to:

- Individual and group lists of safety lessons learned (Unit 1)
- Construction of models (Unit 2)
- Lab activities (Units 2, 3, 4, 5, 6, 7, 8, 9, 10)
- Data collection and analysis (Units 2, 3, 4, 5, 6, 7, 8, 9, 10)

Summative Assessments:

- End-of-unit assessment with multiple-choice questions (Unit 1)
- End-of-unit assessment with multiple-choice questions, free-response questions, and interpreting and analyzing data (Units 2, 3, 4, 5, 6, 7, 8, 9, 10)
- Midyear examination
- End-of-year examination

UNIT 1
Mathematical Tools

Unit Goals

At the completion of this unit, students will:

- **collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making (ISTE Technology Standards – Computational Thinking – Standard 5b)**

- know how to conduct experiments safely with a variety of physics-related equipment and technologies in accordance with the Connecticut State Department of Education (SDE) guidance document which can be found at the following link: https://portal.ct.gov/SDE/Publications/Connecticut-High-School-Science-Safety/Physics - Laboratory-Safety-Specifications

Unit Essential Questions

- How do scientists experiment safely?
- How are tools selected and utilized to gather valid data in science?

Unit Essential Vocabulary

- Accuracy
- Precision
- Error
- Observation
- Conclusion/Inference

Unit Scope and Sequence

- Scientists develop models based on observation and data to explain natural phenomena and predict the results of actions.
- Data is collected through observation and measurement, using human senses or measuring devices.
- Measuring devices are calibrated to agree with each other or agree with an accepted value.
- The accuracy of a measurement or calculation refers to its agreement with other measurements or calculations, or to an accepted value for that quantity.
- The precision of a measurement refers to the "exactness" of the quantity, and is determined by the measuring device used.
- Data trends are best conveyed and communicated through the creation of a graph.

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental

processes on the topics of scientific measurement.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to mathematical scientific tools.

Resources

Core
- Physics Principles and Problems textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental
- Flinn Scientific's Student Safety Contract Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 1-2 Weeks

UNIT 2
Kinematics

Unit Goals

At the completion of this unit, students will:

NGSS Practices (Developing and Using Models):

- **develop and/or use a model to generate data to support explanations, analyze systems, or solve problems.** *Example: A ball's motion is represented using graphical and pictorial models. Students are required to use one or more of these models to analyze the ball's motion, to give explanations, and to solve problems*

NGSS Practices (Analyzing and Interpreting Data):

- analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution. *Example: With pictorial and graphical data representations of a ball's motion, students are asked to analyze data and make meaning of the patterns that emerge from the data sets. Students also use information from one graph in combination with data from another to determine an unknown quantity or relationship.*

NGSS Crosscutting Concepts (Patterns):

- recognize that different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena. *Example: As gravity affects a ball's motion both on its way up as well as on its way back down, students discover that a ball's downward motion is just a 'mirror image' of its upward motion. This symmetry becomes clear in the ball's dot diagram, the position vs. time graph, and in the velocity vs. time graph. Such patterns are not only helpful in solving kinematics problems, they speak to gravity's constant effect on any object in free fall.*

ISTE Technology Standards

ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How is motion quantified?
- How is motion predictable?

Unit Essential Vocabulary

- Scalar
- Vector
- Position
- Distance
- Displacement
- Speed
- Velocity
- Acceleration

Unit Scope and Sequence

- Scalar quantities can be described completely with magnitude alone; vector quantities are described
- completely with magnitude and direction.
- Position is a vector quantity that describes where an object is at some moment in time.
- Displacement is a vector quantity that describes how far and in what direction an object has moved; distance is a scalar quantity that describes how far an object traveled in total to get from its starting to ending location.
- Velocity is a vector quantity that describes the direction and rate at which an object changes position, usually measured in "meters per second" (m/s). Speed is a scalar quantity that is either (1) the rate at which distance traveled changes, or (2) the magnitude of the velocity.
- Instantaneous velocity refers to the velocity at one particular moment in time, regardless of previous or future moments. Average velocity refers to the average rate of change in position over a given time interval.
- Acceleration is a vector quantity that describes the direction and rate at which an object's velocity changes, usually measured in "(meters per second) per second" (or m/s^2). Instantaneous acceleration refers to the acceleration at one particular moment in time, regardless of previous or future moments; average acceleration refers to the average rate of change in velocity over a given time interval.
- A ticker tape diagram (or oil drop diagram) can be used to visually represent the motion of an object. Concepts such as displacement, velocity, and acceleration can be inferred from these diagrams.
- A position vs. time graph displays the location of an object as a function of time. The slope of this graph represents the average velocity of the object.
- A velocity vs. time graph displays the velocity of an object as a function of time. The slope of this graph represents the average acceleration of the object. The area bounded by this graph and the time axis represents the displacement of the object.
- An object is said to be in free fall any time the force of gravity is the only force acting

on the object. This includes objects dropped, objects through up or down, and projectiles (always assuming air resistance is negligible). While in free fall near the surface of the Earth, all objects experience a constant downward acceleration of approximately 9.8 m/s^2.

- The kinematic equations are a set of four mathematical equations that can be used to describe the one-dimensional motion of any object experiencing constant acceleration. The equations relate the object's acceleration, initial velocity, velocity at some time t, displacement at some time t, and time.
- Vector quantities can be added visually using either the tail-to-tip method or the parallelogram method. These methods are especially useful when the vectors are not collinear.
- An object's measured velocity and displacement are dependent on both the object's motion and the relative motion of the object and observer. The observed acceleration of the object, however, is independent of the observer's motion (as long as the observer is not accelerating).
- The two-dimensional motion of an object can be described as two independent one-dimensional motions. Commonly these two dimensions are either (1) horizontal and vertical, or (2) north-south and east-west.
- A projectile in two-dimensional motion near the surface of the Earth experiences constant velocity in the horizontal direction and a constant acceleration of 9.8 m/s^2 downward in the vertical direction.
- The kinematic equations can be used to describe two-dimensional motion by treating the motion in each dimension separately.

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of constant speed, constant velocity and uniformly accelerated motion, including the acceleration of free-fall. Experimental work with projectile motion will also occur. Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to the kinematics of moving objects in one and two dimensions.

Resources

<u>Core</u>

- Physics Principles and Problems textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

<u>Supplemental</u>
Online resources

- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.

- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 1-2 weeks

UNIT 3
Forces

Unit Goals

At the completion of this unit, students will:

HS-PS2-1.	**Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.**
HS-PS2-4.	Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-6.	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How do Newton's Motion Laws predict the effect of forces on an object's motion?

Unit Essential Vocabulary

- Force
- Net Force
- Inertia
- Normal
- Friction
- Gravitational Field Strength
- Tension
- Weight

Unit Scope and Sequence

- Forces are defined as pushes or pulls on an object.
- Forces are classified as contact versus field forces. These are further categorized as gravitational, electromagnetic, strong nuclear and weak nuclear.
- Forces are expressed as vectors having magnitude and direction.
- Friction force acts between objects that contact each other. Friction acts parallel to the contacting surface in a direction that opposes the objects' sliding relative to each other.
- Normal force between objects that contact each other. Normal force acts perpendicular to the contacting surface.
- Friction force is directly proportional to normal force.
- The proportionality constant between friction and normal force is the friction coefficient, which is a property of any two contacting surfaces.
- Static (objects not sliding past each other) friction coefficients are generally greater than kinetic (objects sliding past each other) friction coefficients.
- Forces acting on an object combine to exert a net force.
- Net force is quantified through the use of a free body diagram of an isolated object with arrows indicating the forces exerted on the object.
- A net force is necessary to change the motion state of an object. (Newton's First Law of Motion)
- All objects have mass, the measurement of the object's inertia, its tendency to maintain its motion state.
- Acceleration, the change of an object's motion, is directly proportional to the net force acting on an object and inversely proportional to the mass of an object. (Newton's Second Law of Motion)
- Forces act in pairs between two objects. The paired forces are equal in magnitude and opposite in direction. (Newton's Third Law of Motion).

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of force (including weight, tension, friction and normal force) and Newton's Laws. Experimental work on vector force addition will also occur.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to force and Newton's Laws of mechanics.

Resources

Core

- Physics Principles and Problems textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental Online resources

- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 2-3 weeks

UNIT 4
Momentum

Unit Goals

At the completion of this unit, students will:

HS-PS2-2.	**Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.**
HS-PS2-3.	Apply science and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- What is momentum?
- How does momentum conservation determine the motion of objects interacting with each other?

Unit Essential Vocabulary

- Momentum
- Impulse
- Inelastic Collision
- Elastic Collision

Unit Scope and Sequence

- Impulse is defined as a force exerted on an objects over a period of time
- Impulse causes a change in an object's momentum. An object's momentum change is equal in magnitude and direction to the impulse exerted on it.
- The impulse/momentum change equation is the original expression of Newton's Second Law.
- Momentum is always conserved. This means that the total momentum of an isolated

system of objects remains constant.
- Momentum conservation results from Newton's Third Law of Motion.
- Momentum conservation is applied to collision and explosion problems to determine objects' motion before or after a collision or explosion.

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of impulse and conservation of momentum.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to momentum, its transfer and its conservation.

Resources

Core
- Physics Principles and Problems textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental
Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 1-2 weeks

UNIT 5
Energy

Unit Goals

At the completion of this unit, students will:

HS-PS3-1	**Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.**
HS-PS3-2.	Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motion of particles (objects) and energy associated with the relative positions of particles (objects).
HS-PS3-3.	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How will the increasing demand for energy be met in the future?

Unit Essential Vocabulary

- Kinetic Energy
- Gravitational Potential Energy
- Elastic Potential Energy
- Work
- Power

Unit Scope and Sequence

- Energy is an abstract, scalar quantity possessed by an object (or system of objects) that comes in a variety of forms. The SI unit for energy is the joule (J), named after James Prescott Joule, and is equivalent to N•m or $kg•m^2/s^2$. Energy is also commonly measured in calories
- Energy can be converted from one form to another through the process of work, but it cannot be created nor destroyed. The total amount of energy in the universe is constant.
- Kinetic energy is energy associated with the translational motion of an object/system. A faster moving object has more kinetic energy than an identical slower moving object. A massive object has more kinetic energy than a less massive object moving at the same speed.
- Gravitational potential energy is energy associated with the interaction (attraction) between objects with mass. The farther apart two masses are the more gravitational potential energy there is.
- Elastic potential energy is energy associated with the stretching or compressing of a spring (or other elastic substance). The more stretched/compressed a spring, the more elastic potential energy it has stored. A stiffer spring will possess more elastic potential energy than a looser spring for the same amount of stretching or compression.
- The Law of Conservation of Energy states that energy cannot be created nor destroyed, but it can be converted between the different types.
- Power is the rate at which work is done (or the rate at which energy is converted from one form to another).

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of work, power and conservation of energy.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to energy, its transfer and its conservation.

Resources

<u>Core</u>

- Physics Principles and Problems textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Resources (continued)

Supplemental

Online resources

- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 2-3 week

UNIT 6
Electrostatics

Unit Goals

At the completion of this unit, students will:

HS-PS2-4.	Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
HS-PS2-6.	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
HS-PS3-5.	**Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.**

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How does electrical charge interact with matter?
- What rules govern how charge pushes and pulls on the world?

Unit Essential Vocabulary

- Electric Charge
- Coulomb (Unit)
- Electron
- Proton
- Electric Force
- Electrical Polarization
- Electrical Induction
- Electrical Grounding
- Electrical Insulator/Conductor
- Electric Field
- Electric Field Strength
- Electric Field Potential Difference

Unit Scope and Sequence

- There are two kinds of electrical charge, positive and negative
- Electrical charge is not created or destroyed; it is conserved.
- Objects can be charged by the transfer of electrons.
- Charges added to one part of an insulator remain on that part.
- Charges added to a conductor quickly spread over the surface of the object.
- Charged objects exert forces on other charged objects. Like charges repel; unlike charges attract
- An object can be charged by conduction by touching a charged object to it
- To charge an object by induction, a charged object is first brought nearby, causing a separation of charges. Then the object to be charged is separated, trapping opposite charges on the two halves.
- Coulomb's law states that force between two charged objects varies directly with the product of their charges and inversely with the square of the distance between them.
- The SI unit of charge is the coulomb. One coulomb © is the magnitude of the charge of 6.25×10^{18} electrons or protons. The elementary charge, the charge of the proton or electron, is 1.60×10^{-19} C.
- A charged object of either sign can produce separation of charge in a neutral body. Thus a charged object attracts a neutral one.
- An electric field exists around any charged object. The field produces forces on other charged objects.
- The electric field intensity is the force per unit charge. The direction of the electric field is the direction of the force on a tiny, positive test charge.
- Electric field lines provide a picture of the electric field. They are directed away from the positive charges and toward negative charges.
- Electric potential difference is the change in potential energy per unit charge in an electric field, and is measured in volts.
- A charged object can have its excess charge removed by touching it to Earth or to an object touching Earth. This is called grounding.

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of electrostatics.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to electrostatic interactions.

Resources

Core

- Physics Principles and Problems textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental

Online resources

- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 2-3 weeks

UNIT 7
Electric Current

Unit Goals

At the completion of this unit, students will:

HS-PS2-6.	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
HS-PS3-1	Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.
HS-PS3-3.	**Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.**

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How is energy transferred in electric circuits?

Unit Essential Vocabulary

- Electrical Circuit
- Electrical Voltage Source
- Emf (Electro-Motive Force)
- Volt (Unit)
- Electrical Resistance
- Ohm (Unit)
- Resistivity
- Electrical Current
- Ampere (Unit)
- Electrical Power
- Series Connection
- Parallel Branch

Unit Scope and Sequence

- Batteries, generators, and solar cells convert various forms of energy to electric energy
- In an electric circuit, electric energy is transmitted from a device that produces electric energy to a resistor or other device that converts electrical energy to the form needed.
- As a charge moves through resistors in a circuit, its potential energy is reduced. The energy released when the charge moves around the remainder of the circuit equals the work done to give the charge its initial potential energy.
- The SI unit for electric current is the ampere (A). One ampere is one coulomb per second.
- Ohm's law states that the resistance (R) of a device is the ratio of the voltage (V) across it divided by the current (I) through it, or $R = V/I$.
- In a device that obeys Ohm's law, the resistance remains constant as the voltage and current change.
- The current in a circuit can be varied by changing either the voltage or the resistance, or both.
- In a circuit diagram, conventional current is used. This is the direction in which a positive charge would move.
- In long-distance transmission, current is reduced without power being reduced by increasing voltage.
- Current is the same everywhere in a series circuit.
- The equivalent resistance of a series circuit is the sum of the resistances of its parts.
- The sum of the voltage drops across resistors in series is equal to the potential difference applied across the combination.
- The voltage drops across all branches of a parallel circuit are the same.
- In a parallel circuit, the total current is equal to the sum of the currents in the branches.
- The reciprocal of the equivalent resistance of parallel resistors is equal to the sum of the reciprocals of the individual resistances.
- If any branch of a parallel circuit is opened, there is no current in that branch. The current in the other branches is unchanged.
- A fuse or circuit breaker, placed in series with appliances, creates an open circuit when dangerously high currents flow.
- An ammeter is used to measure current in a branch or part of a circuit. An ammeter always has a low resistance and is connected in series.
- A voltmeter is used to measure a potential difference (voltage) across any part or combination of parts of a circuit. A voltmeter always has high resistance and is connected in parallel with the part of the circuit being measured.

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of electrical circuitry, including Ohm's Law and series and parallel circuits.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to electrical current and its control.

Resources

Core
- Physics Principles and Problems textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental
Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 2-3 weeks

UNIT 8
Magnetism

Unit Goals

At the completion of this unit, students will:

HS-PS2-5.	**Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.**
HS-PS2-6.	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
HS-PS3-1	Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.
HS-PS3-3.	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.
HS-PS3-5.	**Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.**

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How are magnetism, electric charge and electricity related?
- How is electromagnetism harnessed to produce mechanical work?

Unit Essential Vocabulary

- Magnetic Field
- Tesla (Unit)
- Magnetic Force
- Magnetic Domain
- Magnetic Pole
- Electromagnet
- Motor Effect
- Electromagnetic Induction
- Generator Effect
- Transformer

Unit Scope and Sequence

- Like magnetic poles repel; unlike magnetic poles attract
- Magnetic fields exit from the north pole of a magnet and enter its south pole.
- Magnetic field lines always form closed loops.
- A magnetic field exists around any wire that carries current.
- A coil of wire that carries a current has a magnetic field. The field about the coil is like the field about a permanent magnet.
- When a current-carrying wire is placed in a magnetic field, there exists a force on the wire that is perpendicular to both the field and the wire.
- The strength of a magnetic field (B) is measured in teslas (one newton per ampere per meter).
- The force a magnetic field exerts on a current-carrying wire is the product of the magnetic field, B, the current through the wire, I, the length of the wire, L, and the sine of the angle between the magnetic field and the direction of current flow.
- An electric motor consists of a coil of wire placed in a magnetic field. When there is current in the coil, the coil rotates as the result of the force on the wire in the magnetic field.
- The force a magnetic field exerts on a charged particle depends on the velocity and charge of the particle and the strength of the field. The direction of force is perpendicular to both the field and the particle's velocity.
- Electromotive force (EMF) is the potential difference created across the moving wire, and is measured in volts.
- The EMF in a straight length of wire moving through a uniform magnetic field is the product of the magnetic field, B, the length of wire, L, and the component of the velocity of the moving wire, v, perpendicular to the field.
- A generator and a motor are similar devices. A generator converts mechanical energy to electrical energy; a motor converts electrical energy to mechanical energy.
- A transformer has two coils wound about the same core. An AC current through the primary coil induces an alternating EMF in the secondary coil. The voltages in alternating-current circuits may be increased or decreased by transformers.

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of magnetism, including electro-magnetic induction.

Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to magnetic interactions.

Resources

Core
- Physics Principles and Problems textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental
Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 2-3 weeks

UNIT 9
Waves and Sound

Unit Goals

At the completion of this unit, students will:

HS-PS4-1.	**Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.**
HS-PS4-5.	Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- How does our understanding of wave phenomena affect human society?

Unit Essential Vocabulary

- Period
- Frequency
- Hertz
- Wavelength
- Amplitude
- Medium
- Transverse Wave
- Longitudinal Wave
- Wave Pulse
- Decibel
- Superposition
- Constructive Interference
- Destructive Interference
- Resonance
- Standing Wave

Unit Scope and Sequence

- A wave is a disturbance or vibration in matter that results in the transfer of energy between locations without the bulk transfer of matter.
- Most waves require a medium (matter) to travel through; energy is transmitted from particle to particle in the medium. Electromagnetic waves (light) are an exception to this as they can travel through a vacuum.
- Transverse waves are waves in which the individual particles in the medium vibrate perpendicularly to the direction the energy is traveling. Examples include light and "the wave" done during sporting events.
- Longitudinal waves are waves in which the individual particles in the medium vibrate parallel to the direction the energy is traveling, resulting in compressions and expansions of the particles. Sound is an example of a longitudinal wave.
- The amplitude of a wave is measured based on the maximum distance the particles are displaced from their rest position. Amplitude is related to the amount of energy being transmitted; a wave with a greater amplitude transmits more energy than a wave with a smaller amplitude.
- A wave pulse is a single disturbance or vibration. A periodic wave results when wave pulses occur at a regular interval/rate.
- Wave speed is the rate at which the disturbance moves through the medium. As with any speed, it is often measured in meters per second. Wave speed is determined by the properties of the medium (for example sound travels faster in water than in air due to the different properties of those media).
- Frequency is a measurement associated with a periodic wave, and it is the rate at which wave pulses are created (how many waves per second). Frequency is measured in hertz (Hz), and is determined by the source of the disturbance.
- Period is a measurement associated with a periodic wave, and it is the number of seconds between wave pulses. Period and frequency are thus inversely related to one another (seconds per wave vs. waves per second).
- Wavelength is a measurement associated with a periodic wave, and it is the distance between successive wave pulses. Wavelength is measured in meters, and is dependent upon the wave speed and frequency.
- Wave speed, wavelength, and frequency are related to each other through the wave equation: $v = \lambda f$. This equation can be used to describe any type of wave phenomena.
- Intensity is a measurement of the rate of energy delivered by a wave per unit area.
- The lowest intensity perceptible to the human ear is approximately 10^{-12} W/m^2, and the greatest intensity (when sound starts to be painful) is 1 W/m^2. Due to this huge range of values, the Decibel scale is often used.
- The Decibel scale is a logarithmic scale, where 0 dB is the threshold of hearing and 120 dB is the threshold of pain.
- When more than one wave occupies the same location in a medium, superposition occurs and the amplitudes of the waves combine. Constructive interference occurs when the overall amplitude is greater than the individual amplitudes; destructive interference occurs when the overall amplitude is smaller than the individual amplitudes.
- Standing waves can be formed in a medium under the right conditions of constructive and destructive interference. A standing wave appears to oscillate in place as the individual wave pulses travel back and forth. Certain locations in the medium (called nodes) always have destructive interference occurring, resulting in minimal vibration of

the medium. Other locations in the medium (called antinodes) alternate between destructive interference and constructive interference, resulting in maximum vibration of the medium.
- The speed of waves on a string, wire, or spring is dependent on the tension and linear mass density of the medium. Standing waves can be formed on a string, wire, or spring when the length of the medium is a multiple of half wavelengths of the periodic wave (with a node existing at each end).
- The speed of sound in air is directly related to the temperature of the air. At room temperature, the speed of sound is approximately 343 m/s.
- Standing sound waves can be created in an open pipe (open to the atmosphere at both ends) when the length of the pipe is a multiple of half wavelengths of the sound waves (with an antinode existing at each end).
- Standing sound waves can be created in a closed pipe (open to the atmosphere at only one end) when the length of the pipe is an odd multiple of quarter wavelengths of the sound waves (with a node at the closed end and an antinode at the open end).

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of waves and sound, including resonance and standing waves.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to waves and sound.

Resources

Core
- Physics Principles and Problems textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

Supplemental
Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment

- Approximately 2-3 weeks

UNIT 10
Light

Unit Goals

At the completion of this unit, students will:

HS-PS4-1.	**Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.**
HS-PS4-5.	Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

ISTE Technology Standards ISTE Empowered Learner (Standard 1c)	use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
ISTE Knowledge Constructor (Standard 3d)	build knowledge by actively exploring real-world (Standard 3d) issues and problems, including the anchoring event of the unit, developing ideas and theories and pursuing answers and solutions.

Unit Essential Questions

- What is the nature of light?
- How does light interact with substances?
- How can light properties be used?

Unit Essential Vocabulary

- Electromagnetic Spectrum
- Photon
- Reflection
- Refraction
- Refraction Index
- Angle Of Incidence
- Snell's Law
- Critical Angle
- Total Internal Reflection
- Real Image
- Virtual Image

Unit Scope and Sequence

- Light is part of the electromagnetic spectrum of waves that travel through space in essentially straight lines at 3 x 10^8 meters per second.
- Light also exhibits properties of particles. These particles are called photons which contain a certain amount of energy and momentum as indicated by their frequency.
- Reflected light leaves an object's surface at the same angle it hit the object's surface.
- Refraction index of a substance indicates the degree to which the light is slowed down when it is transmitted through the substance.
- When light enters an object at an angle, its direction is changed according to Snell's law and the refraction index.
- Light striking the surface can experience total internal reflection if the incident angle is greater than the critical angle.
- Light reflected off the surface of an object can be directed to form an image.
- Light refracted through an object can be directed to form an image.
- These images can be real (projectable) or virtual (not projectable)

Unit Assured Assessments

Formative Assessments:
Students will complete laboratory data collection and graphical analysis through experimental processes on the topics of light optics, including image formation.
Students will have the opportunity to assess comprehension of concepts and mastery of skills through applied quiz work.

Summative Assessments:
Students will complete an assessment consisting of multiple-choice questions, free response questions and problem solving, and/or the interpretation and analysis of data, related to light and optics.

Resources

<u>Core</u>
- Physics Principles and Problems textbook
- Use of traditional data collection tools and electronic data collection probes: e.g. Pasco

<u>Supplemental</u>
Online resources
- The Physics Classroom. https://www.physicsclassroom.com/. Web.
- Pivot Interactives. https://www.pivotinteractives.com/. Web.
- Flipping Physics. https://www.flippingphysics.com/. Web.
- Khan Academy. https://www.youtube.com/user/khanacademy. Web.
- University of Colorado Boulder. PhET Interactive Simulations. https://phet.colorado.edu/en/simulations/category/new. Web.

Time Allotment
- Approximately 2-3 weeks

CREDIT

1.0 credits in science
One class period for a full year

PREREQUISITES

Successful completion of ACP Chemistry

ASSURED STUDENT PERFORMANCE RUBRICS

- Trumbull High School School-Wide Problem Solving Through Critical Thinking Rubric
- Trumbull High School School-Wide Writing Rubric
- Trumbull High School School-Wide Independent Learning and Thinking Rubric

Trumbull High School School-Wide Problem Solving Through Critical Thinking Rubric

Category/ Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Understanding X_____	• Student demonstrates clear understanding of the problem and the complexities of the task	• Student demonstrates sufficient understanding of the problem and most of the complexities of the task	• Student demonstrates some understanding of the problem but requires assistance to complete the task	• Student demonstrates limited or no understanding of the fundamental problem after assistance with the task
Research X_____	• Student gathers compelling information from multiple sources including digital, print, and interpersonal	• Student gathers sufficient information from multiple sources including digital, print, and interpersonal	• Student gathers some information from few sources including digital, print, and interpersonal	• Student gathers limited or no information
Reasoning and Strategies X_____	• Student demonstrates strong critical thinking skills to develop a comprehensive plan integrating multiple strategies	• Student demonstrates sufficient critical thinking skills to develop a cohesive plan integrating strategies	• Student demonstrates some critical thinking skills to develop a plan integrating some strategies	• Student demonstrates limited or no critical thinking skills and no plan
Final Product and/or Presentation X_____	• Solution shows deep understanding of the problem and its components • Solution shows extensive use of 21st-century technology skills	• Solution shows sufficient understanding of the problem and its components • Solution shows sufficient use of 21st-century technology skills	• Solution shows some understanding of the problem and its components • Solution shows some use of 21st-century technology skills	• Solution shows limited or no understanding of the problem and its components • Solution shows limited or no use of 21st-century technology skills

Trumbull High School School-Wide Writing Rubric

Category/ Weight	Exemplary 4 Student work:	Goal 3 Student work:	Working Toward Goal 2 Student work:	Needs Support 1-0 Student work:
Purpose X_____	• Establishes and maintains a clear purpose • Demonstrates an insightful understanding of audience and task	• Establishes and maintains a purpose • Demonstrates an accurate awareness of audience and task	• Establishes a purpose • Demonstrates an awareness of audience and task	• Does not establish a clear purpose • Demonstrates limited/no awareness of audience and task
Organization X_____	• Reflects sophisticated organization throughout • Demonstrates logical progression of ideas • Maintains a clear focus • Utilizes effective transitions	• Reflects organization throughout • Demonstrates logical progression of ideas • Maintains a focus • Utilizes transitions	• Reflects some organization throughout • Demonstrates logical progression of ideas at times • Maintains a vague focus • May utilize some ineffective transitions	• Reflects little/no organization • Lacks logical progression of ideas • Maintains little/no focus • Utilizes ineffective or no transitions
Content X_____	• Is accurate, explicit, and vivid • Exhibits ideas that are highly developed and enhanced by specific details and examples	• Is accurate and relevant • Exhibits ideas that are developed and supported by details and examples	• May contain some inaccuracies • Exhibits ideas that are partially supported by details and examples	• Is inaccurate and unclear • Exhibits limited/no ideas supported by specific details and examples
Use of Language X_____	• Demonstrates excellent use of language • Demonstrates a highly effective use of standard writing that enhances communication • Contains few or no errors. Errors do not detract from meaning	• Demonstrates competent use of language • Demonstrates effective use of standard writing conventions • Contains few errors Most errors do not detract from meaning	• Demonstrates use of language • Demonstrates use of standard writing conventions • Contains errors that detract from meaning	• Demonstrates limited competency in use of language • Demonstrates limited use of standard writing conventions • Contains errors that make it difficult to determine meaning

Trumbull High School School-Wide Independent Learning and Thinking Rubric

Category/ Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Proposal X_____	• Student demonstrates a strong sense of initiative by generating compelling questions, creating uniquely original projects/work	• Student demonstrates initiative by generating appropriate questions, creating original projects/work	• Student demonstrates some initiative by generating questions, creating appropriate projects/work	• Student demonstrates limited or no initiative by generating few questions and creating projects/work
Independent Research & Development X_____	• Student is analytical, insightful, and works independently to reach a solution	• Student is analytical, and works productively to reach a solution	• Student reaches a solution with direction	• Student is unable to reach a solution without consistent assistance
Presentation of Final Product X_____	• Presentation shows compelling evidence of an independent learner and thinker • Solution shows deep understanding of the problem and its components • Solution shows extensive and appropriate application of 21st-century skills	• Presentation shows clear evidence of an independent learner and thinker • Solution shows adequate understanding of the problem and its components • Solution shows adequate application of 21st-century skills	• Presentation shows some evidence of an independent learner and thinker • Solution shows some understanding of the problem and its components • Solution shows some application of 21st-century skills	• Presentation shows limited or no evidence of an independent learner and thinker • Solution shows limited or no understanding of the problem and its components • Solution shows limited or no application of 21st-century skills

TRUMBULL HIGH SCHOOL
ENGLISH DEPARTMENT
Trumbull, Connecticut

ENGLISH 9
GRADE 9

2023
(last revision 2018)

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English 9

Grade 9

Table of Contents

The Trumbull Board of Education will continue to take Affirmative Action to ensure that no persons are discriminated against in its employment.

CORE VALUES & BELIEFS

The Trumbull High School community engages in an environment conducive to learning which believes that all students will read and write effectively, therefore communicating in an articulate and coherent manner. All students will participate in activities that present problem solving through critical thinking. Students will use technology as a tool applying it to decision making. We believe that by fostering self-confidence, self-directed and student-centered activities, we will promote independent thinkers and learners. We believe ethical conduct to be paramount in sustaining the welcoming school climate that we presently enjoy.

INTRODUCTION & PHILOSOPHY

The transition from middle school into high school is both exciting and challenging; in addition to moving into a new building and developing new identities as high school students, freshmen are joining a classroom community of discourse with an expanding set of standards and expectations. The main focus of grade nine English is to promote student independence in critical reading, writing, speaking, and listening both within and beyond the classroom. This requires a high level of academic performance with students utilizing higher order thinking skills. The goal is for students to make their own inferences and generate their own questions in their analysis and interpretation of a text in order to become more independent readers, writers, and thinkers. The goal of the English teacher is to provide students with a "backpack" of skills that they can carry with them throughout their years at Trumbull High School. Through this process they will begin to shape their own identities not only as high school students, but also as resilient, capable, and resourceful life-long learners.

In middle school students have been exposed to an extensive variety of writing modes and literary terms; in 10th grade they will be asked to employ all the resources at hand to read, write, and think independently. Thus, the grade nine English teacher's task is to equip students with an assured core of resources – a repertoire – which every student can master and utilize to become a stronger thinker and communicator. A core group of literary and academic vocabulary terms play an integral role in the works read throughout the year, arming students with the terminology necessary for in-depth analysis.

The freshman year is the first phase of a four-year program in which students are expected to become increasingly independent readers, writers, and thinkers as they work to understand themselves and navigate the ever-changing world that they live in. Students will be asked to consistently demonstrate their learning on demand through in-class timed writing and oral communication/expression of ideas. This progression will continue into 10th grade, where they will study themselves and human behavior through literature and non-fiction, and then into 11th grade, where they will take a critical look at the literature of the United States.

In order to engage students in a rich and diverse reading experience, teachers will select one substantial course text (listed below) per unit that is representative of varied voices and/or historical time periods as well as selected readings from *Foundations of Language and Literature*. In addition, all 9th-grade English classrooms of Trumbull High School will promote a culture of independent reading: in addition to students engaging with whole-class texts over the course of the year, they have the opportunity to read choice books independently. Students will engage in informal writer's response opportunities, allowing students the space to discuss and/or write about the connections between newly learned unit content and independent reading books.

This curriculum spans all levels. Teachers will offer scaffolding and differentiation as needed, and extension activities to supplement at the Honors level. Possible extension activities are included for each literary unit.

COURSE GOALS

CCSS.ELA-LITERACY.RL.9-10.1
Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CCSS.ELA-LITERACY.RL.9-10.2
Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text

CCSS.ELA-LITERACY.RL.9-10.3
Analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.

CCSS.ELA-Literacy.RL.9-10.4
Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).

CCSS.ELA-LITERACY.RL.9-10.5
Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.

CCSS.ELA-LITERACY.RL.9-10.6
Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.

CCSS.ELA-LITERACY.RL.9-10.7
Analyze the representation of a subject or a key scene in two different artistic mediums, including what is emphasized or absent in each treatment (e.g., Auden's "Musée des Beaux Arts" and Breughel's Landscape with the Fall of Icarus).

CCSS.ELA-LITERACY.RL.9-10.9
Analyze how an author draws on and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare).

CCSS.ELA-LITERACY.RL.9-10.10
By the end of grade 9, read and comprehend literature, including stories, dramas, and poems, in the grades 9-10 text complexity band proficiently, with scaffolding as needed at the high end of the range.

By the end of grade 10, read and comprehend literature, including stories, dramas, and poems, at the high end of the grades 9-10 text complexity band independently and proficiently.

READING GOALS FOR INFORMATIONAL TEXTS

CCSS.ELA-LITERACY.RI.9-10.1
Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CCSS.ELA-LITERACY.RI.9-10.2
Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.

CCSS.ELA-LITERACY.RI.9-10.3
Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.

CCSS.ELA-LITERACY.RI.9-10.4
Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.

CCSS.ELA-LITERACY.RI.9-10.5
Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).

CCSS.ELA-LITERACY.RI.9-10.6
Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.

CCSS.ELA-LITERACY.RI.9-10.7
Analyze various accounts of a subject told in different mediums (e.g., a person’s life story in both print and multimedia), determining which details are emphasized in each account.

CCSS.ELA-LITERACY.RI.9-10.8
Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

CCSS.ELA-LITERACY.RI.9-10.9
Analyze seminal U.S. documents of historical and literary significance (e.g., Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts

CCSS.ELA-LITERACY.RI.9-10.10
By the end of grade 9, read and comprehend literary nonfiction in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range. By the end of grade 10, read and comprehend literary nonfiction at the high end of the grades 9–10 text complexity band independently and proficiently.

WRITING GOALS

CCSS.ELA-LITERACY.W.9-10.1
Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among claim(s), counterclaims, reasons, and evidence.
b. Develop claim(s) and counterclaims fairly, supplying evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level and concerns.
c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
e. Provide a concluding statement or section that follows from and supports the argument presented.

CCSS.ELA-LITERACY.W.9-10.2
Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

CCSS.ELA-LITERACY.W.9-10.2.A
Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aid comprehension.

CCSS.ELA-LITERACY.W.9-10.2.B
Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

CCSS.ELA-LITERACY.W.9-10.2.C
Use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.

CCSS.ELA-LITERACY.W.9-10.2.D
Use precise language and domain-specific vocabulary to manage the complexity of the topic.

CCSS.ELA-LITERACY.W.9-10.2.E
Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

CCSS.ELA-LITERACY.W.9-10.2.F
Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

CCSS.ELA-LITERACY.W.9-10.3
Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

CCSS.ELA.W.9-10.3.B
Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters.

CCSS.ELA-LITERACY.W.9-10.3.C
Use a variety of techniques to sequence events so that they build on one another to create a coherent whole.

CCSS.ELA-LITERACY.W.9-10.3.D
Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters.

CCSS.ELA-LITERACY.W.9-10.3.E
Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.

CCSS.ELA-Literacy.W.9-10.4
Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience (Grade-specific expectations for writing types are defined in standards 1-3 above.)

CCSS.ELA-LITERACY.W.9-10.5
Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grades 9-10 here.)

CCSS.ELA-LITERACY.W.9-10.6
Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

CCSS.ELA-LITERACY.W.9-10.7
Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

CCSS.ELA-LITERACY.W.9-10.8
Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

CCSS.ELA-LITERACY.W.9-10.9
Draw evidence from literary or informational texts to support analysis, reflection, and research.

CCSS.ELA-LITERACY.W.9-10.10
Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

SPEAKING AND LISTENING GOALS

CCSS.ELA-LITERACY.SL.9-10.1
Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

CCSS.ELA-LITERACY.SL.9-10.1.A
Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.

CCSS.ELA-LITERACY.SL.9-10.1.C
Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.

CCSS.ELA-LITERACY.SL.9-10.1.D
Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.

CCSS.ELA-LITERACY.SL.9-10.2
Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
CCSS.ELA-LITERACY.SL.9-10.3
Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.

CCSS.ELA-LITERACY.SL.9-10.4
Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

CCSS.ELA-LITERACY.SL.9-10.5
Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

CCSS.ELA-LITERACY.SL.9-10.6
Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grades 9-10 Language standards 1 and 3 here for specific expectations.)

CONVENTIONAL OF STANDARD ENGLISH GOALS:

CCSS.ELA-LITERACY.L.9-10.1
Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

CCSS.ELA-LITERACY.L.9-10.1.A
Use parallel structure.*

CCSS.ELA-LITERACY.L.9-10.1.B
Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, absolute) and clauses (independent, dependent; noun, relative, adverbial) to convey specific meanings and add variety and interest to writing or presentations.

CCSS.ELA-LITERACY.L.9-10.2
Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

CCSS.ELA-LITERACY.L.9-10.2.A
Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.

CCSS.ELA-LITERACY.L.9-10.2.B

Use a colon to introduce a list or quotation.

CCSS.ELA-LITERACY.L.9-10.2.C
Spell correctly.

CCSS.ELA-LITERACY.L.9-10.3
Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

CCSS.ELA-LITERACY.L.9-10.3.A
Write and edit work so that it conforms to the guidelines in a style manual (e.g., *MLA Handbook*, Turabian's *Manual for Writers*) appropriate for the discipline and writing type.

CCSS.ELA-LITERACY.L.9-10.4
Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 9-10 reading and content*, choosing flexibly from a range of strategies.

CCSS.ELA-LITERACY.L.9-10.4.A
Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.

CCSS.ELA-LITERACY.L.9-10.4.B
Identify and correctly use patterns of word changes that indicate different meanings or parts of speech (e.g., *analyze, analysis, analytical; advocate, advocacy*).

CCSS.ELA-LITERACY.L.9-10.4.C
Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.

CCSS.ELA-LITERACY.L.9-10.4.D
Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

CCSS.ELA-LITERACY.L.9-10.5
Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

CCSS.ELA-LITERACY.L.9-10.5.A
Interpret figures of speech (e.g., euphemism, oxymoron) in context and analyze their role in the text.

CCSS.ELA-LITERACY.L.9-10.5.B
Analyze nuances in the meaning of words with similar denotations.

CCSS.ELA-LITERACY.L.9-10.6
Acquire and accurately use general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

The following standards derive from the 2016 International Society for Technology in Education Standards.

Standard 2
Students recognize the rights, responsibilities, and opportunities of living, learning, and working in an interconnected digital world, and they act and model in ways that are safe, legal, and ethical.

2a. Students cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.

2b. Students engage in positive, safe, legal, and ethical behavior when using technology, including social interactions online or when using networked devices.

2c. Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

2d. Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online. Students use a variety of technologies within a design process to identify and solve problems by creating new, useful, or imaginative solutions.

Standard 3
Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

3a. Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

3b. Students evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.

3c. Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.

3d. Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

COURSE ENDURING UNDERSTANDINGS

Students will understand that . . .

- reading is an integral part of the learning process.
- authors make informed and specific choices within their writing in order to convey meaning and purpose.
- texts, concepts, and skills can be known and understood through seeking out answers to individual questions that arise.
- effective writing and oral communication are essential to their success as learners and citizens.
- they are part of a cultural, literary, and artistic dialogue, which is a living conversation rather than a static concept, and that they are part of a larger and more diverse society than they might otherwise identify with.

COURSE ESSENTIAL QUESTIONS

- How and why do we read and write critically?
    - What tools do readers and authors use to impart meaning?
    - How do authors employ literary devices and rhetorical strategies, and how do these impact both the reader and the message?
    - What is authorial intent and what is its impact?
    - What role does and should the reader play in creating meaning for a text?
- How do we fill in the gaps in our knowledge by searching, thinking, struggling?
    - What do we do when we don't understand what we are reading?
    - How do we effectively engage in the inquiry process?
    - How do we discern if information is credible and validate its worth?
    - How do we apply our knowledge to establish a new understanding of ourselves in relation to our immediate surroundings and the world at large?
- How can we apply our reading practices and knowledge gained to our own writing?
    - As writers, how and why do we purposefully arrange diction, syntax, details, imagery, and our message in order to create the purpose for our writing?
    - How do we distinguish between what our writing says and how we deliver our message to our audience?

COURSE KNOWLEDGE & SKILLS

In *Grade 9 English*, the four assured units of study are meant to serve as building blocks; each unit builds off of skills and concepts from the previous unit. The focus in the course is to examine how and why we read, write, and think critically and how and when these skills are applicable in real life.

- **Unit 1: "Understanding What Makes Us Human"**
    - The first unit of the year asks students to reflect on universal themes such as how stories reflect the human experience through the author's purpose, while also teaching students important skills such as summarizing, close-reading, annotating, questioning, inferring, visualizing, seeing patterns, and reflecting. Students will learn and practice the skills of a strong reader, writer, and thinker and will ultimately apply these skills in an analytical essay.

- **Unit 2: "Understanding How the Past Informs Our Future"**
    - The second unit of study, meant for the second marking period, asks students to think about and reflect upon larger ideas such as how stylistic choices in writing can enhance and impact the readers' experience. By examining writer's craft and generational patterns in literature in relation to decision making, problem solving, and resilience, students will build upon the close-reading skills of the first unit with a closer understanding of how authors make choices in order to shape their stories. Students will also craft their own stories by making authorial choices that directly impact the purpose of their storytelling.

- **Unit 3: "Understanding Our Role & Responsibility to Others & Our Society"**
    - The third unit of study, meant for the third marking period, asks students to use literary research skills and strategies to consider the role of the individual in society, while also analyzing how authors use real-world problems as catalysts for their storytelling. Students will then participate in a rich, exploratory experience in which they self-select a topic of interest, conduct an extensive investigation of sources, and produce a written research paper.

- **Unit 4: "Understanding Our Call to Stand Up and Speak Out"**
    - The fourth unit of study, designated for the fourth marking period, challenges students to use rhetorical strategies to persuade an audience by thinking critically about concepts like justice, empathy, and responsibility through their analysis of nonfiction selections. Additionally, students will continue with their introductory work in understanding the foundational elements of rhetoric. Students will participate in rich classroom discussions as part of their summative understanding emphasizing their learning of speaking and listening skills.

COURSE SYLLABUS

Course/Name

English 9

Level

Advanced College Prep
Honors

Prerequisites

None

Materials Required

School Approved Electronic Device
Lined Paper
Writing Implements
Sticky Notes
Daily Agenda Pad
Binder/Notebook/Folder

General Description of the Course

The freshman year is the first phase of a four-year program in which students are expected to become increasingly independent readers, writers, and thinkers as they work to understand themselves and navigate the ever-changing world that they live in. Students will be asked to consistently demonstrate their learning on demand through in-class timed writing and oral communication/expression of ideas. This progression will continue into 10th grade, where they will study themselves and human behavior through literature and non-fiction, and then into 11th grade, where they will take a critical look at the literature of the United States.

Assured Assessments

Teachers may select additional formative or summative activities based on student skills from the following examples or other activities as aligned with Common Core Standards and NCTE.

Formative Assessments:

- Presentation Literacy Skills
- Reader Response Notebook
- Paragraph Writing and Close Passage Analysis
- Opportunities to Explore Individual Narrative Voice

Summative

- Analytical Writing
- Narrative Piece
- Research Experience
- Formal Discussion

Course Texts

In order to engage students in a rich and diverse reading experience, teachers will select one substantial course text (listed below) per unit that is representative of varied voices and/or

historical time periods as well as selected readings from *Foundations of Language and Literature*.

The Tragedy of Romeo and Juliet by William Shakespeare (*requirement for all 9th graders)
Of Mice and Men by John Steinbeck
The Secret Life of Bees by Sue Monk Kidd
Our Town by Thornton Wilder
The House on Mango Street by Sandra Cisneros
Fahrenheit 451 by Ray Bradbury
1984 by George Orwell
Animal Farm by George Orwell
The Odyssey by Homer
The Old Man and the Sea by Ernest Hemingway
Warriors Don't Cry by Melba Patillo Beals
The Book Thief by Markus Zusak
Between Shades of Gray by Ruta Sepetys
Unwind by Neal Shusterman
Matched by Ally Condie
Ready Player One by Ernest Cline
Uglies by Scott Westerfield
The Program by Suzanne Young
Delirium by Lauren Oliver
Persepolis by Marjane Sartrapi
Me Moth by Amber McBride
The Door of No Return by Kwame Alexander
Solito by Javier Zamora

Textbook
Foundations of Language & Literature by Shea, Golden, & Scholz

Supplemental Resources

- Any portion of the above listed books to supplement the core class text study
- Teachers may select additional readings and materials based on student skills as aligned with Common Core Standards and NCTE.

Unit 1
UNDERSTANDING WHAT MAKES US HUMAN

Concept & Skill Lenses	Generalizations and Enduring Understandings	Guiding Questions Content-Based(C) Skill-Based (S) Writing-Based (W)	Common Core Standards (Prioritized Standards in Bold)	Students Will Be Able to Demonstrate…
Concept Lenses: *identity, empathy, human nature, environment* **Skill Lenses:** *summarizing, close-reading, annotating, questioning, inferring, visualizing, seeing patterns, reflecting* **Content Exposure and Focus:** *voice, author's purpose, author's craft, theme, literary terms and devices (setting, motif, conflict, characterization) evidence*	● Stories reflect on the human experience through the author's purpose. ● Theme conveys a universal truth about human nature and why it is important. ● Author's make specific and intentional choices in their writing. ● Close reading contributes to our understanding of what *is intentional* on part of the writer. ● Reading a wide range of stories helps develop empathy and an understanding of self (identity) and others.	**How does understanding literary elements contribute to our understanding of theme? (C)** **Why is it important to read closely and with meaning? (S)** **How do writers select appropriate and relevant evidence for analysis? (W)**	**W. 9-10.1** W. 9-10.1a W. 9-10 1b W. 9-10 2d W. 9-10. 10 **RL. 9-10.2** RL. 9-10.3 RL. 9-10.4 RL. 9-10.5 RL. 9-10.10 **RI.9-10.4** SL. 9-10.1 SL. 9-10.4	● Students will be able to use a variety of annotation strategies to explore close-reading (see linked resources below). ● Students will be able to examine the importance of setting, motif, conflict, characterization. ● Students will be able to define human nature. ● Students will be able to define theme as a two-part statement revealing a universal truth and its importance. ● Students will be able to interpret the author's purpose and demonstrate their thinking through a variety of formative writing tasks. ● Students will be able to collaborate and discuss their individual inquiries and conclusions. ● Students will be able to identify and engage in the steps of the writing process.

UNIT 1 Teaching Strategies

- **Baseline Avoiding Plagiarism Activities:** *Foundations of Language & Literature*: Pre-AP Pathway by Shea, Golden, & Sholz - pages 139-144
- Dialectical Notebook Set-Up & Journaling
- Modeled Annotations - The strategies we use to generate strong annotations
- Examining strong & weak notebook entries
- Reflecting on individual paragraph writing
- Color-blocking paragraphs: claim, context, evidence, analysis.
- **Writer's Response:** Allow students the opportunity to discuss and/or write about the connections between newly learned unit content and independent reading books
- **Mini-Lessons On:**
    1. Selecting strong and meaningful evidence– discussions on how to evaluate for "strong" evidence
    2. Examining the parts of a literary analysis essay, a close look at what concise and developed literary analysis paragraphs include
    3. Examining the distinctions between an introduction and a conclusion
    4. Examining how evidence/ support (quotes) look and sound in a paragraph
    5. Instructional strategies on turning notes into meaningful written expression
    6. Instructional strategies on developing strong claims and topic sentences
    7. Instructional strategies on the distinction between context (summary) and analysis within a paragraph?
    8. Demonstrating *how* to think critically: **what** am I noticing, **how** is it being used in the text, **why** does it matter? Answering the "SO WHAT?" question to move beyond the text and develop interpretations
    9. Instructional strategies on the parts of the essay:
        a. Thesis statements: claims that SNAP (specific, new/nonobvious, arguable, provable)
        b. Topic sentences (mini thesis statements)
        c. Incorporating and embedding support/direct quotations
        d. Writing a general to specific introduction
        e. Writing a specific to general conclusion
    10. Using the thesis to develop an outline

UNIT 1 Assessments

Assured Formative Baseline

- All grade 9 students will engage in a common assessment the first week of school. All grade 9 students, in all classes and levels, will read the same story, over the course of the same number of days, and engage with the same writing prompt and timed writing task. This will serve as baseline information and inform teacher instruction, as well as offer teachers the ability to collaborate and calibrate student data.

Assured Formative Assessments

- Dialectical Notebook Entry/Annotation Strategies & developing a strong analytical paragraph response; using student annotations and notes to generate a cohesive response with evidence.

Assured Summative Assessment

- Literary analysis paper/ essay in which students demonstrate their ability to draw specific conclusions on a text's thematic message by examining characterization, setting, conflict.

THE ABOVE ASSURED ASSESSMENTS support the teaching of the following primary standards:

- CCSS.ELA-LITERACY.W.9-10.1
- CCSS.ELA-LITERACY.RL.9-10.2
- CCSS.ELA-LITERACY.RI.9-10.4

Unit 1 Texts

In order to engage students in a rich and diverse reading experience, teachers will select one substantial course text (listed below) per unit that is representative of varied voices and/or historical time periods as well as selected readings from *Foundations of Language and Literature*.

The Tragedy of Romeo and Juliet by William Shakespeare (*requirement for all 9th graders)
Of Mice and Men by John Steinbeck
The Secret Life of Bees by Sue Monk Kidd
Our Town by Thornton Wilder
The House on Mango Street by Sandra Cisneros
Fahrenheit 451 by Ray Bradbury
1984 by George Orwell
Animal Farm by George Orwell
The Odyssey by Homer
The Old Man and the Sea by Ernest Hemingway
Warriors Don't Cry by Melba Patillo Beals
The Book Thief by Markus Zusak
Between Shades of Gray by Ruta Sepetys
Unwind by Neal Shusterman
Matched by Ally Condie
Ready Player One by Ernest Cline
Uglies by Scott Westerfield
The Program by Suzanne Young
Delirium by Lauren Oliver
Persepolis by Marjane Sartrapi
Me Moth by Amber McBride
The Door of No Return by Kwame Alexander
Solito by Javier Zamora

Textbook

Foundations of Language & Literature by Shea, Golden, & Scholz

Supplemental Resources

- Teachers may select additional readings and materials based on student skills as aligned with Common Core Standards and NCTE including, but not limited to TED Talks, short stories, poetry, nonfiction articles/op-eds, etc.
- Ray Bradbury's "The Veldt"
- Sherman Alexie's "Reindeer Games"
- Richard Connell's "The Most Dangerous Game"
- Etgar Keret's "What, of This Goldfish, Would You Wish?"
- Edgar Allen Poe's "The Cask of Amontillado"
- Angela Flournoy's "Lelah"
- Jose Olivarez's "Home Court"
- Suheir Hammad's "What I Will"
- Rachel Richardon's "Transmission"
- Dana Gioia's "Money"
- Billy Collins's "Flames"
- Jenni B. Baker's "Find Your Way and You--American Boy"
- Nate Marshall's "Harold's Chicken Shack #86"
- Naomi Shihab Nye's "Kindness"
- Michael Ondaatje's Sweet Like a Crow"
- William Shakespeare's "Sonnet 18: Shall I compare thee to a summer's day?"
  Gwendolyn Brooks's "We Real Cool"
- David Tomas Martinez's "In Chicano Park"
- Emily Dickinson's "Because I Could Not Stop for Death"
- Amit Majmudar's "T.S.A."
- Ha Jin's "Ways of Talking"
- Classroom Library for student choice.
- Learning Commons Library for student choice.

Time Allotment: 8-10 weeks

UNIT 2
UNDERSTANDING HOW THE PAST INFORMS OUR FUTURE

Concept & Skill Lenses	Generalizations and Enduring Understandings	Guiding Questions Content-Based(C) Skill-Based (S) Writing-Based (W)	Common Core Standards (Prioritized Standards in Bold)	Students Will Be Able to Demonstrate…
Concept Lenses: *Decision making, problem solving, resilience, generational patterns* **Skill Lenses:** *Identifying patterns in literature, close-reading, quote analysis, questioning, annotating, analyzing, reflecting, voice & tone* **Content Exposure and Focus:** *Symbols, allusions, archetypes (symbolic, situational, character), text-structure*	● Patterns exist in storytelling and are not confined by time or culture ● Authors use symbols, allusions archetypes and text-structure to shape their story ● Reading a wide range of stories and genres reveals patterns to readers ● Characters' decisions are influenced by generational patterns and past experiences	**What are stylistic choices and how does our understanding of them enhance our reading? (C)** **How do authors guide readers in understanding the stylistic elements of their writing and the impact of those elements? (S)** **How does a writer develop and enhance their voice within the narrative genre of writing? (W)**	RL.9-10.1 RL.9-10.3 **RL.9-10.4** RL.9-10.5 RL.9-10.6 RL.9-10.7 W.9-10.3 **W.9-10. 3b** **W.9-10.4** SL.9-10.1 SL.9-10.4 SL.9-10.5	● Students will be able to define symbols, allusions, and archetypes. ● Students will be able to identify a text's structure. ● Students will be able to determine how a text's structure & symbols, allusions and archetypes contribute to a story. ● Students will be able to extend on their understanding of how author's craft contributes to theme. ● Students will be able to identify patterns in literature. ● Students will be able to explore their individual writing voice in various writing opportunities; including narrative. ● Students will be able to make choices in their own writing. ● Students will be able to compare and contrast the use of archetypes across genres and mediums. ● Students will be able to experiment with authors' stylistic choices.

UNIT 2 Teaching Strategies

- Define and Examine Author's Craft
- Define and Teach the following elements of author's craft
    - Allusion (identify for students, explore the reference, follow-up discussion on why it matters)
    - Archetype (identify for students, explore the reference, follow-up discussion on why it matters)
        - Symbolic
        - Situational
        - Character
    - Symbolism
    - Text Structure
- Close Passage Analysis to pinpoint and examine individual author's use of craft
- Students practice writing in the style of the authors in the unit
- Small informal personal writing opportunities
- Explore storytelling from both the real and fictional perspective
- Discuss and reflect on storytelling through informal discussions
- Class discussions on style
- Excerpts from a variety of literary genres (poetry, music lyrics, short-stories, passages etc.) to examine universal patterns
- Explore point of view and how it contributes to storytelling
- **Writer's Response:** Allow students the opportunity to discuss and/or write about the connections between newly learned unit content and independent reading books

Unit 2 Course Texts

In order to engage students in a rich and diverse reading experience, teachers will select one substantial course text (listed below) per unit that is representative of varied voices and/or historical time periods as well as selected readings from *Foundations of Language and Literature*.

The Tragedy of Romeo and Juliet by William Shakespeare (*requirement for all 9th graders)
Of Mice and Men by John Steinbeck
The Secret Life of Bees by Sue Monk Kidd
Our Town by Thornton Wilder
The House on Mango Street by Sandra Cisneros
Fahrenheit 451 by Ray Bradbury
1984 by George Orwell
Animal Farm by George Orwell
The Odyssey by Homer
The Old Man and the Sea by Ernest Hemingway
Warriors Don't Cry by Melba Patillo Beals
The Book Thief by Markus Zusak
Between Shades of Gray by Ruta Sepetys
Unwind by Neal Shusterman
Matched by Ally Condie

Ready Player One by Ernest Cline
Uglies by Scott Westerfield
The Program by Suzanne Young
Delirium by Lauren Oliver
Persepolis by Marjane Sartrapi
Me Moth by Amber McBride
The Door of No Return by Kwame Alexander
Solito by Javier Zamora

Textbook

Foundations of Language & Literature by Shea, Golden, & Scholz

Supplemental Resources

- Teachers may select additional readings and materials based on student skills as aligned with Common Core Standards and NCTE including, but not limited to TED Talks, short stories, poetry, nonfiction articles/op-eds, etc.
- Monique Truong's "My Father's Previous Life"
- Steven Hall's "You, Me, and the Sea"
- Sarah Vowell's "Music Lessons"
- Carrie Brownstein's from *Hunger Makes Me a Modern Girl*
- Julia Alvarez's "La Gringuita"
- Jimmy Santiago Baca's from *Coming into Language*
- Richard Wright's from *Black Boy*
- Douglas Quenqua's "They're, Like, Way Ahead of the Linguistic Currrve"
- Jessica Wolf's "The Seven Words I Cannot Say (Around My Children)"
- Amanda Palmer's from *The Art of Asking*
- Thi Bui's from *The Best We Could Do*
- Haruki Murakami's from *What I Talk about When I Talk about Running*
- Langston Hughes's "Let America Be America Again"
- Emma Lazarus's "The New Colossus"
- Concord Oral History Program's "Remembrances for 100th Anniversary of Statue of Liberty"
- Tato Laviera's "lady liberty"
- Suji Kwock Kim's "Slant"
- Michael Daly's "The Statue of Liberty Was Born a Muslim"
- Jessica Care moore's "Black Statue of Liberty"
- Classroom Library for student choice.
- Learning Commons Library for student choice.

Unit 2 Assured Assessments

Assured Formative Assessment

- *Close reading response(s) of mentor texts:* for craft, style, and surface features. Students will analyze a teacher-selected or self-selected text.

Assured Formative Assessment

- Group or individual assignment asking students to identify their knowledge and understanding of writer's craft, style, and/or surface features through either past or present stories, movies, TV shows, etc. using Powerpoint/Google Slides, Canva, or shared-discussion.

Assured Summative Assessment

- *Personal Narrative Writing*: students experiment with mimicking the stylistic choices writers use (example: vignette, exploring your own journey or odyssey).

THE ABOVE ASSURED ASSESSMENTS support the teaching of the following primary standards:

- CCSS.ELA.W.9-10.3b
- CCSS.ELA-Literacy.W.9-10.4
- CCSS.ELA-Literacy.RL.9-10.4

Time Allotment: 8-10 weeks

UNIT 3
UNDERSTANDING OUR ROLE & RESPONSIBILITY TO OTHERS & OUR SOCIETY

Concept & Skill Lenses	Generalizations and Enduring Understandings	Guiding Questions Content-Based (C) Skill- Based (S) Writing-Based (W)	Common Core Standards (Prioritized Standards in Bold)	Students Will Be Able to Demonstrate…
Concept Lenses: *conformity, individual vs. society, identity, constraints of an environment, language as a tool of manipulation and power* **Skill Lenses:** *researching, assessing sources for credibility, writing using multiple sources, synthesizing ideas and information, embedding quotations, MLA, questioning our current world and society* **Content Exposure and Focus:** *conflicts within society, social responsibility, development of fictional worlds representative of a particular aspect of society*	● Authors create fictional worlds as commentary on our existing world. ● Individuals, events, and ideas develop and interact over the course of a text. ● Our experiences shape and influence our role in society. ● Authentic ideas hold value. ● Fear of consequence prevents individuals from challenging the status quo. ● The status quo should be re-examined by individuals in society.	**How does uncertainty and fear lead people to consciously and subconsciously look to others to influence their beliefs and decisions? (C)** **How does engaging in the research process contribute to a broader understanding of ourselves and society? (S)** **How does a writer synthesize ideas and information in order to form their own conclusions? (W)**	W.9-10.1 W.9-10.1d W.9-10.2 W.9-10.4 W.9-10.7 W.9-10.8 W.9-10.9 **SL.9-10.1** SL.9-10.1a **SL.9-10.1d** SL.9-10.2 RL.9-10.1 **RL.9-10.2** RL.9-10.3 RL.9-10.5 RI.9-10.1	● Students will learn to conduct effective research (utilize effective research strategies). ● Students will be able to assess sources for credibility. ● Students will be able to write using multiple sources. ● Students will be able to synthesize ideas and information. ● Students will be able to embed and cite quotations according to MLA style. ● Students will be able to question our current world and society. ● Students will demonstrate their understanding of the above goals in a research experience. ● Students will be able to make connections between the literature and the world around them. ● Students will be able to understand the elements of dystopian literature. ● Students will be able to

				examine the importance of conflict, imagery and diction. ● Students will be introduced to rhetorical strategies and rhetorical appeals (ethos, logos, and pathos).

UNIT 3 Teaching Strategies

- Classroom Library for student choice
- Learning Commons Library for student choice
- Criteria and elements of dystopian literature and dystopian societies
- MLA Formatting
- Access to support from Learning Common Specialist on sources, scholarly articles and databases
- Various mini-lessons focused on exposing students to rhetorical appeals through visual and print advertising.
- Instruction on how to locate credible sources, **C.R.A.A.P. Testing** sources
- Developing research questions; turning research questions into claims
- Outlining writing with multiple sources

Unit 3 Texts

In order to engage students in a rich and diverse reading experience, teachers will select one substantial course text (listed below) per unit that is representative of varied voices and/or historical time periods as well as selected readings from *Foundations of Language and Literature*.

The Tragedy of Romeo and Juliet by William Shakespeare (*requirement for all 9th graders)
Of Mice and Men by John Steinbeck
The Secret Life of Bees by Sue Monk Kidd
Our Town by Thornton Wilder
The House on Mango Street by Sandra Cisneros
Fahrenheit 451 by Ray Bradbury
1984 by George Orwell
Animal Farm by George Orwell
The Odyssey by Homer
The Old Man and the Sea by Ernest Hemingway
Warriors Don't Cry by Melba Patillo Beals
The Book Thief by Markus Zusak
Between Shades of Gray by Ruta Sepetys
Unwind by Neal Shusterman
Matched by Ally Condie
Ready Player One by Ernest Cline
Uglies by Scott Westerfield
The Program by Suzanne Young
Delirium by Lauren Oliver
Persepolis by Marjane Sartrapi
Me Moth by Amber McBride
The Door of No Return by Kwame Alexander
Solito by Javier Zamora

Textbook

Foundations of Language & Literature by Shea, Golden, & Scholz

Supplemental Resources

- Teachers may select additional readings and materials based on student skills as aligned with Common Core Standards and NCTE including, but not limited to TED Talks, short stories, poetry, nonfiction articles/op-eds, etc.
- Silvia Gonzalez S.'s from *Boxcar--El Vagon*
- E.O. Wilson's from *The Social Conquest of Earth*
- Adam Piore's "Why We're Patriotic"
- David Brooks's from *People Like Us*
- Classroom Library for student choice.
- Learning Commons Library for student choice.

Unit 3 Assured Assessments

Assured Formatives

- *Close-reading response of mentor texts on elements of literature as it relates to an individual's role within their society:* conflict (man v. man, nature, society, self), imagery, diction, syntax (i.e., analysis of Old Major's speech in *Animal Farm* or Captain Beatty's speech in *Fahrenheit 451,* or a soliloquy in *The Tragedy of Romeo and Juliet*)

Assured Summative Assessment

- *Research Process Experience:* Students will explore and research a real-world problem of their choosing. Students will participate in a rich, exploratory experience in which they self-select a topic of interest, conduct an extensive investigation of sources, and craft a finished product (paper, presentation, discussion, etc.) based on this process.

THE ABOVE ASSURED ASSESSMENTS support the teaching of the following primary standards:

- CCSS.ELA-Literacy.RI.9-10.2
- CCSS.ELA-Literacy.SL.9-10.1

Time Allotment: 8-10 weeks

UNIT 4
UNDERSTANDING OUR CALL TO STAND UP AND SPEAK OUT

Concept & Skill Lenses	**Generalizations and Enduring Understandings**	**Guiding Questions Content-Based(C) Skill- Based (S) Speaking & Listening -Based (SL)**	**Common Core Standards** (Prioritized Standards in Bold)	**Students Will Be Able to Demonstrate…**
Concept Lenses: *Thinking critically about language and literature in regards to justice, empathy, responsibility, consequences,courage, integrity, greater good, community vs. self, obligation* **Skill Lenses:** *Analyzing nonfiction, developing strong arguments, examining how writers use rhetorical strategies to persuade an audience, engaging in respectful discourse* **Content Exposure and Focus:** *Speeches on historical and current events, nonfiction pieces relevant to justice, tone, diction, ethos, pathos, logos*	● Individual responsibility in regards to justice; silence and inaction can allow injustice to continue. ● Empathy, courage, and integrity are essential components of a strong community. ● Mutual respect and understanding strengthens discourse.	**What is our responsibility to our community in regard to justice? (C)** **How do writers use rhetorical strategies to persuade an audience? (S)** **How does a moment in time/event/time period inspire a text? (S)** **How does a participant engage and prepare for respectful discourse when discussing opposing viewpoints? (SL)**	SL.9-10.1 SL.9-10.1a SL.9-10.1b SL.9-10.1c **SL.9-10.1d** SL.9-10.2 SL.9-10.3 SL.9-10.4 SL.9-10.5 SL.9-10.6 RI.9-10.1 RI.9-10.2 RI.9-10.3 RI.9-10.4 RI.9-10.5 **RI.9-10.6** RI.9-10.8 W.9-10.1 W.9-10.1d W.9-10.2d W.9-10.4 W.9-10.5 W.9-10.10	● Students will be able to analyze non fiction. ● Students will be able to develop strong arguments. ● Students will be able to examine how writers use rhetorical strategies to persuade an audience. ● Students will engage in respectful discourse. ● Students will reflect on their own methods of discourse and its impact on discussion.

UNIT 4 Teaching Strategies

- Classroom Library for student choice
- Continued instruction/practice on rhetorical analysis
- Create Class Discussion Norms
- Self- Selecting Issues and Topics of Discussion - i.e. Current Events
- Accountable Talk – use of talking stems to facilitate classroom discussion
- Generating questions on demand

In order to engage students in a rich and diverse experience, teachers will select one substantial course text (listed below) per unit that is representative of varied voices and/or historical time periods as well as selected readings from *Foundations of Language and Literature*.

Unit 4 Texts

The Tragedy of Romeo and Juliet by William Shakespeare (*requirement for all 9th graders)
Of Mice and Men by John Steinbeck
The Secret Life of Bees by Sue Monk Kidd
Our Town by Thornton Wilder
The House on Mango Street by Sandra Cisneros
Fahrenheit 451 by Ray Bradbury
1984 by George Orwell
Animal Farm by George Orwell
The Odyssey by Homer
The Old Man and the Sea by Ernest Hemingway
Warriors Don't Cry by Melba Patillo Beals
The Book Thief by Markus Zusak
Between Shades of Gray by Ruta Sepetys
Unwind by Neal Shusterman
Matched by Ally Condie
Ready Player One by Ernest Cline
Uglies by Scott Westerfield
The Program by Suzanne Young
Delirium by Lauren Oliver
Persepolis by Marjane Sartrapi
Me Moth by Amber McBride
The Door of No Return by Kwame Alexander
Solito by Javier Zamora

Textbook

Foundations of Language & Literature: Pre-AP Pathway by Shea, Golden, & Scholz

Supplemental Resources

- Teachers may select additional readings and materials based on student skills as aligned with Common Core Standards and NCTE including, but not limited to TED Talks, short stories, poetry, nonfiction articles/op-eds, etc.
- Stephen King's "Stephen King"s Guide to Movie Snacks"
- Derf Backder's from *Trashed*

- Lisa Damour's "Why Teenage Girls Roll Their Eyes"
- Raph Koster's from *A Theory of Fun for Game Design*
- Peggy Orenstein's "The Battle over Dress Codes"
- Peggy Orenstein's "What's Wrong with Cinderella?"
- Tina Rosenberg's "Labeling the Danger in Soda"
- Daniel Enger's "Let's Kill All the Mosquitos"
- Sarah Kessler's from *Why Online Harassment Is Still Ruining Lives--and How We Can Stop It*
- Mark Twain's "Advice to Youth"
- Cesar Chavez's "Letter from Delano"
- Classroom Library for student choice.
- Learning Commons Library for student choice.

Unit 4 Assured Assessments

Assured Formative Assessment

- Written response and analysis of speeches, articles, and other non-fiction pieces (op-eds) to explore the unit's focus.
- Varying types of discussions requiring on demand thinking: Fishbowls, Shared Inquiry, Socratic Seminar, Prompted and Unprompted Responses.

Assured Summative Assessment

- Shared Inquiry Discussion with Written Reflections. Within a discussion students engage in insightful conversations about complex texts, ideas, and concepts. The students will explore and synthesize a particular text and/or topic. Students will be responsible for gathering evidence and preparing claims as preparation for the graded discussion. The teacher will establish discussion norms so that the students will gain a deeper understanding through meaningful collaboration and respectful sharing of ideas. Teachers will use the Trumbull High School English Department Grade 9 Speaking and Listening rubric to assess student performance. After the discussion, students will craft a written reflection on their performance and participation in the discussion.

THE ABOVE ASSURED ASSESSMENTS support the teaching of the following primary standards:

- RI.9-10.6
- SL.9-10.1.d

Time Allotment: 8-10 weeks

ACADEMIC LANGUAGE

Academic Language: English/literary study requires students to be proficient in the following literary language, most of which students learn throughout their middle school experience. High school teachers will continue to have students identify and explain significant examples of these, further deepening student understanding of how these devices and concepts operate to convey meaning in a given text. As students encounter other devices and concepts, they will expand their knowledge; however, knowledge outside of this given list is text-dependent and therefore cannot be listed explicitly:

- allusion
- antagonist
- characterization
- conflict (external and internal)
- dialogue
- diction
- foreshadowing
- flashback
- imagery
- irony (dramatic, situational, verbal)
- metaphor
- mood
- motif
- narrator
- personification
- plot
- point of view
- protagonist
- repetition
- setting
- simile
- symbolism
- theme
- tone

COURSE CREDIT

One credit in English.
One class period daily for a full year

PREREQUISITES

None.

ASSURED STUDENT PERFORMANCE RUBRICS

- Trumbull High School School-Wide Reading Rubric
- Trumbull High School School-Wide Writing Rubric
- Trumbull High School School-Wide Independent Learning and Thinking Rubric
- English 9 Writing Rubric
- English 9 Speaking & Listening/Shared Inquiry Rubric

SCHOOL-WIDE RUBRICS

Rubric 1: Read Effectively

Category/ Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Respond X_____	Demonstrates exceptional understanding of text by: • Clearly identifying the purpose of the text • Providing initial reaction richly supported by text 🎬 Providing a perceptive interpretation	Demonstrates understanding of text by: • Identifying the fundamental purpose of the text • Providing initial reaction supported by text • Providing a clear/straightforward interpretation of the text	Demonstrates general understanding of text by: • Partially identifying the purpose of the text • Providing initial reaction somewhat supported by text • Providing a superficial interpretation of the text	Demonstrates limited or no understanding of text by: • Not identifying the purpose of the text 🎬 Providing initial reaction not supported by text • Providing an interpretation not supported by the text
Interpret X_____	Demonstrates exceptional interpretation of text by: • Extensively reshaping, reflecting, revising, and/or deepening initial understanding 🎬 Constructing insightful and perceptive ideas about the text. • Actively raising critical questions and exploring multiple interpretations of the text	Demonstrates ability to interpret text by: • Reshaping, reflecting, revising, and/or deepening initial understanding • Summarizing main ideas of text 🎬 Actively interpreting text by raising questions and looking for answers in text	Demonstrates general ability to interpret text by: • Guided reflection and/or revision of initial understanding • Summarizing some of the main ideas of text • Guided interpretation of text by locating answers to given questions in text	Demonstrates limited ability to interpret text as evidenced by: • Struggle to implement guided reflection and/or revision of initial understanding • Struggle to summarize any main ideas of text • Struggle to answer questions by locating responses in text
Connect X_____	Demonstrates perceptive connections • text-to-text	Demonstrates specific connections 🎬 text-to-text	Demonstrates general connections • text-to-text • text-to-self	Struggles to make connections 🎬 text-to-text • text-to-self

	• text-to-self • text-to-world	• text-to-self • text-to-world	• text-to-world	• text-to-world
Evaluate X_____	Demonstrates insightful evaluation of text by one or more of the following: • Critical analysis to create a conclusion supported by the text 🎬 Perceptive judgments about the quality of the text • Synthesis of text • Expression of a personal opinion	Demonstrates an evaluation of text by one or more of the following: • Critical analysis to form a conclusion from the text • Thoughtful judgments about the quality of the text • Evaluation of text to express personal opinion(s)	Demonstrates a general evaluation of text by one or more of the following: • Formulation of a superficial conclusion from the text • Assessment of the quality of the text • Use of text to express personal opinion(s)	Demonstrates a struggle to evaluate the text by one or more of the following: • Formulation of a conclusion from the text • Assessment of the quality of the text • Use of text to express personal opinion(s)

Rubric 2: Write Effectively

Category/ Weight	Exemplary 4 Student work:	Goal 3 Student work:	Working Toward Goal 2 Student work:	Needs Support 1-0 Student work:
Purpose X_____	• Establishes and maintains a clear purpose • Demonstrates an insightful understanding of audience and task	• Establishes and maintains a purpose • Demonstrates an accurate awareness of audience and task	• Establishes a purpose • Demonstrates an awareness of audience and task	Does not establish a clear purpose Demonstrates limited/no awareness of audience and task
Organization X_____	• Reflects sophisticated organization throughout • Demonstrates logical progression of ideas • Maintains a clear focus • Utilizes effective transitions	• Reflects organization throughout • Demonstrates logical progression of ideas • Maintains a focus • Utilizes transitions	• Reflects some organization throughout • Demonstrates logical progression of ideas at times • Maintains a vague focus • May utilize some ineffective transitions	• Reflects little/no organization Lacks logical progression of ideas Maintains little/no focus • Utilizes ineffective or no transitions
Content X_____	• Is accurate, explicit, and vivid • Exhibits ideas that are highly developed and enhanced by specific details and examples	• Is accurate and relevant • Exhibits ideas that are developed and supported by details and examples	• May contain some inaccuracies • Exhibits ideas that are partially supported by details and examples	• Is inaccurate and unclear • Exhibits limited/no ideas supported by specific details and examples
Use of Language X_____	• Demonstrates excellent use of language • Demonstrates a highly effective use of standard writing that enhances communication • Contains few or no errors. Errors do not detract from meaning	• Demonstrates competent use of language • Demonstrates effective use of standard writing conventions • Contains few errors. Most errors do not detract from meaning	• Demonstrates use of language • Demonstrates use of standard writing conventions • Contains errors that detract from meaning	• Demonstrates limited competency in use of language • Demonstrates limited use of standard writing conventions • Contains errors that make it difficult to determine meaning

Rubric 5: Independent Learners And Thinkers

Category/ Weight	Exemplary 4	Goal 3	Working Toward Goal 2	Needs Support 1-0
Proposal X_____	Student demonstrates a strong sense of initiative by generating compelling questions, creating uniquely original projects/work.	Student demonstrates initiative by generating appropriate questions, creating original projects/work.	Student demonstrates some initiative by generating questions, creating appropriate projects/work.	Student demonstrates limited or no initiative by generating few questions and creating projects/work.
Independent Research & Development X_____	Student is analytical, insightful, and works independently to reach a solution.	Student is analytical, and works productively to reach a solution.	Student reaches a solution with direction.	Student is unable to reach a solution without consistent assistance.
Presentation of Finished Product X_____	Presentation shows compelling evidence of an independent learner and thinker. Solution shows deep understanding of the problem and its components. Solution shows extensive and appropriate application of 21st Century Skills.	Presentation shows clear evidence of an independent learner and thinker. Solution shows adequate understanding of the problem and its components. Solution shows adequate application of 21st Century Skills.	Presentation shows some evidence of an independent learner and thinker. Solution shows some understanding of the problem and its components. Solution shows some application of 21st Century Skills.	Presentation shows limited or no evidence of an independent learner and thinker. Solution shows limited or no understanding of the problem. Solution shows limited or no application of 21st Century Skills.

ENGLISH DEPARTMENT WRITING RUBRIC

	Claim/Thesis	Evidence	Explanation	Writing Conventions
Exemplary (4)	Claim is clear, specific, and expresses a complex argument. It opens divergent, insightful understanding of the text.	Convincing evidence (not previously discussed in class/not obvious within the text) supports the claim. Quotes are incorporated seamlessly with appropriate introductory context.	Ideas are insightful and the explanation of thinking demonstrates a clear, thorough, and convincing connection between the evidence and the claim. Explanation thoroughly answers the questions "How do you know? and "So what?"	Writing demonstrates purposeful organization, clear coherence, and smooth progression of ideas. The writer uses appropriate language for his/her audience and purpose. The piece is free of most errors in grammar and mechanics. Quotes are cited according to MLA style.
Proficient (3)	Claim is clear, specific, and states an arguable interpretation of text.	Evidence (quotes or well-selected paraphrase previously discussed in class/more obvious within the text) adequately supports the claim. Quotes are incorporated with appropriate introductory context.	Ideas are explained adequately and connect the evidence to the claim. Explanation adequately answers the questions "How do you know?" and/or "So what?"	Writing demonstrates adequate organization, coherence, and progression of ideas. The writer uses appropriate but inconsistent language for audience and purpose. Grammatical and mechanical errors are present. Inconsistent use of correct MLA citation.
Progressing (2)	Claim attempts to demonstrate an interpretation of the text but may not be arguable and/or may not be focused on or fully addressed the prompt.	Evidence is present but may not clearly support the claim, may be more focused on repeating the claim rather than supporting it, or may merely reference a plot point. Quotes are not introduced with appropriate context.	Ideas display gaps in thinking or may merely repeat the claim or evidence. Explanation attempts to connect evidence to claim but is inadequate and/or not convincing. Explanation does not answer the questions "How do you know?" and "So what?"	Writing demonstrates limited organization with lapses in coherence and/or progression of ideas. The writer uses informal language for audience and purpose. An accumulation of grammatical and mechanical errors is present. MLA citation is incorrect.

Emerging (1)	Claim is unclear, rooted in inaccuracies, and/or a statement of fact. It does not set up an interpretation for the response.	Evidence is not present or not clearly referenced and/or not relevant to the claim. If used, evidence may simply restate a plot point (summary).	Explanation is not present, may be unrelated to claim and evidence, and/or introduces no new thinking to the response. Explanation may offer discussion about topic(s) that is unrelated to the evidence and claim.	Writing is disorganized and/or unfocused with pervasive errors in grammar and mechanics that interfere with meaning. MLA citation is not used.
(0)	Unacceptable / No Score	Unacceptable / No Score	Unacceptable / No Score	Unacceptable / No Score

SHARED INQUIRY DISCUSSION RUBRIC

	4	3	2	1	0 – unscorable
Involvement	Engagement is highly attentive and effective, responding clearly and directly to the thoughts of others. Involvement is passionate, well-balanced, and coherent. Critical questions advance the conversation, build on the ideas of peers, and offer challenging statements without being argumentative. Discourse is courteous, respectful, and genuinely interested; engagement is tempered with appreciation for a balanced discussion.	Engagement is attentive and active. Ideas are presented and correlate to the thoughts of others. Discourse is responsive, open minded, and respectful without monopolizing.	Engagement is attentive and respectful, marked by attempts to be active in the discussion. Contributions are present but may repeat ideas rather than further the discussion. Ideas are "presented," rather than discussed, or may struggle to build off of the ideas of others. The conversation may need a greater balance of talking and listening to others.	Full engagement in discourse is not evident, doing little to contribute to the conversation or build off of the ideas of the group. The ideas center around initial responses with little evidence of reshaping ideas based on the discourse. Contributions may confound or derail the discussion.	No involvement in the discussion, demonstrated by being disengaged, silent, or responding inappropriately to the ideas of others.
Ideas and Analysis	Original and insightful questions and comments continually reflect sophisticated comprehension and higher-level thinking. Creative and divergent critical thinking is consistently displayed. Ideas are challenged, bringing the class to a higher understanding of the text and the question at hand.	Questions and comments reflect clear comprehension and higher level thinking. Creative and divergent critical thinking is present. The ideas of others are respectfully challenged during the discussion.	Questions and comments reflect inconsistent higher-level thinking and/or muddied comprehension of the text or the question. Ideas may be one sided or based mainly on superficial observations. Investment of time is in supporting the obvious or rehashing prior class discussions without deepening thought.	Questions and comments may demonstrate only a very literal or misguided comprehension of the text, missing subtleties or nuances that are important. Ideas presented do not assist the group in exploring critical thought or building ideas collaboratively and may, ultimately, hold it back.	Comments, if any, reflect a flawed or incomplete understanding of the text.

Support	Clear and convincing evidence supports each assertion and effectively builds off of the ideas of others. Text evidence deepens analysis and ties directly to a clear and relevant argument. Comments refer to specific pages and/or lines in the text; quotes are read or paraphrased when appropriate, and followed up with explanation of thinking. Exemplary facility with the text is demonstrated.	Direct quotes and specific examples to support inferential ideas are introduced. Comments refer to specific pages and/or lines in the text; quotes are read and/or paraphrased when appropriate. Examples are given and stay on topic. Some facility with the text is demonstrated.	Examples from the text are used at times. Text evidence may be vague, inconsistent, repetitive, or nonessential to the argument at hand. Facility with the text is limited to only quotes prepared beforehand.	Little to no concrete evidence from the text is introduced. Examples are not specific enough, and/or demonstrate a misreading or very cursory reading of the text.	No concrete evidence from the text is utilized.
Preparation	Participation is exceptionally well-prepared. Copious and insightful notes on the reading have been taken and developed. Original and powerful questions have been developed prior to the discussion. All required materials have been brought to class.	Participation is well-prepared. Insightful notes and thoughtful questions have been developed. All required materials have been brought to class.	Required reading, thinking, and questions have been completed. Some notes and questions have been developed prior to the discussion. Some required materials have been brought to class.	Preparation is lacking. The required reading, thinking, or questions may be incomplete or rudimentary. There may be evidence of some preparation, but all materials have not been brought to class.	No preparation is evident.
Reflection	Reflection is insightful, honest, and comprehensive, making specific reference to the discussion and individual preparation, demonstrating how the	Reflection is intelligent, honest, and complete, making a mix of general and specific references to the discussion and individual	Reflection is emerging, making mostly general references to the discussion and individual preparation, which may	Reflection is confusing, unfocused, and/or sparse, making few references to the discussion or individual preparation, lacking	Reflection is limited and incomplete, making little to no specific reference to the discussion and individual

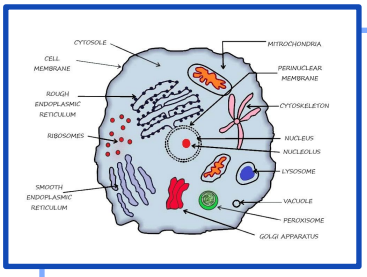
	discussion impacted individual thinking, and demonstrating authentic thinking and a strong desire for self-improvement in future discussions.	preparation, demonstrating some authentic thinking and the desire for self-improvement in future discussions.	or may not be accurate, demonstrating an attempt at authentic thinking and the recognition of a need for self- improvement in future discussions.	authentic thinking and apparent desire for self-improvement in future discussions.	preparation, and devoid of both authentic thinking and the desire for self-improvement in future discussions.

TRUMBULL PUBLIC SCHOOLS

Curriculum Committee Review & Approval

July 11, 2023
Susan Iwanicki, Ed.D
Assistant Superintendent

Trumbull Public Schools
Committed to Excellence



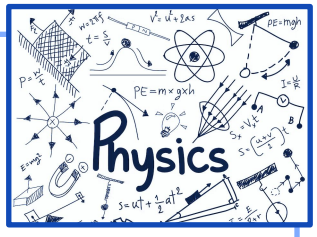
Gr 10 Biology Curriculum Guide Update

- Pat Tividar, THS Science Teacher
- Focus preserving rigor and conceptual connection in 1.0 credit instead of 1.25
- Examining order, academic vocabulary and cross cutting concept
- Creating a model cell within the biochemistry unit, for example
- “Hopeful that the new format will help students and be more relatable”

Gr 11 Chemistry Curriculum Guide Update

- Becky Giroux, 11th Grade Chemistry Teacher
- NGSS standards used to prioritize the reduction in time
- Concept in light covered in other classes, so those could be eliminated
- Department collaboration on getting the most out of labs (pre measuring materials, for example)
- Largest changes were in the electron and periodic table units

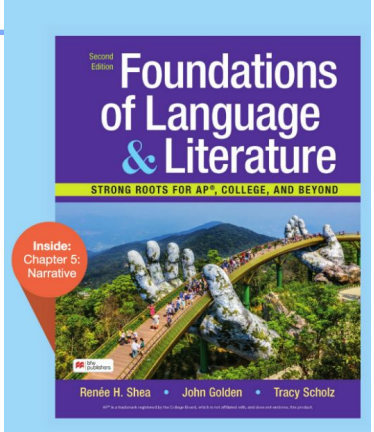
Gr 12 CP & ACP Physics Curriculum Guide Update



- Jon Albers, 12th Grade Physics Teacher
- “Student study the practical elements of mechanics, heat, sound, electricity, magnetism, light, atomic physics and astro physics, stressing technological applications”
- Focus on condensing while preserving hands on activities
- CP and ACP will be aligned in terms of sequencing
- The CP course is very similar to the ACP course, with more of a mathematical focus in the ACP

Gr 9 English Curriculum Guide Update

- English teachers Jeannette DeNunzio, Norma McFarland with Dept Chair Adeline Marzialo
- Revise the curriculum to be more vertically aligned with incoming 8th graders and AP standards
- Refocuses with a straight-forward humanities analysis approach
- 4 units align with CCSS and literary choices but in better alignment with AP



Board Discussion and Questions

Trumbull Public Schools

A Community Committed to Excellence

TRUMBULL PUBLIC SCHOOLS
TRUMBULL, CONNECTICUT

Report to the Board of Education
Regular Meeting – July 11, 2023

Mr. Hendrickson

Agenda Item – III-H

Approval/Financial Report through
May 31, 2023

- The Finance Committee of the Board of Education met on July 6, 2023 which included the review of the May 31, 2023 financial report.

Recommendation:

- Approve Financial Report as of May 31, 2023.

July 5, 2023

Memorandum To: Trumbull Board of Education

From: Paul Hendrickson, Business Administrator

Via: Dr. Martin J. Semmel, Superintendent

Subject: May 2023 Financial Report

Attached for your review is the May 2023 Financial Report that will be presented to the Board of Education Finance Committee on July 6, 2023. I have included my notes with the report to address potential questions which may arise as well as graphs on total spend to date, salaries, benefits, and utilities.

If there are additional questions, please send them to phendric@trumbullps.org or call me at 203-452-4332.

July 6, 2023 – Board of Education Finance Committee Report

Operating Budget (001):

1) The summary sheet indicates that the general fund has an available balance of ($145,242). However, that does not consider the $466,300 in credit from the Athletic Fund ($300,000), Magnet School Transportation Grant ($66,300) and E-Rate ($100,000). Also, the District received $109,184 more than budgeted for Excess Cost Reimbursement (ECR).
    a. With the credits, the available balance is $430,242.
    b. This does not include the previously approved transfer of $200,000 from the Non-Lapsing Account.
2) The package includes both the "By Object" and "By Location" financial statements.
3) The presentation begins with four graphs: Total Budget, Salaries, Benefits, and Utilities which illustrate the cumulative spend as a percentage of the respective budget at year end.
    a. Cumulative Total Board of Education Budget % by Month: 83.2%
        i. In the past three years this has ranged from 80.7% => 86.3%.
    b. Salaries (which are approximately 66.6% of the budget): 77.1%
        i. In the past three years this has ranged from 78.0% => 79.1%.
    c. Benefits (which are 17.2% of the budget) spent: 90.4%
        i. In the past three years this has ranged from 89.4% => 100.2%.
        ii. Salaries and benefits make up 83.8% of the budget.
            1. Through May 31st, the District has spent 72.0% of the combined budgets.
            2. The range over the past three years has been 72.1% => 74.8%.
    d. Utilities (Electricity + Water) spent YTD = 82.9% of budget.
        i. Last three years: 72.1% => 111.1%
4) There a few items I would like to point out under the categories below (please refer both to the two-page summary and the fifteen-page detailed general fund financials in the package). Reviewing the standard nine categories for May and their available balance:
    a. **Salaries:** The Business Office continues to working with the HR Department on implementation of position control within MUNIS.
        i. We had half day training sessions with the MUNIS trainer on Tuesday, June 27th and Wednesday, July 5th.
    b. **Employee Benefits:** $28,310 which is a $7,564 increase from $20,746 last month.
        i. The increase was attributable largely to FICA and to a lesser extent to unemployment insurance.
        ii. The increase was partially offset by a decrease in available balance in the health benefits account.
    c. **Purchased Professional Services:** -$137,854, a -$26,234 change from -111,620 last month. The change is due to the following:
        i. Both Special Education and General Legal accounts were essentially flat month-to-month with a combined available balance of $59,676.
        ii. The consultants' account deficit increased from -$258,311 to -$269,045, a total of -$10,734.

iii. Other Professional Services deficit increase from -$26,653 to -$41,751, a change of -15,098.
    1. This was substantially due to Sports Purchased Services (#01713201-53300) available balance decreasing from $13,196 (4/30) to $1,880 (5/31), a $11,316 decrease.

d. **Purchased Property Services:** -$253,965 which is a -$28,830 change from -$228,125 last month. The increase is driven by two items:
    i. A $6,750 increase in Utilities, all of which is due to Electricity (#01842611-54101).
    ii. A $16,435 increase in Repairs & Service Fees.
        1. A $10,414 increase in HVAC Repairs & Service Fees (#01852639-54300).
        2. A $5,000 increase in Custodial Repairs (#01842610-54300).

e. **Purchased Other Services:** -$491,104, a -$45,136 change from -$445,968 last month.
    i. Transportation: -$368,696, -$38,207 change in available balance from -330,489 last month. This change is almost exclusively due to increased fuel expense (#01882700-55109).
    ii. Tuition: -$311,357, an increased deficit of $14,281 from -$297,076 last month due to Tuition Outplaced (#01396110-55600).

f. **Supplies:** -$153,644, a -$137,850 decrease from -$15,794 last month. The principle changes were in the following accounts:
    i. Maintenance Supplies: -53,643, a -$28,7472 change from -$24,896 last month.
        1. A $3,619 increase for Gas/Diesel (#01852623-56133).
        2. A $10,912 increase for Grounds-Supplies (#01852625-56134).
        3. A $10,195 increase in Electrical-Supplies (#01852633-56134).
    ii. Energy: $24,400, a reduction of $90,000 from $114,400 last month. This is due to Natural Gas (#01842611-56202).

g. **Property:** -$146,368, a difference of -$29,444 from -$116,924 last month.
    i. This is primarily due to a month-to-month change of -31,906 in the classroom equipment account,
        1. The Classroom-Computer Equipment (#0142100-57310) increased $33,016 from -$248,474 to -$281,490.

h. **Debt Service & Miscellaneous:** -$1,309; last month = -$208.

i. Other Objects:
    i. Business Office – Intergovernmental Transfer = -$466,300
    ii. This credit consists of three items to be transferred from the 205 accounts:
        1. $300,000 from the Athletic Fund
        2. $100,000 from E-Rate (Technology)
        3. $66,300 from Magnet School Transportation.

Town Accounts (009)

1) July expenses = $12,869; August expenses = $11,802; September expenses = $27,626; and October expenses = $125,068; November expenses = $111,093; December expenses = $117,595; January expenses = $99,439; February expenses = $129,857; March expenses = $117,826; April expenses = $126,370; May expenses = $87,880.

2) Year-to-Date (YTD spend) = $967,424.28 (74.6%).

Student Activities Accounts (100)

1) The balance of accounts decreased $46,177.60 from $457,957 (4/30) to $411,779 (5/31).
2) The accounts with the largest changes were:
    a. The Hillcrest student activity fund increased $9,352.
    b. The Madison student activity fund increased $6,281.
    c. THS VOAG Farm account increased $7,336.
    d. The Booth Hill student activity fund increase $6,750.
    e. The THS Class of 2023 fund decreased $65,388.
    f. The THS Graduation – Cap & Gowns decreased $15,913.

Grants (200)

1) All grants at 5/31 either had a positive available balance or were fully expended.

Special Revenue Funds (205)

1) There are four accounts in deficit in Special Revenue Funds:
    a. Strings / Band is in a deficit position of -$169,332 for the fiscal year, compared to -$168,316 last month, and -$144,031 overall due to a $25,301 balance at 7/01/2022.
    b. ELITE's deficit for the fiscal year declined slightly from -$70,960 last month to -$67,090 this month.
        i. Since there was a balance of $2,976 at 7/01/2022, currently the account balance is -$64,113.
        ii. Attached is the year-to-date profit and loss statement for the ELITE program.
    c. THS AP Testing has a deficit of -$103,905; the Business Office is awaiting the revenue associated with this account.
    d. The Voluntary Insurance account is a self-liquidating account.
        i. This means that each month employees who signed-up for additional life insurance make a payment. These payments reduce the deficit.
        ii. For the fiscal year it is in deficit -$30,094 down $38,038 from last month's balance of -$68,132; monthly payments are between $25,000 and $30,000.
        iii. Since there was a balance of $3,341 at 7/01/2022, the account's current balance is -$26.753.

Food Service (210)

1) The monthly results were:
    a. May profit = $603,547
    b. April loss = -$105,731
    c. March loss = -$48,900
    d. February profit = $17,633
    e. January profit = $67,243
    f. December loss = -$210,219
    g. November profit = $908,113; the sizeable profit was due in large part to $870,574. received via lunch claims to the State.

h. October loss = -$126,599
i. September loss = -$164,183
j. August loss = -$52,100
k. July loss = -$46,095

2) The cumulative profit though May 31st = $842,709.
3) The sizeable profit in May is primarily due to receiving $700,446 in grants/claims during the month.
4) At May 31st, the District's cash account = $3,374,743 while the "Due to Town Account" = $1,558,587 resulting in a $1,816,156 net cash position.

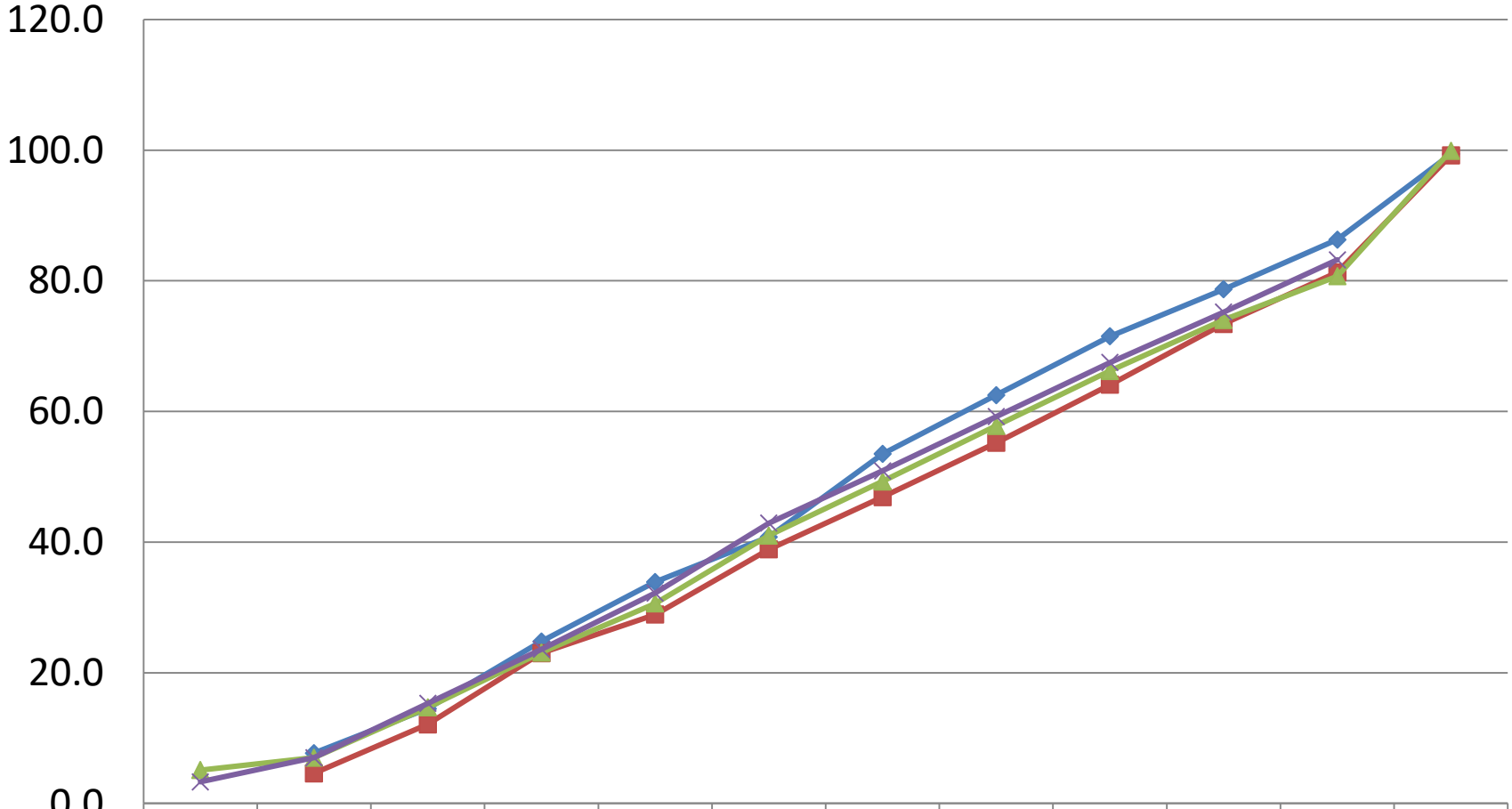
Scholarships (300)

1) The balance of the Scholarship Fund was $166,046 at 5/31, a $7,936 reduction from $173,982 at 4/30.

Other Business: Transfers

1) Set a meeting date in August to review proposed year end transfers.

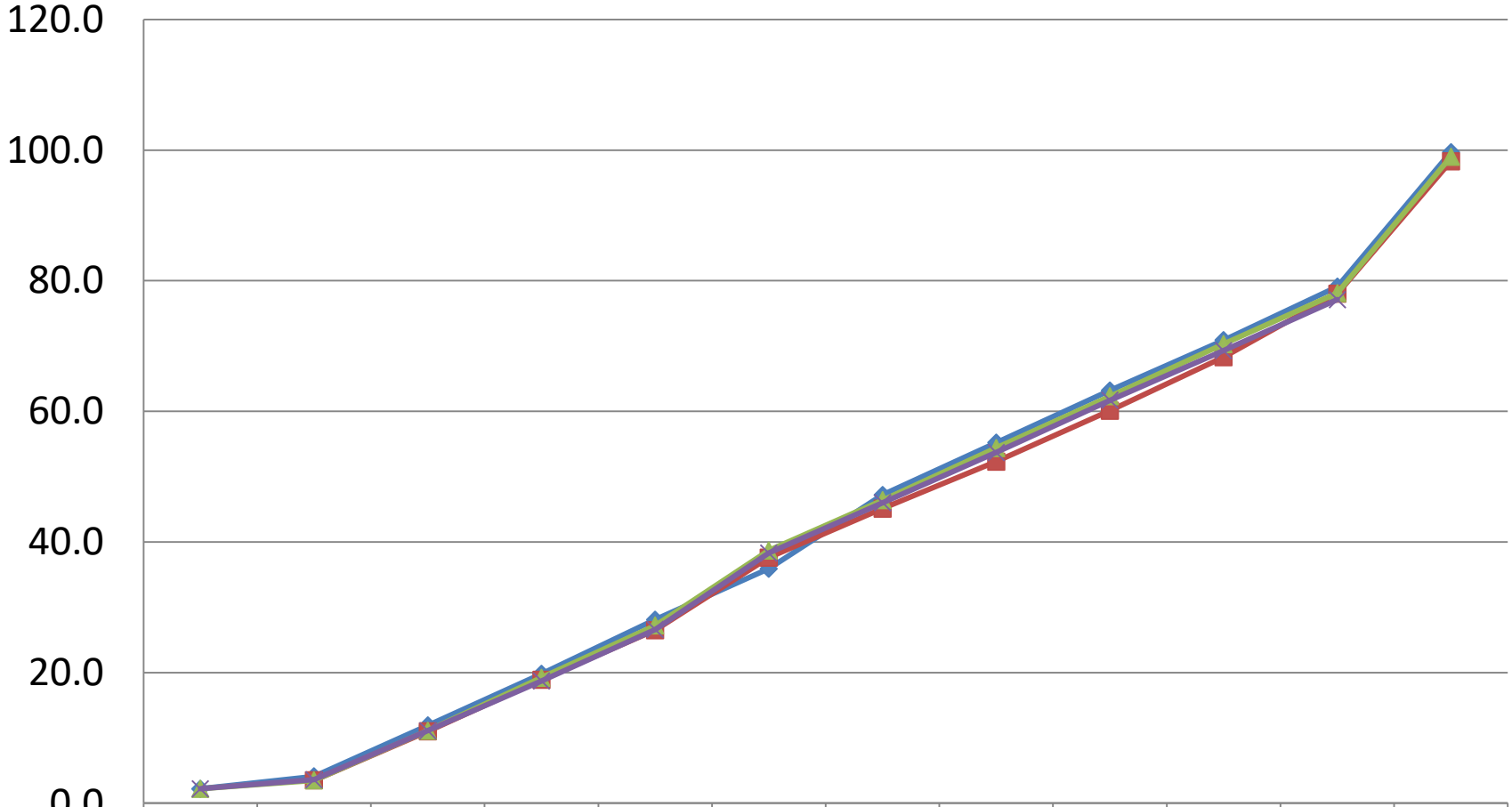
Cumulative Total Board of Education Budget % By Month



	J	A	S	O	N	D	J	F	M	A	M	J
2019-20		7.7	14.5	24.8	33.9	40.8	53.5	62.5	71.5	78.7	86.3	99.4
2020-21		4.6	12.1	23.0	28.9	38.9	46.9	55.2	64.1	73.4	81.3	99.2
2021-22	5.1	7.0	14.7	23.1	30.6	41.0	49.3	57.8	66.2	74.0	80.7	99.9
2022-23	3.3	7.0	15.3	23.6	32.2	42.9	50.9	59.2	67.5	75.2	83.2	

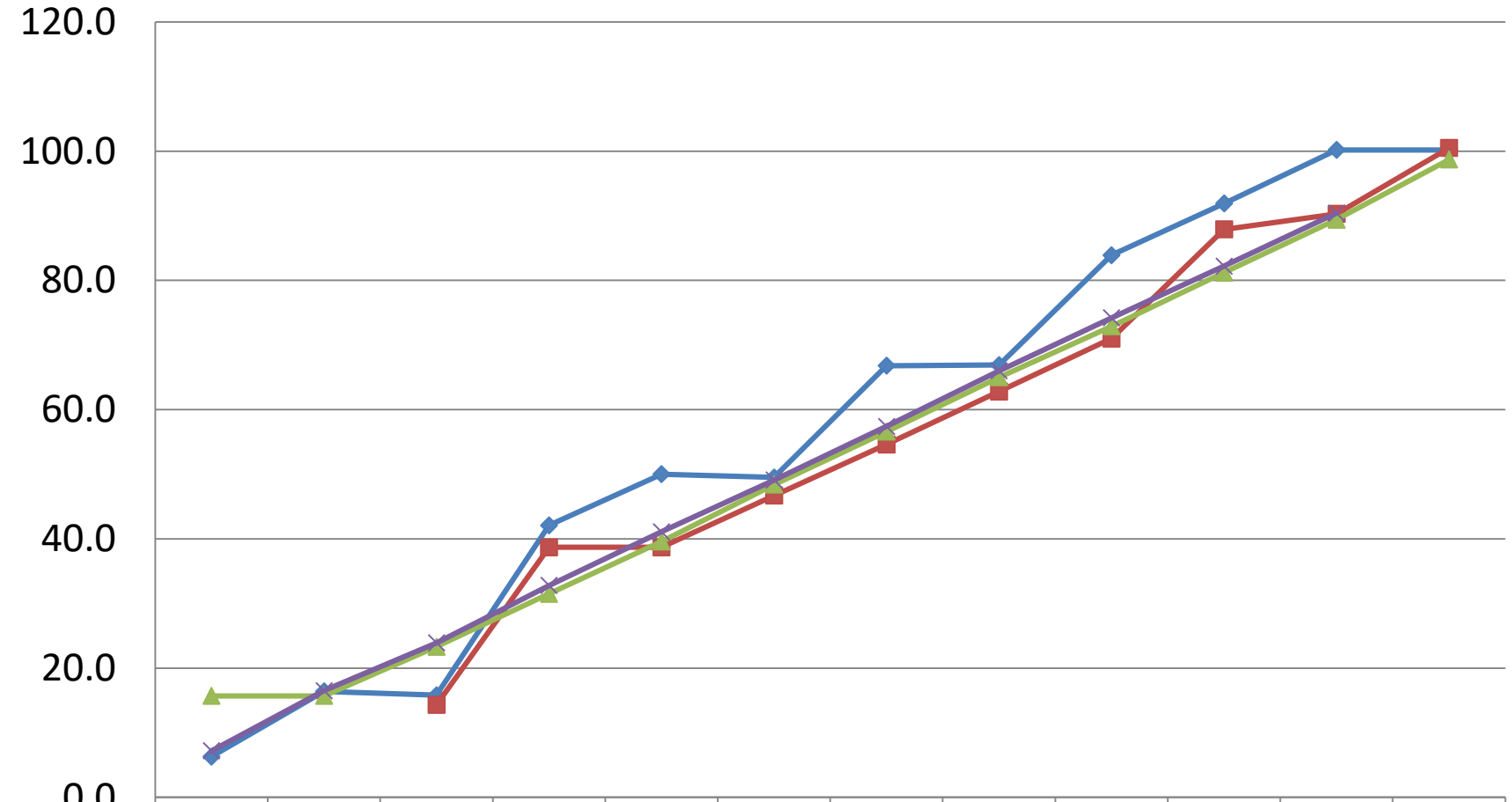
2019-20 2020-21 2021-22 2022-23

Cumulative Board of Education Salaries Budget % By Month



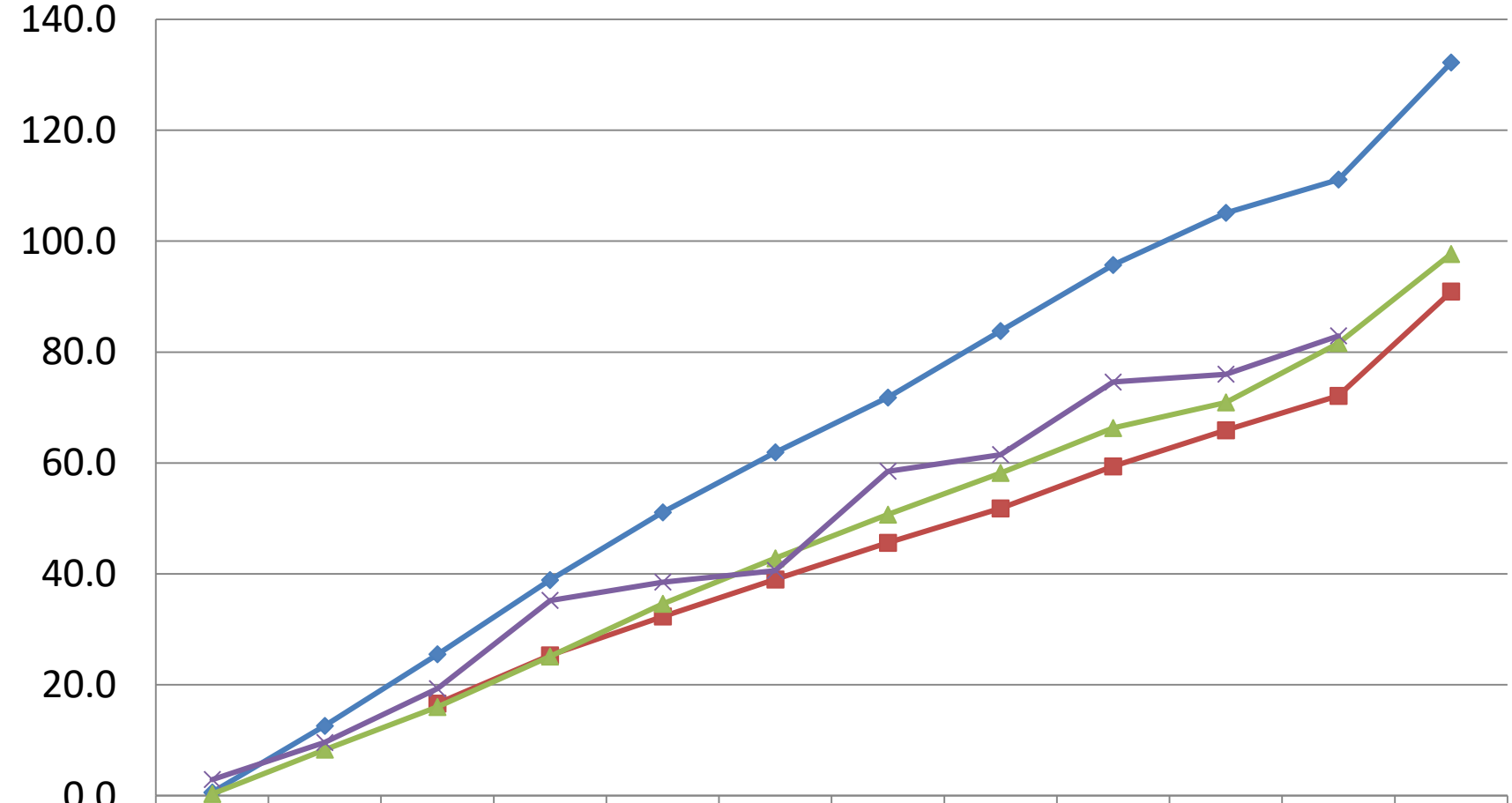
	J	A	S	O	N	D	J	F	M	A	M	J
2019-20	2.2	4.1	11.9	19.8	28.1	35.9	47.2	55.2	63.2	70.9	79.1	99.7
2020-21		3.5	11.0	18.9	26.5	37.6	45.1	52.3	60.1	68.3	78.0	98.3
2021-22	2.2	3.5	11.1	19.2	27.2	38.7	46.4	54.4	62.3	70.3	78.1	99.0
2022-23	2.2	3.6	11.1	18.7	26.6	38.3	46.0	53.7	61.7	69.3	77.1	

Cumulative Board of Education Benefits Budget % By Month



	J	A	S	O	N	D	J	F	M	A	M	J
2019-20	6.3	16.4	15.8	42.1	50.0	49.5	66.8	66.9	83.9	91.9	100.2	100.2
2020-21			14.3	38.7	38.7	46.7	54.6	62.8	71.0	87.9	90.3	100.5
2021-22	15.7	15.7	23.3	31.5	39.6	48.4	56.6	65.0	72.9	81.2	89.4	98.7
2022-23	7.2	16.5	23.9	32.8	41.1	49.1	57.4	66.0	74.2	82.2	90.4	

Cumulative Board of Education Utilities Budget % By Month



	J	A	S	O	N	D	J	F	M	A	M	J
2019-20	0.6	12.6	25.5	38.9	51.1	61.9	71.8	83.8	95.7	105.1	111.1	132.2
2020-21			16.6	25.3	32.3	39.0	45.6	51.8	59.4	65.9	72.1	90.9
2021-22	0.3	8.3	16.0	25.1	34.6	42.8	50.7	58.2	66.3	70.9	81.6	97.7
2022-23	2.9	9.6	19.3	35.2	38.5	40.6	58.5	61.5	74.6	76.0	82.9	

FOR 2023 11

	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
001 BOE GENERAL FUND	115,915,558	0	115,915,558	96,409,484.41	19,651,315.94	-145,242.35	100.1%
009 TOWN ACCOUNTS FUND	0	1,304,548	1,304,548	967,424.28	213,196.45	123,927.27	90.5%
200 GRANTS FUND	0	5,337,568	5,337,568	3,265,628.13	820,376.80	1,251,563.47	76.6%
205 SPECIAL REVENUE FUND	0	613,758	613,758	1,184,038.05	330,613.81	-900,894.36	246.8%
210 SCHOOL LUNCH FUND	0	2,817,160	2,817,160	2,974,899.58	279,279.65	-437,019.23	115.5%
300 SCHOLARSHIP FUND	0	0	0	9,700.00	.00	-9,700.00	100.0%
GRAND TOTAL	115,915,558	10,073,034	125,988,592	104,811,174.45	21,294,782.65	-117,365.20	100.1%

** END OF REPORT - Generated by Peg Brindisi **

Trumbull Board of Education Expense vs Budget Summary
By Object
Report for the Period Ended 5/31/2023

Object Description	Code	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)	% Spent or Committed
Salaries	**100**								
Admin/Supervisors		$4,969,444	$0	$4,969,444	$4,090,654	$4,466,022	$562,831	-$59,409	101%
Teachers		$55,851,515	$0	$55,851,515	$36,882,124	$41,070,185	$13,372,983	$1,408,347	97%
Custodians/Maintenance		$3,942,573	$0	$3,942,573	$3,016,210	$3,306,215	$405,115	$231,242	94%
Tech Support		$514,173	$0	$514,173	$418,633	$455,785	$55,464	$2,924	99%
Admin Support		$2,717,863	$0	$2,717,863	$2,239,839	$2,453,327	$380,069	-$115,533	104%
Paras & Aides		$5,463,591	$0	$5,463,591	$3,940,606	$4,402,068	$638,047	$423,476	92%
Substitutes		$834,900	$0	$834,900	$974,196	$1,144,857	$199,000	-$508,957	161%
Coaches & Advisors		$846,161	$0	$846,161	$480,203	$622,549	$277,279	-$53,667	106%
Salaries Other		$1,690,303	$0	$1,690,303	$1,221,252	$1,372,511	$296,574	$21,218	99%
Misc Salary Items		$398,000	$0	$398,000	$270,920	$270,920	$0	$127,080	68%
Salaries	**Total**	**$77,228,523**	**$0**	**$77,228,523**	**$53,534,637**	**$59,564,440**	**$16,187,362**	**$1,476,721**	**98%**
Employee Benefits	**200**								
Health Insurance		$17,401,837	$0	$17,401,837	$14,418,244	$15,872,287	$1,493,908	$35,642	100%
FICA		$1,932,381	$0	$1,932,381	$1,412,298	$1,563,970	$303,343	$65,068	97%
Other Insurance		$339,000	$0	$339,000	$278,520	$289,584	$44,409	$5,007	99%
Unemployment		$50,000	$0	$50,000	$5,762	$5,765	$4,000	$40,235	20%
Benefits Other		$198,000	$0	$198,000	$252,307	$277,822	$37,819	-$117,641	159%
Employee Benefits	**Total**	**$19,921,218**	**$0**	**$19,921,218**	**$16,367,131**	**$18,009,429**	**$1,883,479**	**$28,310**	**100%**
Purchased Professional Services	**300**								
Legal		$250,000	$0	$250,000	$135,121	$150,313	$40,012	$59,676	76%
Service Contracts		$464,667	$0	$464,667	$323,979	$329,400	$22,000	$113,267	76%
Consultants		$275,000	$0	$275,000	$307,318	$350,650	$193,395	-$269,045	198%
Other Prof Services		$566,995	$0	$566,995	$511,544	$536,664	$72,082	-$41,751	107%
Purchased Professional Services	**Total**	**$1,556,662**	**$0**	**$1,556,662**	**$1,277,962**	**$1,367,027**	**$327,489**	**-$137,854**	**109%**
Purchased Property Services	**400**								
Utilities		$1,159,705	$0	$1,159,705	$880,862	$960,851	$188,104	$10,750	99%
Repairs & Svc Fees		$414,200	$0	$414,200	$489,811	$559,290	$92,986	-$238,076	157%
Copiers		$265,000	$0	$265,000	$225,980	$246,838	$23,824	-$5,662	102%
Other Purch'd Property Svcs		$112,500	$0	$112,500	$103,620	$109,469	$24,009	-$20,977	119%
Purchased Property Services	**Total**	**$1,951,405**	**$0**	**$1,951,405**	**$1,700,274**	**$1,876,447**	**$328,923**	**-$253,965**	**113%**
Purchased Other Services	**500**								
Transportation		$6,744,729	$0	$6,744,729	$5,486,522	$6,046,092	$1,067,333	-$368,696	105%
Communications		$299,700	$0	$299,700	$269,166	$284,211	$58,002	-$42,513	114%
Postage				$46,000	$28,076	$30,022	$7,343	$8,635	81%
Advertising		$2,975	$0	$2,975	$1,750	$1,750	$0	$1,225	59%
Interns		$341,250	$0	$341,250	$199,473	$199,473	$59,850	$81,927	76%
Tuition		$3,961,698	$0	$3,961,698	$4,609,879	$4,909,259	($636,204)	-$311,357	108%
Printing		$13,750	$0	$13,750	$5,555	$6,078	$952	$6,719	51%
Other Purch'd Svcs		$421,694	$0	$421,694	$254,899	$262,941	$25,798	$132,955	68%
Purchased Other Services	**Total**	**$11,785,796**	**$0**	**$11,831,796**	**$10,855,318**	**$11,739,825**	**$583,075**	**-$491,104**	**104%**
Supplies	**600**								
Supplies-Teaching		$635,116	$0	$635,116	$550,102	$564,583	$55,605	$14,928	98%
Supplies-Office		$92,115	$0	$92,115	$98,176	$104,834	$13,546	-$26,265	129%
Supplies-Custodial		$116,000	$0	$116,000	$213,333	$227,943	$59,647	-$171,589	248%
Supplies-Maintenance		$251,500	$0	$251,500	$223,635	$240,783	$64,360	-$53,643	121%
Text & Workbooks		$409,463	$0	$409,463	$325,676	$336,131	$25,482	$47,850	88%
Subscriptions		$296,648	$0	$296,648	$291,011	$291,144	$60	$5,444	98%
Testing Materials		$170,000	$0	$170,000	$141,249	$142,543	$3,700	$23,757	86%
Books & A/V		$44,290	$0	$44,290	$44,285	$46,872	$2,419	-$5,001	111%
Software		$193,925	$0	$193,925	$212,268	$212,268	$0	-$18,343	109%
Energy		$599,400	$0	$599,400	$478,832	$544,595	$30,405	$24,400	96%
Other Supplies		$32,400	$0	$32,400	$9,532	$10,580	$17,002	$4,818	85%
Supplies	**Total**	**$2,840,857**	**$0**	**$2,840,857**	**$2,588,098**	**$2,722,276**	**$272,225**	**-$153,644**	**105%**
Property	**700**								
Office Equipment		$850	$0	$850	$26	$26	$0	$824	3%
Office Furniture		$0	$0	$0	$1,021	$1,021	$0	-$1,021	#DIV/0!
Classroom Equipment		$380,324	$0	$380,324	$553,931	$557,017	$57,412	-$234,105	162%
Classroom Furniture		$15,700	$0	$15,700	$12,401	$12,401	$106	$3,193	80%
Bldg Equipment		$83,000	$0	$83,000	$18,955	$30,970	$780	$51,250	38%
Bldg Improvements		$45,000	$0	$45,000	$13,165	$14,055	$1,005	$29,940	33%

Trumbull Board of Education Expense vs Budget Summary
By Object
Report for the Period Ended 5/31/2023

Object Description	Code	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)	% Spent or Committed
Other Equipment		$3,550	$0	$3,550	$0	$0	$0	$3,550	0%
Property	**Total**	**$528,424**	**$0**	**$528,424**	**$599,498**	**$615,489**	**$59,303**	**-$146,368**	**128%**
Debt Service & Miscellaneous	**800**								
Dues, Fees and Memberships		$521,973	$0	$521,973	$298,502	$514,551	$9,461	-$2,039	100%
Other Objects		$1,000	$0	$1,000	$0	$0	$0	$1,000	0%
Miscellaneous	**Total**	**$522,973**	**$0**	**$522,973**	**$298,502**	**$514,551**	**$9,461**	**-$1,039**	**100%**
Other Objects	**900**								
Other - Intergovernmental		($466,300)	$0	($466,300)	$0	$0	$0	-$466,300	0%
Other Objects	**Total**	**($466,300)**	**$0**	**($466,300)**	**$0**	**$0**	**$0**	**-$466,300**	**0%**
Munis Report Total		**$115,869,558**	**$0**	**$115,915,558**	**$87,221,421**	**$96,409,484**	**$19,651,316**	**$ (145,242)**	**100%**

Trumbull Board of Education Expense vs Budget Detail
By Object
Report for the Period Ended 5/31/2023

Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
Salaries								
Admin/Supervisors								
01011000-51113	TECEC-Admin-Admin Salaries	$123,747	$0	$123,747	$115,235	$125,711	$15,714	($17,678)
01011200-51114	PPS-Admin-Director/Coordinator	$315,181	$0	$315,181	$309,011	$337,276	$42,175	($64,270)
01402320-51114	Human Resource Director	$130,000	$0	$130,000	$97,944	$110,167	$18,333	$1,500
01412210-51113	D/W-Elem Asst Principal	$0	$0	$0	$0	$0	$0	$0
01412210-51114	Assistant Superintendent	$197,200	$0	$197,200	$163,809	$178,700	$22,338	($3,838)
01422520-51125	Tech-Admin-Manager	$137,932	$0	$137,932	$112,389	$122,606	$15,326	$0
01512400-51113	BHES-Admin-Principal	$182,000	$0	$182,000	$148,296	$161,778	$20,222	$0
01522400-51113	FTES-Admin-Principal/Asst Principal	$290,133	$0	$290,133	$216,192	$235,845	$29,481	$24,807
01532400-51113	DFES-Admin-Principal	$182,000	$0	$182,000	$148,296	$161,778	$20,222	$0
01542400-51113	MBES-Admin-Principal	$240,755	$0	$240,755	$193,560	$211,156	$26,395	$3,204
01552400-51113	JRES-Admin-Principal	$171,244	$0	$171,244	$139,532	$152,217	$19,027	$0
01582400-51113	TSES-Admin-Principal	$182,000	$0	$182,000	$148,296	$161,778	$20,222	$0
01612400-51113	HMS-Admin-Principal/Asst Principal	$346,615	$0	$346,615	$271,148	$295,798	$36,975	$13,842
01622400-51113	MMS-Admin-Principal/Asst Principal	$350,163	$0	$350,163	$285,318	$311,256	$38,907	$0
01711006-51114	THS-Ag Science-Director	$80,651	$0	$80,651	$65,716	$71,690	$8,961	$0
01711019-51114	Sports-Sports General-Director	$168,163	$0	$168,163	$137,022	$149,478	$18,685	($0)
01712400-51113	THS-Admin-Principals	$868,490	$0	$868,490	$707,658	$771,991	$96,499	$0
01741200-51113	Continuing Ed-Admin-Administrator	$0	$0	$0	$0	$0	$0	$0
01822230-51125	Facilities-Admin-Director/Managers	$247,562	$0	$247,562	$203,836	$222,366	$27,796	($2,600)
01822230-51141	Facilities-Admin-Manager OT	$0	$0	$0	$0	$0	$0	$0
01882700-51125	Trans-Admin-Manager	$74,589	$0	$74,589	$60,776	$66,301	$8,288	$0
01902320-51115	Super-Admin-Superintendent	$262,679	$0	$262,679	$222,932	$243,199	$30,400	($10,920)
01912520-51113	Bus Off-Admin-Business Administrator	$172,890	$0	$172,890	$143,690	$156,753	$19,594	($3,457)
01912520-51129	Bus Off-Admin-Acctg Manager	$88,623	$0	$88,623	$72,211	$78,776	$9,847	($0)
01922530-51125	Asst Super-Dir Digital Learning	$156,827	$0	$156,827	$127,785	$139,402	$17,425	($0)
	Admin/Supervisors Total	**$4,969,444**	**$0**	**$4,969,444**	**$4,090,654**	**$4,466,022**	**$562,831**	**($59,409)**
Teachers								
01011000-51110	TECEC-Classroom-Teachers	$808,589	$0	$808,589	$505,953	$477,456	$173,367	$157,766
01011200-51118	PPS-L/W-Curriculum Writing	$20,000	$0	$20,000	$296	$296	$0	$19,704
01011200-51119	PPS-L/W-Teacher Xtra Time	$36,000	$0	$36,000	$34,630	$37,820	$0	($1,820)
01021201-51119	PPS-After School-Teacher Salaries	$0	$0	$0	$0	$0	$0	$0
01062140-51111	PPS-L/W-Psychologists	$2,057,461	$0	$2,057,461	$1,050,911	$1,174,666	$387,298	$495,497
01062145-51111	PPS-L/W-Behaviorists	$50,882	$0	$50,882	$220,714	$247,833	$94,917	($291,867)
01072110-51111	PPS-L/W-Social Workers	$1,266,920	$0	$1,266,920	$626,040	$701,936	$260,318	$304,665
01082150-51111	PPS-L/W-Speech & Language	$1,361,659	$0	$1,361,659	$919,071	$1,017,853	$302,459	$41,346
01121200-51111	TECEC-Classroom-Specialists	$170,881	$0	$170,881	$115,973	$129,362	$21,055	$20,463
01161200-51110	PPS-SPED-Elementary Teachers	$2,149,393	$0	$2,149,393	$1,528,764	$1,707,466	$491,281	($49,354)
01231200-51110	PPS-SPED-Middle School Teachers	$1,442,419	$0	$1,442,419	$1,007,151	$1,124,008	$383,404	($64,993)
01331200-51110	PPS-SPED-THS Teachers	$2,181,279	$0	$2,181,279	$1,362,760	$1,516,113	$500,991	$164,174
01371200-51118	PPS-ESY-Teacher salaries	$191,000	$0	$191,000	$142,979	$146,056	$0	$44,944
01402210-51110	Curr Dir-D/W-ELL Teachers	$584,808	$0	$584,808	$440,208	$491,461	$149,482	($56,135)
01402320-51116	Asst Super-Admin-Teacher Stipends	$0	$0	$0	$0	$0	$0	$0
01402320-51118	Asst Super-L/W-Prof Devt Prep	$0	$0	$0	$0	$0	$0	$0
01402320-51200	Asst Super-Admin-Teacher Mentors	$5,000	$0	$5,000	$0	$0	$0	$5,000
01411250-51110	Curr Dir-D/W-TAG Teachers	$116,413	$0	$116,413	$76,116	$85,071	$31,342	$0
01412210-51111	Curr Dir-D/W-Program Leaders	$384,824	$0	$384,824	$287,569	$319,830	$55,860	$9,134
01412210-51117	Curr Dir-D/W-Teacher Training	$50,000	$0	$50,000	$944	$944	$49,057	$0
01412210-51118	Curr Dir-D/W-Prof Devt Prep	$30,000	$0	$30,000	$27,068	$27,068	$0	$2,932
01412210-51119	Curr Dir-Admin-Curriculum Writing	$83,555	$0	$83,555	$38,918	$40,338	$0	$43,217
01511001-51110	BHES-Classroom-Teachers	$2,189,116	$0	$2,189,116	$1,465,527	$1,644,425	$589,873	($45,182)
01511002-51110	BHES-Classroom-Specialists	$668,894	$0	$668,894	$355,588	$396,115	$137,223	$135,557
01512220-51110	BHES Library-Teachers-Salaries	$96,273	$0	$96,273	$62,948	$70,353	$25,920	($0)
01521001-51110	FTES-Classroom-Teachers	$2,481,988	$0	$2,481,988	$1,495,784	$1,672,705	$556,294	$252,989
01521002-51110	FTES-Classroom-Specialists	$895,790	$0	$895,790	$598,245	$668,316	$205,341	$22,133
01522220-51110	FTES Library-Teachers-Salaries	$107,279	$0	$107,279	$70,144	$78,396	$28,883	($0)
01531001-51110	DFES-Classroom-Teachers	$2,364,243	$0	$2,364,243	$1,454,219	$1,625,646	$598,796	$139,801
01531002-51110	DFES-Classroom-Specialists	$618,171	$0	$618,171	$436,757	$487,816	$120,031	$10,324
01532220-51110	DFES Library-Teachers-Salaries	$83,051	$0	$83,051	$54,303	$60,691	$22,360	($0)
01541001-51110	MBES-Classroom-Teachers	$2,303,050	$0	$2,303,050	$1,527,308	$1,707,805	$546,983	$48,261
01541002-51110	MBES-Classroom-Specialists	$909,472	$0	$909,472	$569,897	$636,909	$181,730	$90,834
01542220-51110	MBES Library-Teachers-Salaries	$116,413	$0	$116,413	$76,116	$85,071	$31,342	$0
01551001-51110	JRES-Classroom-Teachers	$1,975,733	$0	$1,975,733	$1,305,186	$1,458,074	$495,813	$21,846
01551002-51110	JRES-Classroom-Specialists	$609,591	$0	$609,591	$415,970	$464,908	$125,300	$19,383
01552220-51110	JRES Library-Teachers-Salaries	$116,413	$0	$116,413	$59,358	$66,341	$24,442	$25,630
01581001-51110	TES-Classroom-Teachers	$1,724,357	$0	$1,724,357	$1,251,418	$1,401,208	$462,970	($139,821)
01581002-51110	TES-Classroom-Specialists	$568,020	$0	$568,020	$391,116	$437,130	$130,890	($0)
01582220-51110	TES Library-Teachers-Salaries	$90,783	$0	$90,783	$59,358	$66,341	$24,442	$0
01611001-51110	HMS-Classroom-Teacher Salaries	$3,883,900	$0	$3,883,900	$2,522,414	$2,806,164	$937,044	$140,692
01611001-51111	HMS-Teacher Specialists	$0	$0	$0	$76,116	$85,071	$31,342	($116,413)

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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01611016-51110	HMS-Music-Teacher Salaries	$333,180	$0	$333,180	$234,549	$262,143	$71,037	$0
01611019-51110	HMS-PE/Health-Teacher Salaries	$399,827	$0	$399,827	$245,198	$274,045	$65,948	$59,834
01612120-51110	HMS-Guidance-Teacher Salaries	$293,419	$0	$293,419	$196,471	$218,015	$75,404	$0
01612220-51110	HMS-Library-Teacher Salaries	$104,290	$0	$104,290	$68,190	$76,212	$28,078	$0
01612400-51110	HMS-Admin-Teacher Xtra days	$0	$0	$0	$3,156	$3,156	$0	($3,156)
01621001-51110	MMS-Classroom-Teacher Salaries	$4,250,701	$0	$4,250,701	$2,751,968	$3,077,099	$1,038,917	$134,686
01621001-51111	MMS-Teacher Specialists	$0	$0	$0	$40,718	$46,748	$21,104	($67,852)
01621016-51110	MMS-Music-Teacher Salaries	$302,714	$0	$302,714	$214,629	$239,880	$62,834	($0)
01621019-51110	MMS-PE/Health-Teacher Salaries	$413,343	$0	$413,343	$244,966	$273,785	$75,326	$64,232
01622120-51110	MMS-Guidance-Teacher Salaries	$324,258	$0	$324,258	$208,239	$231,167	$80,250	$12,841
01622220-51110	MMS-Library-Teacher Salaries	$116,413	$0	$116,413	$76,116	$85,071	$31,342	$0
01622400-51110	MMS-Admin-Teacher Xtra days	$0	$0	$0	$3,156	$3,156	$0	($3,156)
01711001-51110	THS-Classroom-Teacher Salaries	$11,224,689	$0	$11,224,689	$7,406,244	$8,278,026	$2,752,440	$194,224
01711001-51111	THS-Teacher Specialists	$0	$0	$0	$78,299	$87,510	$32,241	($119,751)
01711003-51110	THS-Admin-Detention Duty	$3,000	$0	$3,000	$1,332	$1,332	$0	$1,668
01711006-51110	THS-Ag Science-Teachers Salaries	$613,002	$0	$613,002	$436,054	$481,597	$130,701	$704
01711011-51110	THS-World Language-Teacher Salaries	$0	$0	$0	$782	$782	$0	($782)
01711016-51110	THS-Music-Teacher Salaries	$242,048	$0	$242,048	$195,495	$218,177	$56,883	($33,012)
01711019-51110	THS-PE/Health-Teacher Salaries	$870,251	$0	$870,251	$576,217	$643,414	$235,191	($8,354)
01711022-51110	THS-Alternate School-Teachers Salaries	$405,751	$0	$405,751	$246,620	$275,371	$100,631	$29,749
01711028-51110	THS-Admin-Teacher Xtra Tme	$0	$0	$0	$0	$0	$0	$0
01712120-51110	THS-Guidance-Teacher Salaries	$1,350,082	$0	$1,350,082	$955,814	$1,056,921	$312,330	($19,169)
01712220-51110	THS-Library-Teacher Salaries	$90,927	$0	$90,927	$59,452	$66,447	$24,480	$0
01712400-51110	THS-Detention-Teacher Salaries	$0	$0	$0	$1,887	$2,331	$0	($2,331)
01802320-51119	Super-Personnel-Teacher Xtra Time	$0	$0	$0	$2,736	$2,736	$0	($2,736)
01912520-51196	D/W-Admin-Retirement/LOA Savings	($350,000)	$0	($350,000)	$0	$0	$0	($350,000)
01912520-51197	D/W-Admin-Degree Changes	$70,000	$0	$70,000	$0	$0	$0	$70,000
	Teachers Total	**$55,851,515**	**$0**	**$55,851,515**	**$36,882,124**	**$41,070,185**	**$13,372,983**	**$1,408,347**
Custodians/Maintenance								
01842610-51140	Facilities-Custodial-Salaries	$2,926,013	$0	$2,926,013	$2,180,697	$2,395,769	$328,471	$201,773
01842610-51141	Facilities-Custodial-Custodial OT	$55,000	$0	$55,000	$85,378	$92,643	$0	($37,643)
01842610-51142	Facilities-Custodial-School OT	$68,000	$0	$68,000	$142,174	$154,792	$0	($86,792)
01842610-51143	Facilities-Snow Removal-Salaries	$19,000	$0	$19,000	$348	$348	$0	$18,652
01842610-51145	Facilities-Custodial- Custodial Support	$8,736	$0	$8,736	$4,542	$5,214	$0	$3,522
01842610-51149	Facilities-Custodial-Custodial Night Diff	$6,900	$0	$6,900	$8,457	$9,591	$0	($2,691)
01852620-51140	Facilities-Maintenance-Salaries	$801,924	$0	$801,924	$549,094	$599,308	$76,645	$125,972
01852620-51141	Facilities-Maintenance-Maint OT	$25,000	$0	$25,000	$18,640	$21,672	$0	$3,328
01852620-51142	Facilities-Maintenance-Security Checks	$0	$0	$0	$0	$0	$0	$0
01852620-51145	Facilities-Maintenance-Summer Help	$32,000	$0	$32,000	$26,880	$26,880	$0	$5,121
	Custodians/Maintenance Total	**$3,942,573**	**$0**	**$3,942,573**	**$3,016,210**	**$3,306,215**	**$405,115**	**$231,242**
Tech Support								
01422220-51124	Tech-Dist A/V/Ch 17-Technician	$0	$0	$0	$0	$0	$0	$0
01422520-51129	Tech-Admin-Other Technical	$499,173	$0	$499,173	$412,959	$449,935	$55,464	($6,226)
01422520-51141	Tech-Admin-Xtra Time/Help	$15,000	$0	$15,000	$5,674	$5,851	$0	$9,149
	Tech Support Total	**$514,173**	**$0**	**$514,173**	**$418,633**	**$455,785**	**$55,464**	**$2,924**
Administative Support								
01011000-51130	TECEC-Admin-Secy 12 Mth	$0	$0	$0	$20,361	$22,208	$2,750	($24,957)
01011000-51131	TECEC-Admin-Secy 10 Mth	$48,862	$0	$48,862	$35,273	$39,193	$11,760	($2,091)
01011000-51135	TECEC-Admin-Clerical Xtra Time	$1,344	$0	$1,344	$519	$541	$0	$803
01011200-51130	PPS-Admin-Secy 12 Mth	$127,179	$0	$127,179	$112,839	$123,199	$15,580	($11,599)
01011200-51135	PPS-Admin-Clerical Xtra Time	$0	$0	$0	$215	$215	$0	($215)
01402320-51130	Asst Super-Admin-Secy 12 Mth	$72,260	$0	$72,260	$61,452	$66,984	$8,298	($3,023)
01402320-51135	Asst Super-Admin-Clerical Xtra Time	$0	$0	$0	$26	$26	$0	($26)
01412210-51130	Curr Dir-Admin-Secy 12 Mth	$60,011	$0	$60,011	$50,987	$55,622	$6,953	($2,564)
01412210-51135	Curr Dir-Admin-Clerical Xtra Time	$0	$0	$0	$1,572	$1,599	$0	($1,599)
01422520-51130	Tech-Admin-Secy 12 Mth	$51,867	$0	$51,867	$38,239	$41,877	$6,011	$3,979
01422520-51135	Tech-Admin--Clerical Xtra Time	$0	$0	$0	$0	$0	$0	$0
01512400-51130	BHES-Admin-Secy 12 Mth	$62,036	$0	$62,036	$52,751	$57,524	$7,159	($2,647)
01512400-51131	BHES-Admin-Secy 10 Mth	$39,149	$0	$39,149	$28,667	$31,852	$9,556	($2,259)
01512400-51135	BHES-Admin-Clerical Xtra Time	$0	$0	$0	$148	$171	$0	($171)
01522400-51130	FTES-Admin-Secy 12 Mth	$62,286	$0	$62,286	$53,009	$57,781	$7,159	($2,655)
01522400-51131	FTES-Admin-Secy 10 Mth	$40,520	$0	$40,520	$34,628	$38,427	$3,799	($1,706)
01522400-51135	FTES-Admin-Clerical Xtra Time	$500	$0	$500	$1,895	$2,122	$0	($1,622)
01532400-51130	DFES-Admin-Secy 12 Mth	$62,286	$0	$62,286	$53,078	$57,851	$7,159	($2,724)
01532400-51131	DFES-Admin-Secy 10 Mth	$39,334	$0	$39,334	$28,571	$31,741	$9,556	($1,963)
01532400-51135	DFES-Admin-Clerical Xtra Time	$500	$0	$500	$647	$693	$0	($193)
01542400-51130	MBES-Admin-Secy 12 Mth	$61,786	$0	$61,786	$52,512	$57,285	$7,159	($2,659)
01542400-51131	MBES-Admin-Secy 10 Mth	$31,767	$0	$31,767	$23,872	$26,544	$7,905	($2,683)
01542400-51135	MBES-Admin-Clerical Xtra Time	$500	$0	$500	$0	$0	$0	$500

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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01552400-51130	JRES-Admin-Secy 12 Mth	$62,386	$0	$62,386	$53,101	$57,874	$7,159	($2,647)
01552400-51131	JRES-Admin-Secy 10 Mth	$39,703	$0	$39,703	$28,667	$31,852	$9,556	($1,705)
01552400-51135	JRES-Admin-Clerical Xtra Time	$500	$0	$500	$1,567	$1,651	$0	($1,151)
01582400-51130	TES-Admin-Secy 12 Mth	$62,056	$0	$62,056	$52,771	$57,544	$7,159	($2,647)
01582400-51131	TES-Admin-Secy 10 Mth	$39,149	$0	$39,149	$28,151	$31,292	$9,422	($1,565)
01582400-51135	TES-Admin-Clerical Xtra Time	$500	$0	$500	$403	$441	$0	$59
01612120-51131	HMS-Guidance-Secy 10 Mth	$48,862	$0	$48,862	$35,243	$39,163	$11,760	($2,061)
01612120-51135	HMS-Guidance-Clerical Xtra Time	$0	$0	$0	$444	$600	$0	($600)
01612400-51130	HMS-Admin-Secy 12 Mth	$62,056	$0	$62,056	$52,493	$57,536	$7,159	($2,639)
01612400-51131	HMS-Admin-Secy 10 Mth	$42,976	$0	$42,976	$25,906	$28,928	$8,879	$5,169
01612400-51135	HMS-Admin-Clerical Xtra Time	$0	$0	$0	$538	$538	$0	($538)
01622120-51131	MMS-Guidance-Secy 10 Mth	$49,820	$0	$49,820	$36,008	$39,964	$11,870	($2,014)
01622120-51135	MMS-Guidance-Clerical Xtra Time	$0	$0	$0	$144	$144	$0	($144)
01622400-51130	MMS-Admin-Secy 12 Mth	$62,336	$0	$62,336	$52,787	$57,560	$7,159	($2,383)
01622400-51131	MMS-Admin-Secy 10 Mth	$49,062	$0	$49,062	$36,600	$40,116	$3,498	$5,449
01622400-51135	MMS-Admin-Clerical Xtra Time	$0	$0	$0	$295	$295	$0	($295)
01711006-51131	THS-Ag Science-Secy 10 Mths	$37,292	$0	$37,292	$27,010	$29,977	$8,903	($1,589)
01711006-51135	THS-Ag Science-Secy Xtra Time	$0	$0	$0	$459	$459	$0	($459)
01711022-51131	THS-Alternate School-Secy 10 Mths	$0	$0	$0	$0	$0	$0	$0
01712120-51130	THS-Guidance-Secy 12 Mths	$178,276	$0	$178,276	$151,521	$165,268	$20,622	($7,614)
01712120-51135	THS-Guidance-Clerical Xtra Time	$0	$0	$0	$11	$11	$0	($11)
01712220-51130	THS-Library-Secy 12 Mths	$0	$0	$0	$1,304	$1,304	$0	($1,304)
01712220-51131	THS-Library-Secy 10 Mths	$0	$0	$0	$0	$0	$0	$0
01712220-51135	THS-Library-Clerical Xtra Time	$0	$0	$0	$0	$0	$0	$0
01712400-51130	THS-Admin-Secy 12 Mth	$110,965	$0	$110,965	$91,981	$100,441	$12,926	($2,402)
01712400-51131	THS-Admin-Secy 10 Mth	$146,665	$0	$146,665	$109,709	$121,047	$27,018	($1,400)
01712400-51135	THS-Admin-Clerical Xtra Time	$250	$0	$250	$114	$148	$0	$102
01713201-51131	Sports-Sports General-Secy 10 Mths	$49,820	$0	$49,820	$29,945	$32,884	$8,879	$8,057
01713201-51135	Sports-Sports Gen-Clerical Xtra Time	$4,500	$0	$4,500	$2,678	$2,678	$0	$1,822
01741200-51130	Continuing Ed-Admin-Secy	$0	$0	$0	$0	$0	$0	$0
01802320-51115	Super-Personnel-Support Staff	$173,320	$0	$173,320	$141,409	$154,174	$19,147	($0)
01802320-51131	Super-Personnel-Support Staff-10 Mth	$44,529	$0	$44,529	$32,151	$35,724	$10,717	($1,911)
01802320-51135	Super-Personnel-Clerical Xtra Time	$0	$0	$0	$3,557	$3,996	$0	($3,996)
01822230-51130	Facilities-Admin-Secy 12 Mth	$126,517	$0	$126,517	$107,488	$117,173	$14,527	($5,183)
01822230-51135	Facilities-Admin-Clerical Xtra Time	$500	$0	$500	$208	$255	$0	$245
01882700-51130	Trans-Admin-Secy 12 Mth	$106,417	$0	$106,417	$89,982	$98,673	$12,272	($4,527)
01882700-51131	Trans-Admin-Secy 10 Mth	$0	$0	$0	$0	$0	$0	$0
01882700-51135	Trans-Admin-Clerical Xtra Time	$3,890	$0	$3,890	$5,768	$6,265	$0	($2,375)
01902310-51136	Super-BOE-Secy-BOE Mtgs	$4,000	$0	$4,000	$2,450	$2,800	$0	$1,200
01902320-51130	Super-Admin-Support Staff	$156,298	$0	$156,298	$130,044	$141,784	$17,609	($3,095)
01902320-51135	Super-Admin-Clerical Xtra Time	$0	$0	$0	$93	$104	$0	($104)
01912520-51130	Bus Off-Admin-Support 12 Mth	$288,532	$0	$288,532	$243,714	$265,729	$33,022	($10,219)
01912520-51135	Bus Off-Admin-Support-Clerical Xtra Time	$1,500	$0	$1,500	$7,182	$7,902	$0	($6,402)
01922530-51135	Asst Super-Admin-Clerical Xtra Time	$3,000	$0	$3,000	$4,682	$5,578	$0	($2,578)
	Administrative Support Total	**$2,717,863**	**$0**	**$2,717,863**	**$2,239,839**	**$2,453,327**	**$380,069**	**($115,533)**
Paras & Aides								
01011000-51120	TECEC-Classroom-Paras	$209,051	$0	$209,051	$163,352	$182,681	$27,532	($1,162)
01011000-51122	TECEC-Classroom-ABA Paras	$255,146	$0	$255,146	$202,660	$226,243	$35,686	($6,783)
01011200-51120	PPS-L/W-Instructional Paras	$2,414,091	$0	$2,414,091	$1,914,239	$2,143,588	$325,918	($55,415)
01011200-51121	PPS-D/W-Para Xtra Time	$200,000	$0	$200,000	$65,676	$81,285	$0	$118,715
01011200-51122	PPS-L/W-ABA Paras	$1,548,142	$0	$1,548,142	$990,942	$1,102,756	$178,757	$266,628
01032130-51128	PPS-L/W-Health Aides	$87,044	$0	$87,044	$67,035	$74,886	$11,871	$286
01371200-51122	PPS-ESY-ABA Paras	$80,000	$0	$80,000	$88,133	$88,133	$0	($8,133)
01371200-51128	PPS-ESY-Health Aides	$0	$0	$0	$5,594	$5,594	$0	($5,594)
01371200-51129	PPS-ESY-Para	$50,000	$0	$50,000	$46,806	$46,806	$0	$3,194
01412210-51120	PPS-D/W-Para Training	$0	$0	$0	$26	$26	$0	($26)
01511001-51120	BHES-Classroom-Instructional Aides	$72,675	$0	$72,675	$32,624	$37,461	$6,000	$29,214
01512400-51120	BHES-Admin-Paras	$19,689	$0	$19,689	$8,022	$9,140	$1,500	$9,049
01521001-51120	FTES-Classroom-Instructional Aides	$69,460	$0	$69,460	$40,503	$47,058	$6,500	$15,902
01522400-51120	FTES-Admin-Paras	$34,036	$0	$34,036	$32,870	$36,955	$2,249	($5,167)
01531001-51120	DFES-Classroom-Instructional Aides	$51,867	$0	$51,867	$36,931	$42,062	$5,000	$4,806
01532400-51120	DFES-Admin-Paras	$21,812	$0	$21,812	$5,447	$5,918	$1,000	$14,894
01541001-51120	MBES-Classroom-Instructional Aides	$64,834	$0	$64,834	$36,036	$40,989	$5,000	$18,846
01542400-51120	MBES-Admin-Paras	$11,961	$0	$11,961	$9,207	$10,557	$1,500	($96)
01551001-51120	JRES-Classroom-Instructional Aides	$55,806	$0	$55,806	$38,837	$44,156	$5,000	$6,649
01552400-51120	JRES-Admin-Paras	$21,237	$0	$21,237	$13,646	$14,961	$1,700	$4,576
01581001-51120	TES-Classroom-Instructional Aides	$45,952	$0	$45,952	$41,575	$47,726	$5,500	($7,273)
01582400-51120	TES-Admin-Paras	$21,237	$0	$21,237	$16,923	$19,098	$2,500	($361)
01612220-51120	HMS-Library-Paras	$0	$0	$0	$0	$0	$0	$0
01612400-51120	HMS-Admin-Admin Para	$12,229	$0	$12,229	$13,107	$15,048	$2,300	($5,119)
01622220-51120	MMS-Library-Paras	$0	$0	$0	$0	$0	$0	$0
01622400-51120	MMS-Admin-Admin Para	$40,109	$0	$40,109	$8,623	$9,973	$1,500	$28,636
01712400-51120	THS-L/W-Paras	$77,211	$0	$77,211	$61,794	$68,968	$11,033	($2,790)

Trumbull Board of Education Expense vs Budget Detail
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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
	Paras & Aides Total	**$5,463,591**	**$0**	**$5,463,591**	**$3,940,606**	**$4,402,068**	**$638,047**	**$423,476**
Substitutes								
01802320-51113	Substitute Administrators	$0	$0	$0	$0	$0	$0	$0
01802320-51117	Substitute Teachers	$684,900	$0	$684,900	$758,866	$898,206	$145,000	($358,306)
01802320-51129	Substitute Paraprofessionals	$95,000	$0	$95,000	$163,364	$188,682	$50,000	($143,682)
01802320-51139	Substitute Secretaries	$0	$0	$0	$20,534	$23,480	$0	($23,480)
01802320-51140	Facilities-Admin-Substitutes	$55,000	$0	$55,000	$31,432	$34,489	$4,000	$16,511
	Substitutes Total	**$834,900**	**$0**	**$834,900**	**$974,196**	**$1,144,857**	**$199,000**	**($508,957)**
Coaches & Advisors								
01613202-51116	HMS-Activities-Advisors	$40,000	$0	$40,000	$0	$38,000	$0	$2,000
01623202-51116	MMS-Activities-Advisors	$40,000	$0	$40,000	$1,826	$1,826	$38,174	$0
01711016-51116	THS-Music-Directors	$0	$0	$0	$0	$0	$0	$0
01713202-51116	THS-Activities-Advisors	$128,578	$0	$128,578	$37,833	$135,159	$0	($6,581)
01713201-51116	Sports-Sports General-Coaches	$637,583	$0	$637,583	$398,479	$398,479	$239,104	$0
01713201-51170	Sports-Athletic Game Staff	$0	$0	$0	$42,066	$49,086	$0	($49,086)
	Coaches & Advisors Total	**$846,161**	**$0**	**$846,161**	**$480,203**	**$622,549**	**$277,279**	**($53,667)**
Salaries Other								
01011200-51117	PPS-L/W-Teacher Subs	$0	$0	$0	$112	$112	$0	($112)
01011201-51117	PPS-L/W-Tutors Homebound	$106,000	$0	$106,000	$39,881	$44,121	$2,975	$58,904
01011203-51117	PPS-L/W-Tutors Tutorial	$75,000	$0	$75,000	$44,467	$53,480	$8,000	$13,520
01011204-51117	PPS-L/W-Tutors Expulsions	$13,000	$0	$13,000	$21,712	$25,885	$3,288	($16,174)
01032130-51123	PPS-L/W-OT/PT Therapists	$553,077	$0	$553,077	$354,761	$398,667	$153,672	$738
01331200-51126	PPS-SPED-Work Experience	$5,800	$0	$5,800	$6,637	$7,453	$0	($1,653)
01401201-51117	Asst Super-L/W-Tutors Homebound	$0	$0	$0	$8,902	$12,488	$0	($12,488)
01401203-51117	Asst Super-L/W-Tutors Tutorial	$0	$0	$0	$0	$0	$0	$0
01401204-51117	Asst Super-L/W-Tutors Expulsions	$0	$0	$0	$577	$577	$0	($577)
01412210-51129	Curr Dir-D/W-Other Non-Certified	$75,922	$0	$75,922	$61,858	$67,481	$8,435	$5
01512400-51121	BHES-Admin-Lunch Aides	$0	$0	$0	$0	$0	$0	$0
01522400-51121	FTES-Admin-Lunch Aides	$0	$0	$0	$0	$0	$0	$0
01532400-51121	DFES-Admin-Lunch Aides	$0	$0	$0	$0	$0	$0	$0
01542400-51121	MBES-Admin-Lunch Aides	$0	$0	$0	$0	$0	$0	$0
01552400-51121	JRES-Admin-Lunch Aides	$0	$0	$0	$0	$0	$0	$0
01582400-51121	TES-Admin-Lunch Aides	$0	$0	$0	$0	$0	$0	$0
01711006-51129	THS-Ag Science-Misc Salaries	$6,000	$0	$6,000	$3,900	$4,114	$0	$1,886
01741200-51110	Continiung Ed-Classroom Instructors	$0	$0	$0	$0	$0	$0	$0
01802320-51127	Substitute-Security Guards	$0	$0	$0	$40,220	$48,027	$0	($48,027)
01822230-51127	Facilities-D/W-Security Guards	$723,946	$0	$723,946	$562,269	$627,046	$111,928	($15,028)
01822230-51128	Facilities-D/W-Security Guards OT	$60,000	$0	$60,000	$15,273	$16,859	$0	$43,141
01922530-51129	Asst Super-Info Svcs-Oth Non-Certified	$71,558	$0	$71,558	$60,684	$66,201	$8,275	($2,918)
	Salaries Other	**$1,690,303**	**$0**	**$1,690,303**	**$1,221,252**	**$1,372,511**	**$296,574**	**$21,218**
Misc Salary Items								
01912520-51198	D/W-Admin-Retiree Payments	$300,000	$0	$300,000	$270,920	$270,920	$0	$29,080
01912520-51199	D/W-Admin-Reserve For Negotiations	$98,000	$0	$98,000	$0	$0	$0	$98,000
	Misc Salary Items Total	**$398,000**	**$0**	**$398,000**	**$270,920**	**$270,920**	**$0**	**$127,080**
	Salaries Total	**$77,228,523**	**$0**	**$77,228,523**	**$53,534,637**	**$59,564,440**	**$16,187,362**	**$1,476,721.19**
Employee Benefits								
Health Insurance								
01912520-52002	Benefits-Health & Dental	$17,401,837	$0	$17,401,837	$18,639,199	$20,516,462	$1,914,884	($5,029,509)
01912520-52011	Benefits-Health Premium Share - Medical	$0	$0	$0	($3,979,647)	($4,379,017)	($395,738)	$4,774,754
01912520-52012	Benefits-Health Premium Share - Dental	$0	$0	$0	($241,308)	($265,159)	($25,239)	$290,397
	Health Insurance Total	**$17,401,837**	**$0**	**$17,401,837**	**$14,418,244**	**$15,872,287**	**$1,493,908**	**$35,642**
FICA								
01912520-52001	Benefits-FICA	$1,932,381	$0	$1,932,381	$1,412,298	$1,563,970	$303,343	$65,068
	FICA	**$1,932,381**	**$0**	**$1,932,381**	**$1,412,298**	**$1,563,970**	**$303,343**	**$65,068**
Other Insurance								
01912520-52003	D/W-Admin-Medical Waiver	$200,000	$0	$200,000	$167,671	$167,567	$32,329	$104
01912520-52004	Benefits-Disability Insurance	$22,000	$0	$22,000	$18,924	$20,796	$2,097	($893)
01912520-52005	Benefits-Life Insurance	$117,000	$0	$117,000	$91,925	$101,222	$9,983	$5,796
	Other Insurance Total	**$339,000**	**$0**	**$339,000**	**$278,520**	**$289,584**	**$44,409**	**$5,007**

Trumbull Board of Education Expense vs Budget Detail
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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
Unemployment								
01912520-52006	D/W-Admin-Unemployment	$50,000	$0	$50,000	$5,762	$5,765	$4,000	$40,235
	Unemployment Total	**$50,000**	**$0**	**$50,000**	**$5,762**	**$5,765**	**$4,000**	**$40,235**
Benefits Other								
01912520-52008	Benefits-Administrative Fees	$18,000	$0	$18,000	$18,387	$19,317	$941	($2,257)
01912520-52010	Benefits-TBOE 401a Contribution	$180,000	$0	$180,000	$233,920	$258,506	$36,878	($115,384)
	Benefits Other Total	**$198,000**	**$0**	**$198,000**	**$252,307**	**$277,822**	**$37,819**	**($117,641)**
	Employee Benefits Total	**$19,921,218**	**$0**	**$19,921,218**	**$16,367,131**	**$18,009,429**	**$1,883,479**	**$28,310**
Purchased Professional Services								
Legal								
01011200-53308	PPS-Admin-Legal SPED	$140,000	$0	$140,000	$62,619	$74,615	$25,385	$40,000
01902310-53308	Super-BOE-Legal-Reg Ed	$110,000	$0	$110,000	$72,503	$75,698	$14,627	$19,675
	Legal Total	**$250,000**	**$0**	**$250,000**	**$135,121**	**$150,313**	**$40,012**	**$59,676**
Service Contracts								
01011200-53300	PPS-Admin-Prof Purch'd Services	$65,000	$0	$65,000	$20,787	$20,787	$22,000	$22,213
01052130-53305	PPS-Health Services-Service Contracts	$60,000	$0	$60,000	$5,950	$5,950	$0	$54,050
01422520-53305	Tech-Admin-Maintenance Contracts	$59,900	$0	$59,900	$15,208	$20,553	$0	$39,347
01882700-53303	Trans-Admin-Software Support	$7,000	$0	$7,000	$7,670	$7,670	$0	($670)
01922530-53301	Bus Off-Admin-Prof Purch'd Svcs	$82,000	$0	$82,000	$83,202	$83,278	$0	($1,278)
01922530-53302	Asst Super-Info Svcs-Dbase Students	$190,767	$0	$190,767	$191,161	$191,161	$0	($394)
	Service Contracts Total	**$464,667**	**$0**	**$464,667**	**$323,979**	**$329,400**	**$22,000**	**$113,267**
Consultants								
01011201-53210	PPS Homebound Instructional Services	$0	$0	$0	$1,806	$1,806	$11,640	($13,446)
01401201-53210	Homebound Instructional Services	$0	$0	$0	$594	$594	$0	($594)
01011200-53230	PPS-L/W-Consultants	$275,000	$0	$275,000	$304,918	$348,250	$181,755	($255,005)
	Consultants Total	**$275,000**	**$0**	**$275,000**	**$307,318**	**$350,650**	**$193,395**	**($269,045)**
Other Professional Services								
01412210-53300	Curr Dir-D/W-Other Professional Svcs	$19,000	$0	$19,000	$0	$0	$0	$19,000
01422214-53300	Tech-L/W-Other Professional Svcs	$4,600	$0	$4,600	$3,987	$4,132	$266	$202
01422220-53300	Tech-Dist AV/Ch17-Other Prof Svcs	$3,500	$0	$3,500	$883	$883	$0	$2,617
01422520-53300	Tech-Admin-Other Professional Svcs	$8,500	$0	$8,500	$1,003	$1,003	$0	$7,497
01613202-53301	HMS-Activities-Police	$700	$0	$700	$0	$0	$0	$700
01623202-53301	MMS-Activities-Police	$700	$0	$700	$304	$304	$0	$396
01711016-53300	THS-Music-Other Professional Svcs	$47,575	$0	$47,575	$42,643	$42,753	$1,280	$3,543
01712120-53220	THS-Guidance-Career Guidance	$920	$0	$920	$767	$767	$0	$153
01712400-53301	THS-Admin-Police Services	$65,000	$0	$65,000	$84,512	$93,632	$21,368	($50,000)
01713201-53301	Athletic Student Activity-Police Services	$15,000	$0	$15,000	$11,113	$14,301	$3,187	($2,488)
01741200-53300	Continuing Ed-Admin-In Service	$0	$0	$0	$0	$0	$0	$0
01852647-53300	Facilities-Bldg Improvement-Oth Prof Svcs	$3,000	$0	$3,000	$0	$1,388	$762	$850
01882700-53300	Transportation-Professional Svcs	$0	$0	$0	$13,500	$13,500	$1,500	($15,000)
01902310-53300	Super-BOE-Professional Services	$24,000	$0	$24,000	$25,242	$25,278	$2,521	($3,798)
01912520-53300	Bus Off-Admin-Professional Svcs	$500	$0	$500	$0	$0	$0	$500
01912520-53310	Bus Off-Admin-Athletic Insurance	$92,000	$0	$92,000	$92,602	$92,602	$0	($602)
01922530-53304	Bus Off-Admin-Training	$0	$0	$0	$7,200	$7,200	$0	($7,200)
01713201-53300	Sports-Sports GeneraL-Purch'd Svcs	$282,000	$0	$282,000	$227,787	$238,922	$41,198	$1,880
01723301-53300	Sports-Baseball-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723302-53300	Sports-Basketball-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723304-53300	Sports-Field Hockey-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723304-53300	Sports-Football-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723305-53300	Sports-Ice Hockey-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723306-53300	Sports-Lacrosse-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723307-53300	Sports-Soccer-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723308-53300	Sports-Swimming-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723312-53300	Sports-Wrestling-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723315-53300	Sports-Gymnastics-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723317-53300	Sports-Cross Country-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723318-53300	Sports-Cheerleading-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
	Other Professional Services Total	**$566,995**	**$0**	**$566,995**	**$511,544**	**$536,664**	**$72,082**	**($41,751)**
	Purchased Professional Services Total	**$1,556,662**	**$0**	**$1,556,662**	**$1,277,962**	**$1,367,027**	**$327,489**	**($137,854)**

Trumbull Board of Education Expense vs Budget Detail
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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
Purchased Property Services								
Utilities								
01842611-54101	Facilities-D/W-Electricity	$1,034,705	$0	$1,034,705	$780,085	$850,022	$173,933	$10,750
01842611-54105	Facilities-D/W-Water	$125,000	$0	$125,000	$100,777	$110,830	$14,170	($0)
	Utilities Total	**$1,159,705**	**$0**	**$1,159,705**	**$880,862**	**$960,851**	**$188,104**	**$10,750**
Repairs & Service Fees								
01052130-54300	PPS-Health Svcs-Repairs & Svc Fees	$2,000	$0	$2,000	$865	$865	$0	$1,135
01422214-54300	Tech-L/W-Repairs & Svc Fees	$1,200	$0	$1,200	$0	$0	$0	$1,200
01422220-54300	Tech-Dist AV/Ch17-Repairs & Svc Fees	$500	$0	$500	$0	$0	$0	$500
01422520-54300	Tech-Admin-Repairs & Svc Fees	$1,500	$0	$1,500	$0	$0	$0	$1,500
01711006-54300	THS-Ag Science-Repairs & Svc Fees	$3,000	$0	$3,000	$1,286	$2,258	$1,601	($859)
01842610-54300	Facilities-Custodial-Repairs	$8,000	$0	$8,000	$10,896	$14,499	$2,821	($9,320)
01852622-54300	Facilities-Snow Removal-Repairs & Svc Fees	$10,000	$0	$10,000	$0	$0	$0	$10,000
01852623-54300	Facilities-Vehicles-Repairs & Svc Fees	$10,000	$0	$10,000	$1,646	$2,119	$0	$7,881
01852625-54300	Facilities-Grounds-Repairs & Svc Fees	$8,000	$0	$8,000	$4,820	$4,820	$1,065	$2,115
01852627-54300	Facilities-Lawn Care-Repairs & Svc Fees	$5,000	$0	$5,000	$8,800	$8,800	$679	($4,479)
01852631-54300	Facilities-Maintenance-Repairs & Svc Fees	$45,000	$0	$45,000	$41,219	$52,647	$28,183	($35,830)
01852632-54300	Facilities-Inside Maint-Repairs & Svcs Fees	$10,000	$0	$10,000	$1,550	$1,550	$0	$8,450
01852633-54300	Facilities-Electrical-Repairs & Svc Fees	$50,000	$0	$50,000	$27,581	$29,229	$316	$20,455
01852633-54301	Facilities-Security-Service Contracts	$0	$0	$0	$0	$0	$0	$0
01852634-54300	Facilities-Fire Protection-Repairs & Svc Fees	$20,000	$0	$20,000	$18,013	$18,013	$4,995	($3,008)
01852635-54300	Facilities-Floor-Repairs & Svc Fees	$40,000	$0	$40,000	$34,469	$34,469	$11,005	($5,474)
01852638-54300	Facilities-Hardware-Repairs & Svc Fees	$0	$0	$0	$0	$0	$2,649	($2,649)
01852637-54300	Facilities-Glass-Repairs & Svc Fees	$5,000	$0	$5,000	$6,414	$7,109	$2,091	($4,200)
01852639-54300	Facilities-HVAC-Repairs & Svc Fees	$100,000	$0	$100,000	$111,591	$151,529	$17,301	($68,830)
01852642-54300	Facilities-Painting-Repairs & Svc Fees	$10,000	$0	$10,000	$0	$0	$0	$10,000
01852643-54300	Facilities-Equipment-Repairs & Svc Fees	$0	$0	$0	$12,162	$12,162	$3,068	($15,230)
01852644-54300	Facilities-Plumbing-Repairs & Svc Fees	$10,000	$0	$10,000	$8,199	$9,774	$1,780	($1,554)
01852645-54300	Facilities-Roofing-Repairs & Svc Fees	$40,000	$0	$40,000	$75,727	$77,602	$1,217	($38,819)
01852646-54300	Facilities-Pest Control-Repairs & Svc Fees	$10,000	$0	$10,000	$7,865	$8,710	$1,290	$0
01852647-54300	Facilities-Bldg Improve-Repairs & Svc Fees	$10,000	$0	$10,000	$101,063	$107,488	$9,424	($106,912)
01852648-54300	Facilities-IAQ-Repairs & Svc Fees	$15,000	$0	$15,000	$15,646	$15,646	$3,500	($4,146)
01852649-54300	Facilities-Welding-Repairs & Svc Fees	$0	$0	$0	$0	$0	$0	$0
	Repairs & Service Fees Total	**$414,200**	**$0**	**$414,200**	**$489,811**	**$559,290**	**$92,986**	**($238,076)**
Copiers								
01422520-54409	D/W Copiers	$265,000	$0	$265,000	$219,832	$240,247	$20,415	$4,338
01902320-54409	D/W-Admin-Copiers	$0	$0	$0	$6,148	$6,591	$3,409	($10,000)
	Copiers Total	**$265,000**	**$0**	**$265,000**	**$225,980**	**$246,838**	**$23,824**	**($5,662)**
Other Purchased Property Services								
01512400-54900	BHES-Admin-Other Purch'd Svcs	$300	$0	$300	$301	$301	$0	($1)
01522400-54900	FTES-Admin-Other Purch'd Svcs	$300	$0	$300	$0	$0	$0	$300
01532400-54900	DFES-Admin-Other Purch'd Svcs	$300	$0	$300	$225	$225	$0	$75
01542400-54900	MBES-Admin-Other Purch'd Svcs	$300	$0	$300	$0	$0	$0	$300
01552400-54900	JRES-Admin-Other Purch'd Svcs	$500	$0	$500	$0	$0	$0	$500
01582400-54900	TES-Admin-Other Purch'd Svcs	$300	$0	$300	$0	$0	$0	$300
01611016-54900	HMS-Music-Other Purch'd Property Svcs	$1,200	$0	$1,200	$1,060	$1,200	$0	$0
01612400-54900	HMS-Classroom-Other Purch'd Svcs	$1,700	$0	$1,700	$1,621	$1,621	$0	$79
01621016-54900	MMS-Music-Other Purch'd Property Svcs	$1,000	$0	$1,000	$220	$220	$720	$60
01622400-54900	MMS-Classroom-Other Purch'd Svcs	$1,700	$0	$1,700	$790	$790	$435	$475
01711001-54900	THS-Classroom-Other Purch'd Property Svcs	$0	$0	$0	$0	$0	$0	$0
01711006-54900	THS-Ag Science-Other Purch'd Prop Svcs	$3,000	$0	$3,000	$1,269	$1,269	$0	$1,731
01711014-54900	THS-Technology Education-Other Purch'd Prop	$0	$0	$0	$0	$0	$0	$0
01711016-54201	THS-Music-Uniform Cleaning	$1,500	$0	$1,500	$0	$0	$0	$1,500
01713201-54200	Sports-Sports General-Cleaning Svcs	$15,000	$0	$15,000	$14,649	$14,649	$351	($0)
01842610-54103	Facilities-Custodial-Trash/Recycling	$50,000	$0	$50,000	$57,638	$62,980	$10,934	($23,913)
01842610-54202	Facilities-Custodial-Cleaning	$3,900	$0	$3,900	$6,228	$6,593	$774	($3,468)
01852631-54301	Facilities-Maint-Oth Prof Purch'd Svcs	$30,000	$0	$30,000	$19,456	$19,456	$10,794	($250)
01852633-54301	Facilities-Elevator-Oth Prof Purch'd Svcs	$1,000	$0	$1,000	$0	$0	$0	$1,000
01882700-54900	Trans-Admin-Purch'd Property Svcs	$500	$0	$500	$165	$165	$0	$335
	Other Purch'd Property Services Total	**$112,500**	**$0**	**$112,500**	**$103,620**	**$109,469**	**$24,009**	**($20,977)**
	Purchased Property Services Total	**$1,951,405**	**$0**	**$1,951,405**	**$1,700,274**	**$1,876,447**	**$328,923**	**($253,965)**
Purchased Other Services								
Transportation								

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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01711006-55809	THS-Ag Science-Transportation	$2,629	$0	$2,629	$805	$805	$0	$1,824
01711016-55809	THS-Music-Transportation	$17,500	$0	$17,500	$15,165	$15,938	($0)	$1,562
01711022-55809	THS-Alternate School-Field Trips	$0	$0	$0	$0	$0	$0	$0
01713202-55807	THS-Activities-Competitions	$45,000	$0	$45,000	$40,000	$40,655	$845	$3,500
01882700-55101	Trans-Admin-Reg Buses	$3,533,461	$0	$3,533,461	$2,649,887	$2,928,128	$564,002	$41,331
01882700-55102	Trans-Admin-ACE Trips	$3,000	$0	$3,000	$0	$0	$0	$3,000
01882700-55105	Trans-Admin-SPED-Summer Buses	$237,280	$0	$237,280	$273,859	$273,859	$0	($36,579)
01882700-55109	Trans-Admin-Fuel	$344,300	$0	$344,300	$351,027	$401,521	$10,831	($68,051)
01882700-55809	Trans-Admin-Field Trips	$8,000	$0	$8,000	$474	$1,017	$6,983	$0
01882701-55101	Trans-Admin-SPED In District	$1,389,649	$0	$1,389,649	$1,214,745	$1,343,583	$305,534	($259,469)
01882701-55105	Trans-Admin-SPED Out of District	$770,100	$0	$770,100	$692,135	$740,179	$119,531	($89,610)
01882701-55108	Trans-Admin-Monitors	$263,000	$0	$263,000	$156,432	$176,736	$52,264	$34,000
01713201-55809	THS-Transportation-Sports	$130,810	$0	$130,810	$91,993	$123,671	$7,344	($205)
	Sports Transportation Total	**$130,810**	**$0**	**$130,810**	**$91,993**	**$123,671**	**$7,344**	**($205)**
	Transportation Total	**$6,744,729**	**$0**	**$6,744,729**	**$5,486,522**	**$6,046,092**	**$1,067,333**	**($368,696)**
Communications								
01422520-55903	Tech-Admin-Telephone Cell	$33,500	$0	$33,500	$29,484	$29,484	$5,577	($1,561)
01422520-55904	Tech-Admin-Telephone LAN	$68,100	$0	$68,100	$49,516	$50,294	$52,425	($34,618)
01422520-55907	Tech-Admin-WAN Communications	$198,100	$0	$198,100	$190,166	$204,434	$0	($6,334)
	Communications Total	**$299,700**	**$0**	**$299,700**	**$269,166**	**$284,211**	**$58,002**	**($42,513)**
Postage								
01902320-55900	Super-Admin-Postage	$46,000	$0	$46,000	$28,076	$30,022	$7,343	$8,635
	Postage Total	**$46,000**	**$0**	**$46,000**	**$28,076**	**$30,022**	**$7,343**	**$8,635**
Advertising								
01802130-55903	Human Resources-Admin-Advertising	$1,675	$0	$1,675	$1,750	$1,750	$0	($75)
01912520-55903	Bus Off-Admin-Advertising	$1,300	$0	$1,300	$0	$0	$0	$1,300
	Advertising Total	**$2,975**	**$0**	**$2,975**	**$1,750**	**$1,750**	**$0**	**$1,225**
Interns								
01401000-55502	THS-Classroom-Interns	$48,750	$0	$48,750	$17,823	$17,823	$15,300	$15,627
01401000-55503	TECEC-Classroom-Interns	$0	$0	$0	$0	$0	$0	$0
01511001-55500	BHES-Classroom-Interns	$32,500	$0	$32,500	$30,300	$30,300	$0	$2,200
01521001-55500	FTES-Classroom-Interns	$32,500	$0	$32,500	$30,300	$30,300	$0	$2,200
01531001-55500	DFES-Classroom-Interns	$32,500	$0	$32,500	$15,300	$15,300	$0	$17,200
01541001-55500	MBES-Classroom-Interns	$32,500	$0	$32,500	$15,300	$15,300	$15,300	$1,900
01551001-55500	JRES-Classroom-Interns	$32,500	$0	$32,500	$0	$0	$0	$32,500
01581001-55500	TES-Classroom-Interns	$32,500	$0	$32,500	$22,950	$22,950	$7,650	$1,900
01611001-55500	HMS-Classroom-Interns	$48,750	$0	$48,750	$36,900	$36,900	$6,300	$5,550
01621001-55500	MMS-Classroom-Interns	$48,750	$0	$48,750	$30,600	$30,600	$15,300	$2,850
	Interns Total	**$341,250**	**$0**	**$341,250**	**$199,473**	**$199,473**	**$59,850**	**$81,927**
Tuition								
01396110-55600	PPS-L/W-Tuition Outplaced	$4,807,698	$0	$4,807,698	$4,151,701	$4,390,031	$663,796	($246,129)
01396110-55601	PPS-EXCESS COST REFUND(ECR)	($1,300,000)	$0	($1,300,000)	$0	$0	($1,300,000)	$0
01402320-55600	Asst Super-Admin-Tuition	$454,000	$0	$454,000	$458,178	$458,178	$0	($4,178)
01741200-55600	Adult Ed - Outgoing Tuition	$0	$0	$0	$0	$61,050	$0	($61,050)
	Tuition Total	**$3,961,698**	**$0**	**$3,961,698**	**$4,609,879**	**$4,909,259**	**($636,204)**	**($311,357)**
Printing								
01011000-55906	TECEC-Admin-Printing	$200	$0	$200	$304	$304	$0	($104)
01011200-55906	PPS-Admin-Printing	$500	$0	$500	$148	$441	$0	$60
01402320-55906	Asst Super-Admin-Printing	$1,500	$0	$1,500	$0	$51	$415	$1,034
01412210-55906	Curr Dir-Admin-Printing	$0	$0	$0	$0	$0	$0	$0
01612400-55906	HMS-Classroom-Printing	$0	$0	$0	$0	$0	$0	$0
01622400-55906	MMS-Classroom-Printing	$0	$0	$0	$0	$0	$0	$0
01711006-55906	THS-Ag Science-Printing	$1,500	$0	$1,500	$0	$0	$0	$1,500
01712400-55906	THS-Admin-Printing	$9,000	$0	$9,000	$5,103	$5,103	$537	$3,360
01713202-55906	THS-Activities-Printing	$500	$0	$500	$0	$0	$0	$500
01902320-55905	Super-Admin-Printing	$550	$0	$550	$0	$180	$0	$370
	Printing Total	**$13,750**	**$0**	**$13,750**	**$5,555**	**$6,078**	**$952**	**$6,719**
Other Purch'd Services								

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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01011000-55800	TECEC-Admin-Professional Devt	$700	$0	$700	$825	$825	$0	($125)
01011000-55900	TECEC-Admin-Other Purch'd Prop Svcs	$23,824	$0	$23,824	$11,443	$11,443	$0	$12,381
01011200-55800	PPS-Admin-Professional Devt	$30,000	$0	$30,000	$16,057	$17,689	$1,950	$10,361
01011200-55801	PPS-D/W-Mileage	$15,000	$0	$15,000	$6,383	$7,538	$0	$7,462
01401203-55801	Asst Super-L/W-Mileage	$12,000	$0	$12,000	$7,573	$8,335	$0	$3,665
01402320-55800	Asst Super-Admin-Professional Devt	$20,000	$0	$20,000	$3,431	$6,430	$144	$13,426
01402320-55900	Asst Super-Other Purchased Services	$0	$0	$0	$0	$0	$0	$0
01412210-55800	Curr Dir-Admin-Professional Devt	$64,370	$0	$64,370	$48,398	$48,398	$0	$15,972
01412210-55802	Admin-Prof Devt Admin	$0	$0	$0	$0	$0	$0	$0
01422520-55800	Tech-Admin-Professional Devt	$2,500	$0	$2,500	$130	$130	$0	$2,370
01422520-55804	Tech-Admin-Milelage	$3,000	$0	$3,000	$905	$1,027	$0	$1,973
01512400-55800	BHES-Admin-Professional Devt	$500	$0	$500	$239	$239	$0	$261
01522400-55800	FTES-Admin-Professional Devt	$500	$0	$500	$0	$0	$0	$500
01532400-55800	DFES-Admin-Professional Devt	$500	$0	$500	$582	$582	$0	($82)
01542400-55800	MBES-Admin-Professional Devt	$250	$0	$250	$0	$0	$0	$250
01552400-55800	JRES-Admin-Professional Devt	$500	$0	$500	$0	$0	$0	$500
01582400-55800	TES-Admin-Professional Devt	$500	$0	$500	$420	$420	$0	$80
01612400-55800	HMS-Admin-Professional Devt	$1,500	$0	$1,500	$318	$318	$0	$1,182
01622400-55800	MMS-Admin-Professional Devt	$1,500	$0	$1,500	$0	$0	$0	$1,500
01711001-55800	THS-Classroom-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01711011-55800	THS-World Language-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01711002-55800	THS-Art-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01712400-55800	THS-Admin-Professional Devt	$3,500	$0	$3,500	$1,915	$1,915	$0	$1,585
01712400-55901	THS-Admin-Other Purch'd Svcs	$1,750	$0	$1,750	$124	$124	$0	$1,626
01741200-55800	Continuing Ed-Admin-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01741200-55900	Continuing Ed-Other Purch'd Svcs	$61,050	$0	$61,050	$0	$0	$0	$61,050
01802130-55800	HR-HR-Professional Devt	$16,550	$0	$16,550	$0	$0	$0	$16,550
01802130-55900	HR-Personnel-Other Purch'd Svcs	$115,800	$0	$115,800	$119,124	$119,124	$19,824	($23,147)
01802320-55800	Super-Personnel-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01822230-55800	Facilities-Admin-Professional Devt	$2,000	$0	$2,000	$190	$386	$0	$1,614
01822230-55910	Facilities-Admin-Other Purch'd Svcs	$21,000	$0	$21,000	$16,451	$16,451	$0	$4,549
01842610-55803	Facilities-Admin-Mileage	$2,500	$0	$2,500	$1,841	$1,938	$0	$562
01852632-55910	Facilities-Inside Maint-Other Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01882700-55800	Trans-Admin-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01902310-55800	Super-BOE-Professional Devt	$1,400	$0	$1,400	$0	$0	$1,200	$200
01902320-55800	Super-Admin-Professional Devt	$5,000	$0	$5,000	$5,549	$5,549	($0)	($549)
01912520-55800	Bus Off-Admin-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01922530-55804	Asst Super-Info Svcs-Oth Purch Svcs	$14,000	$0	$14,000	$13,000	$14,080	$2,680	($2,760)
	Other Purch'd Services Total	**$421,694**	**$0**	**$421,694**	**$254,899**	**$262,941**	**$25,798**	**$132,955**
	Purchased Other Services Total	**$11,831,796**	**$0**	**$11,831,796**	**$10,855,318**	**$11,739,825**	**$583,075**	**(491,104.27)**
Supplies								
Supplies Teaching								
01011000-56111	TECEC-Classroom-Classroom Supplies	$5,400	$0	$5,400	$6,427	$6,427	$0	($1,027)
01011200-56111	PPS-Classroom-Classroom Supplies	$27,000	$0	$27,000	$18,479	$19,067	$1,800	$6,134
01412214-56111	Curr Dir-D/W-Classroom Supplies	$90,000	$0	$90,000	$67,847	$68,117	$969	$20,914
01511001-56111	BHES-Classroom Supplies	$24,300	$0	$24,300	$27,968	$27,968	($0)	($3,668)
01512220-56901	BHES-Library-Supplies	$2,700	$0	$2,700	$3,539	$3,539	$0	($839)
01521001-56111	FTES-Classroom Supplies	$27,900	$0	$27,900	$23,481	$24,544	$1,165	$2,191
01522220-56901	FTES-Library-Supplies	$2,250	$0	$2,250	$1,327	$1,327	$53	$869
01531001-56111	DFES-Classroom Supplies	$26,100	$0	$26,100	$32,753	$34,133	$1,764	($9,797)
01532220-56901	DFES-Library-Supplies	$2,250	$0	$2,250	$2,795	$2,795	($0)	($545)
01541001-56111	MBES-Classroom Supplies	$27,000	$0	$27,000	$25,717	$25,717	$136	$1,147
01542220-56901	MBES-Library-Supplies	$2,250	$0	$2,250	$2,249	$2,249	$0	$1
01551001-56111	JRES-Classroom Supplies	$24,300	$0	$24,300	$22,385	$22,586	$329	$1,385
01552220-56901	JRES-Library-Supplies	$2,250	$0	$2,250	$2,213	$2,213	$0	$37
01581001-56111	TES-Classroom Supplies	$22,500	$0	$22,500	$20,058	$20,058	$0	$2,442
01582220-56901	TES-Library-Supplies	$2,250	$0	$2,250	$2,214	$2,229	$0	$21
01611001-56111	HMS-Classroom-Classroom Supplies	$31,500	$0	$31,500	$26,094	$28,104	$126	$3,270
01611016-56111	HMS-Music-Classroom Supplies	$2,250	$0	$2,250	$2,237	$2,237	$0	$13
01611019-56111	HMS-PE/Health-Classroom Supplies	$3,420	$0	$3,420	$3,390	$3,390	$0	$30
01612220-56111	HMS-Library-Supplies	$1,935	$0	$1,935	$1,934	$1,934	$0	$1
01621001-56111	MMS-Classroom-Classroom Supplies	$31,500	$0	$31,500	$38,096	$38,237	$2,295	($9,032)
01621016-56111	MMS-Music-Classroom Supplies	$2,475	$0	$2,475	$2,322	$2,723	$159	($407)
01621019-56111	MMS-PE/Health-Classroom Supplies	$2,250	$0	$2,250	$1,992	$1,992	$0	$258
01622220-56901	MMS-Library-Supplies	$1,800	$0	$1,800	$1,684	$1,716	$0	$84
01711001-56111	THS-Classroom-Classroom Supplies	$31,500	$0	$31,500	$30,911	$30,911	($0)	$589
01711002-56112	THS-Art-Supplies	$16,740	$0	$16,740	$13,498	$14,012	$222	$2,506
01711003-56112	THS-Business Ed-Supplies	$1,530	$0	$1,530	$1,069	$1,248	$0	$282
01711006-56112	THS-Ag Science-Supplies	$27,900	$0	$27,900	$25,185	$28,463	$7,424	($7,987)
01711010-56112	THS-English-Supplies	$900	$0	$900	$882	$882	$0	$18
01711011-56112	THS-World Language-Supplies	$1,350	$0	$1,350	$896	$1,396	$182	($228)

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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01711013-56112	THS-Family Consumer Science-Supplies	$13,140	$0	$13,140	$9,757	$10,570	$4,075	($1,506)
01711014-56112	THS-Technology Education-Supplies	$18,900	$0	$18,900	$14,656	$14,918	$1,853	$2,129
01711015-56112	THS-Mathematics-Supplies	$1,395	$0	$1,395	$803	$803	$0	$592
01711016-56112	THS-Music-Supplies	$5,400	$0	$5,400	$5,152	$5,299	$23	$78
01711019-56112	THS-PE/Health-Supplies	$2,700	$0	$2,700	$1,986	$1,986	$0	$714
01711022-56112	THS-Alternate School-Supplies	$450	$0	$450	$0	$0	$0	$450
01711027-56112	THS-Science-Supplies	$11,124	$0	$11,124	$10,685	$10,685	$0	$439
01711028-56112	THS-Social Studies-Supplies	$792	$0	$792	$758	$758	$0	$34
01712120-56112	THS-Guidance-Supplies	$0	$0	$0	$0	$0	$0	$0
01712220-56901	THS-Library-Supplies	$2,740	$0	$2,740	$2,634	$2,634	$0	$106
01712221-56112	THS-Auditorium/Theater Tech-Supplies	$0	$0	$0	$0	$0	$0	$0
01712400-56116	THS-Admin-Supplies	$6,975	$0	$6,975	$4,884	$6,953	$0	$22
01713201-56112	Sports-Sports General-Supplies	$126,000	$0	$126,000	$89,146	$89,764	$33,029	$3,208
	Sports Supplies Total	**$126,000**	**$0**	**$126,000**	**$89,146**	**$89,764**	**$33,029**	**$3,208**
01741200-56110	Continuing Ed-Teaching Supplies	$0	$0	$0	$0	$0	$0	$0
	Supplies Teaching Total	**$635,116**	**$0**	**$635,116**	**$550,102**	**$564,583**	**$55,605**	**$14,928**
Supplies Office								
01011000-56110	TECEC-Admin-Office Supplies	$4,050	$0	$4,050	$5,542	$5,542	$0	($1,492)
01011200-56110	PPS-Admin-Office Supplies	$900	$0	$900	$1,525	$1,525	$222	($847)
01052130-56110	PPS-Health Services-Supplies	$7,650	$0	$7,650	$3,970	$4,320	$4,005	($675)
01402320-56110	Asst Super-Admin-Office Supplies	$4,050	$0	$4,050	$16,343	$19,420	$1,696	($17,066)
01412210-56110	Curr Dir-Admin-Office Supplies	$0	$0	$0	$0	$0	$0	$0
01422214-56900	Tech-L/W-Parts	$8,550	$0	$8,550	$21,111	$21,111	$0	($12,561)
01422520-56110	Tech-Admin-Office Supplies	$1,170	$0	$1,170	$2,875	$2,875	$0	($1,705)
01422520-56900	Tech-Admin-Parts	$4,320	$0	$4,320	$975	$988	$0	$3,332
01512400-56110	BHES-Admin-Office Supplies	$3,600	$0	$3,600	$3,446	$3,621	$1,400	($1,420)
01522400-56110	FTES-Admin-Office Supplies	$3,600	$0	$3,600	$2,839	$2,839	$0	$761
01532400-56110	DFES-Admin-Office Supplies	$3,600	$0	$3,600	$1,414	$1,527	$527	$1,546
01542400-56110	MBES-Admin-Office Supplies	$3,600	$0	$3,600	$3,428	$3,428	$0	$172
01552400-56110	JRES-Admin-Office Supplies	$3,600	$0	$3,600	$3,525	$3,525	($0)	$75
01582400-56110	TES-Admin-Office Supplies	$3,600	$0	$3,600	$3,048	$3,185	$22	$393
01612400-56110	HMS-Admin-Office Supplies	$6,750	$0	$6,750	$6,646	$6,678	$0	$72
01622400-56110	MMS-Admin-Office Supplies	$7,650	$0	$7,650	$390	$390	$0	$7,260
01712221-56900	THS-Auditorium/Theater Tech-Parts & Mainten	$1,350	$0	$1,350	$0	$0	$0	$1,350
01712400-56110	THS-Admin-Office Supplies	$3,150	$0	$3,150	$3,906	$4,007	$0	($857)
01741200-56117	Continuing Ed-Office Supplies	$0	$0	$0	$0	$0	$0	$0
01802130-56110	Human Resources-Admin-Office Supplies	$2,925	$0	$2,925	$2,664	$2,664	$814	($553)
01822230-56110	Facilities-Admin-Office Supplies	$5,400	$0	$5,400	$1,760	$1,781	$816	$2,803
01882700-56110	Transportation-Office Supplies	$3,600	$0	$3,600	$858	$858	$2,742	$0
01902320-56110	Super-Admin-Office Supplies	$5,400	$0	$5,400	$3,488	$4,214	$1,176	$10
01912520-56110	Bus Off-Admin-Office Supplies	$3,600	$0	$3,600	$8,423	$10,336	$127	($6,863)
	Supplies Office Total	**$92,115**	**$0**	**$92,115**	**$98,176**	**$104,834**	**$13,546**	**($26,265)**
Supplies Custodial								
01842610-56130	Facilities-Custodial-Supplies	$116,000	$0	$116,000	$210,757	$225,367	$59,222	($168,589)
01842610-56132	Facilities-Custodial-Supplies Replacement	$0	$0	$0	$2,576	$2,576	$424	($3,000)
	Supplies Custodial Total	**$116,000**	**$0**	**$116,000**	**$213,333**	**$227,943**	**$59,647**	**($171,589)**
Supplies Maintenance								
01852622-56134	Facilities-Snow Removal-Supplies	$9,000	$0	$9,000	$6,482	$6,482	$318	$2,200
01852623-56133	Facilities-Vehicles-Gas/Diesel	$30,000	$0	$30,000	$37,494	$41,112	$6,137	($17,249)
01852623-56134	Facilities-Vehicles-Supplies	$15,000	$0	$15,000	$13,144	$14,552	$4,585	($4,138)
01852625-56134	Facilities-Grounds-Supplies	$10,000	$0	$10,000	$6,432	$7,265	$17,290	($14,555)
01852626-56134	Facilities-Fertilizer	$0	$0	$0	$0	$0	$0	$0
01852627-56134	Facilities-Lawn Care-Supplies	$5,000	$0	$5,000	$8,701	$8,956	$1,899	($5,855)
01852628-56134	Facilities-Paving-Supplies	$0	$0	$0	$20,243	$20,243	$0	($20,243)
01852631-56134	Facilities-Maintenance-Supplies	$2,000	$0	$2,000	$1,576	$1,576	$0	$424
01852632-56134	Facilities-Inside Maintenance-Supplies	$30,000	$0	$30,000	$19,516	$21,721	$5,378	$2,902
01852633-56134	Facilities-Electrical-Supplies	$33,500	$0	$33,500	$17,052	$20,448	$11,418	$1,634
01852634-56134	Facilities-Fire Prot-Supplies	$0	$0	$0	$0	$0	$0	$0
01852635-56134	Facilities-Floor Repair-Supplies	$5,000	$0	$5,000	$525	$525	$1,974	$2,501
01852637-56134	Facilities-Glass-Supplies	$1,000	$0	$1,000	$0	$0	$0	$1,000
01852638-56134	Facilities-Hardware-Supplies	$5,000	$0	$5,000	$6,763	$7,381	$2,303	($4,684)
01852639-56134	Facilities-HVAC-Supplies	$55,000	$0	$55,000	$30,685	$32,566	$6,782	$15,652
01852641-56134	Facilities-Masonry-Supplies	$0	$0	$0	$0	$0	$0	$0
01852642-56134	Facilities-Painting-Supplies	$5,000	$0	$5,000	$6,660	$6,660	$1,944	($3,605)
01852643-56134	Facilities-Plant Eqiuip-Supplies	$0	$0	$0	$0	$0	$0	$0
01852644-56134	Facilities-Plumbing-Supplies	$35,000	$0	$35,000	$28,843	$31,432	$3,040	$528
01852645-56134	Facilities-Roofing-Supplies	$0	$0	$0	$0	$0	$0	$0

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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01852646-56134	Facilities-Pest Control-Supplies	$1,000	$0	$1,000	$0	$0	$0	$1,000
01852648-56134	Facilities-Indoor Air Quality-IAQ-Supplies	$10,000	$0	$10,000	$18,419	$18,419	$1,087	($9,506)
01852649-56134	Facilities-Welding-Supplies	$0	$0	$0	$1,101	$1,446	$204	($1,650)
	Supplies Maintenance Total	**$251,500**	**$0**	**$251,500**	**$223,635**	**$240,783**	**$64,360**	**($53,643)**
Text & Workbooks								
01011000-56411	TECEC-Classroom-Text & Workbooks	$1,300	$0	$1,300	$1,341	$1,341	$0	($41)
01011200-56411	PPS-Admin-Text & Workbooks	$4,300	$0	$4,300	$3,432	$3,432	($0)	$868
01412210-56411	Curr Dir-D/W-Text & Workbooks	$112,300	$0	$112,300	$98,053	$98,053	$22,935	($8,688)
01511001-56411	BHES-Classroom-Text & Workbooks	$34,000	$0	$34,000	$31,417	$31,417	$84	$2,500
01521001-56411	FTES-Classroom-Text & Workbooks	$30,000	$0	$30,000	$27,185	$27,185	$95	$2,720
01531001-56411	DFES-Classroom-Text & Workbooks	$28,664	$0	$28,664	$20,493	$20,583	$92	$7,988
01541001-56411	MBES-Classroom-Text & Workbooks	$29,000	$0	$29,000	$27,888	$28,056	$95	$849
01551001-56411	JRES-Classroom-Text & Workbooks	$29,000	$0	$29,000	$26,247	$27,509	$92	$1,400
01581001-56411	TES-Classroom-Text & Workbooks	$29,000	$0	$29,000	$26,762	$26,770	($0)	$2,230
01611001-56411	HMS-Classroom-Text & Workbooks	$15,000	$0	$15,000	$12,794	$12,794	$1,380	$827
01621001-56411	MMS-Classroom-Text & Workbooks	$15,000	$0	$15,000	$7,396	$7,859	$710	$6,432
01621016-56411	MMS-Music-Text & Workbooks	$0	$0	$0	$0	$0	$0	$0
01711003-56411	THS-Business Ed-Text & Workbooks	$9,225	$0	$9,225	$8,485	$8,485	($0)	$740
01711006-56411	THS-Ag Science-Text & Workbooks	$4,000	$0	$4,000	$0	$0	$0	$4,000
01711010-56411	THS-English-Text & Workbooks	$18,000	$0	$18,000	$17,997	$17,997	$0	$3
01711011-56411	THS-World Language-Text & Workbooks	$12,500	$0	$12,500	$10,498	$10,498	($0)	$2,002
01711013-56411	THS-Family Consumer Science-Text & Workboo	$0	$0	$0	$257	$257	$0	($257)
01711015-56411	THS-Mathematics-Text & Workbooks	$15,100	$0	$15,100	$1,624	$1,624	$0	$13,476
01711019-56411	THS-PE/Health-Text & Workbooks	$500	$0	$500	$0	$0	$0	$500
01711022-56411	THS-Alternate School-Text & Workbooks	$0	$0	$0	$0	$0	$0	$0
01711027-56411	THS-Science-Text & Workbooks	$9,800	$0	$9,800	$1,908	$1,908	$0	$7,892
01711028-56411	THS-Social Studies-Text & Workbooks	$12,774	$0	$12,774	$1,900	$10,363	$0	$2,411
01741200-56411	Continuing Ed-Textbooks	$0	$0	$0	$0	$0	$0	$0
	Text & Workbooks Total	**$409,463**	**$0**	**$409,463**	**$325,676**	**$336,131**	**$25,482**	**$47,850**
Subscriptions								
01011200-56425	PPS-Admin-Periodicals	$1,000	$0	$1,000	$927	$927	$0	$73
01412210-56425	Curr Dir-Admin-Periodicals	$0	$0	$0	$0	$0	$0	$0
01412214-56426	Cur Dir-D/W-Online Subscriptions	$281,048	$0	$281,048	$280,071	$280,071	$0	$977
01422520-56425	Tech-Admin-Periodicals	$200	$0	$200	$0	$0	$0	$200
01512220-56425	BHES-Library-Periodicals	$1,300	$0	$1,300	$286	$286	$0	$1,014
01522220-56425	FTES-Library-Periodicals	$1,200	$0	$1,200	$1,033	$1,033	$0	$167
01532220-56425	DFES-Library-Periodicals	$1,200	$0	$1,200	$0	$0	$0	$1,200
01542220-56425	MBES-Library-Periodicals	$1,200	$0	$1,200	$1,200	$1,200	$0	$0
01552220-56425	JRES-Library-Periodicals	$1,250	$0	$1,250	$1,225	$1,225	$0	$25
01582220-56425	TES-Library-Periodicals	$1,250	$0	$1,250	$1,178	$1,209	$0	$41
01612220-56425	HMS-Library-Periodicals	$1,750	$0	$1,750	$1,689	$1,689	$60	$1
01622220-56425	MMS-Library-Periodicals	$1,250	$0	$1,250	$1,232	$1,232	($0)	$18
01712220-56425	THS-Library-Periodicals	$2,200	$0	$2,200	$1,642	$1,642	$0	$558
01712400-56425	THS-Admin-Periodicals	$750	$0	$750	$0	$0	$0	$750
01822230-56425	Facilities-Admin-Periodicals	$350	$0	$350	$0	$0	$0	$350
01882700-56425	Trans-Admin-Periodicals	$0	$0	$0	$0	$0	$0	$0
01902310-56425	Super-BOE-Periodicals	$0	$0	$0	$0	$0	$0	$0
01902320-56425	Super- Admin-Periodicals	$700	$0	$700	$527	$630	$0	$70
	Subscriptions Total	**$296,648**	**$0**	**$296,648**	**$291,011**	**$291,144**	**$60**	**$5,444**
Testing Materials								
01011000-56904	TECEC-Classroom-Testing Materials	$4,600	$0	$4,600	$4,366	$5,225	$0	($625)
01011200-56904	PPS-L/W-Testing Materials	$55,000	$0	$55,000	$48,582	$49,017	($0)	$5,983
01412210-56904	Curr Dir-D/W-Testing Materials	$110,000	$0	$110,000	$88,301	$88,301	$3,700	$17,999
01712120-56903	THS-Guidance-Testing Materials	$400	$0	$400	$0	$0	$0	$400
	Testing Materials Total	**$170,000**	**$0**	**$170,000**	**$141,249**	**$142,543**	**$3,700**	**$23,757**
Books & A/V								
01512220-56420	BHES-Library-Books & Media	$8,000	$0	$8,000	$9,882	$9,882	($0)	($1,882)
01522220-56420	FTES-Library-Books & Media	$5,000	$0	$5,000	$2,777	$4,653	$600	($253)
01532220-56420	DFES-Library-Books & Media	$5,000	$0	$5,000	$7,602	$7,602	$859	($3,461)
01542220-56420	MBES-Library-Books & Media	$5,000	$0	$5,000	$4,997	$4,997	($0)	$3
01552220-56420	JRES-Library-Books & Media	$5,000	$0	$5,000	$4,899	$4,899	$98	$3
01582220-56420	TES-Library-Books & Media	$5,000	$0	$5,000	$4,007	$4,611	$0	$389
01612220-56420	HMS-Library-Books & Media	$2,000	$0	$2,000	$1,966	$1,966	$0	$34
01622220-56420	MMS-Library-Books & Media	$2,250	$0	$2,250	$2,035	$2,142	$83	$25
01712220-56420	THS-Library-Books & Media	$7,040	$0	$7,040	$6,119	$6,119	$779	$142
	Books & A/V Total	**$44,290**	**$0**	**$44,290**	**$44,285**	**$46,872**	**$2,419**	**($5,001)**

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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
Software								
01412210-56118	Curr Dir-D/W Software	$5,000	$0	$5,000	$4,875	$4,875	$0	$125
01422214-56118	Tech-L/W-Software	$188,925	$0	$188,925	$207,393	$207,393	$0	($18,468)
01712120-56118	THS-Guidance-Software	$0	$0	$0	$0	$0	$0	$0
	Software Total	**$193,925**	**$0**	**$193,925**	**$212,268**	**$212,268**	**$0**	**($18,343)**
Energy								
01842611-56201	Facilities-D/W-Heating Oil	$0	$0	$0	$0	$0	$0	$0
01842611-56202	Facilities-D/W-Natural Gas	$599,400	$0	$599,400	$478,832	$544,595	$30,405	$24,400
	Energy Total	**$599,400**	**$0**	**$599,400**	**$478,832**	**$544,595**	**$30,405**	**$24,400**
Other Supplies								
01422214-56117	Tech-L/W-Computer Supplies	$500	$0	$500	$0	$0	$0	$500
01422220-56117	Tech-Dist AV/Chan 17-Supplies	$300	$0	$300	$0	$0	$0	$300
01422220-56900	Tech-Dist AV/Ch17-Parts	$6,800	$0	$6,800	$1,993	$2,520	($0)	$4,280
01613202-56119	HMS-Activities-Supplies	$3,000	$0	$3,000	$0	$0	$0	$3,000
01623202-56119	MMS-Activities-Supplies	$2,000	$0	$2,000	$543	$977	$623	$400
01712400-56270	THS-Admin-Security Supplies	$1,500	$0	$1,500	$172	$259	$0	$1,241
01712400-56907	THS-Admin-Graduation	$16,800	$0	$16,800	$6,811	$6,811	$16,379	($6,390)
01713203-56906	THS-Activities-Fees, Awards & Supplies	$1,500	$0	$1,500	$12	$12	$0	$1,488
01852625-56900	Facilities-Fences/Playground-Supplies	$0	$0	$0	$0	$0	$0	$0
01852636-56900	Facilities-Furniture Repairs-Supplies	$0	$0	$0	$0	$0	$0	$0
01882700-56270	Transportation-Bus Supplies	$0	$0	$0	$0	$0	$0	$0
	Other Supplies Total	**$32,400**	**$0**	**$32,400**	**$9,532**	**$10,580**	**$17,002**	**$4,818**
	Supplies Total	**$2,840,857**	**$0**	**$2,840,857**	**$2,588,098**	**$2,722,276**	**$272,225**	**($153,644)**
Property								
Office Equipment								
01612400-57301	HMS-Admin-Equipment	$500	$0	$500	$26	$26	$0	$474
01622400-57301	MMS-Admin-Equipment	$0	$0	$0	$0	$0	$0	$0
01822230-57301	Facilities-Admin-Equipment	$350	$0	$350	$0	$0	$0	$350
	Office Equipment Total	**$850**	**$0**	**$850**	**$26**	**$26**	**$0**	**$824**
Office Furniture								
01052130-57304	SPED-Health Services Furniture	$0	$0	$0	$813	$813	$0	($813)
01402320-57308	Asst. Super.-Furniture	$0	$0	$0	$208	$208	$0	($208)
01712400-57308	THS-Admin-Office Furniture	$0	$0	$0	$0	$0	$0	$0
01822230-57308	Facilities-Admin-Furniture	$0	$0	$0	$0	$0	$0	$0
01852651-57301	Facilities-Building Improvement-Furniture	$0	$0	$0	$0	$0	$0	$0
	Office Furniture Total	**$0**	**$0**	**$0**	**$1,021**	**$1,021**	**$0**	**($1,021)**
Classroom Equipment								
01011000-57301	TECEC-Classroom-Instructional Equipment	$4,000	$0	$4,000	$4,186	$4,186	($0)	($186)
01032130-57303	PPS-L/W-Equipment Instructional	$15,000	$0	$15,000	$14,580	$14,580	$274	$146
01412210-57301	Curr Dir-D/W-Equipment Instructional	$20,000	$0	$20,000	$2,484	$2,484	$0	$17,516
01421001-57310	Tech-Classroom-Computer Equipment	$192,325	$0	$192,325	$416,500	$418,450	$55,365	($281,490)
01422214-57301	Tech-L/W-Computer Equipment	$10,500	$0	$10,500	$9,280	$9,330	($0)	$1,170
01422220-57301	Tech-Dist AV/Ch17-Equipment Instructional	$22,000	$0	$22,000	$19,757	$19,757	$0	$2,243
01511001-57301	BHES-Classroom-Equipment Instructional	$2,500	$0	$2,500	$1,263	$1,263	$0	$1,237
01512220-57302	BHES-Library-Equipment Instructional	$2,200	$0	$2,200	$0	$0	$0	$2,200
01521001-57301	FTES-Classroom-Equipment Instructional	$2,400	$0	$2,400	$2,198	$2,198	$0	$202
01522220-57302	FTES-Library-Equipment Instructional	$2,300	$0	$2,300	$562	$562	$0	$1,738
01531001-57301	DFES-Classroom-Equipment Instructional	$2,500	$0	$2,500	$0	$0	$0	$2,500
01532220-57302	DFES-Library-Equipment Instructional	$2,400	$0	$2,400	$0	$0	$0	$2,400
01541001-57301	MBES-Classroom-Equipment Instructional	$4,000	$0	$4,000	$1,796	$1,796	$0	$2,204
01542220-57302	MBES-Library-Equipment Instructional	$2,200	$0	$2,200	$2,197	$2,197	$0	$3
01551001-57301	JRES-Classroom-Equipment Instructional	$2,500	$0	$2,500	$557	$557	$0	$1,943
01552220-57302	JRES-Library-Equipment Instructional	$2,200	$0	$2,200	$1,628	$1,628	$463	$109
01581001-57301	TES-Classroom-Equipment Instructional	$2,500	$0	$2,500	$1,668	$1,668	$200	$632
01582220-57302	TES-Library-Equipment Instructional	$2,200	$0	$2,200	$2,160	$2,160	$0	$40
01611001-57301	HMS-Classroom-Equipment Instructional	$3,400	$0	$3,400	$2,840	$2,840	$0	$560
01611016-57301	HMS-Music-Equipment Instructional	$3,300	$0	$3,300	$3,188	$3,188	$0	$112
01612220-57302	HMS-Library-Equipment Instructional	$1,700	$0	$1,700	$478	$1,564	$0	$136
01621001-57301	MMS-Classroom-Equipment Instructional	$3,400	$0	$3,400	$3,803	$3,803	$0	($403)
01621016-57301	MMS-Music-Equipment Instructional	$3,500	$0	$3,500	$2,700	$2,700	$146	$654
01622220-57302	MMS-Library-Equipment Instructional	$1,700	$0	$1,700	$613	$613	($0)	$1,087
01711001-57301	THS-Classroom-Equipment	$0	$0	$0	$0	$0	$0	$0

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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01711002-57301	THS-Art-Equipment Instructional	$8,500	$0	$8,500	$3,361	$3,361	$0	$5,139
01711003-57301	THS-Business Ed-Equipment Instructional	$0	$0	$0	$0	$0	$0	$0
01711006-57301	THS-Ag Science-Equipment Instructional	$969	$0	$969	$7,825	$7,825	$0	($6,856)
01711011-57301	THS-World Language-Equipment Instructional	$5,600	$0	$5,600	$6,380	$6,380	$0	($780)
01711013-57301	THS-Family Consumer Science-Equipment Instr	$3,000	$0	$3,000	$2,157	$2,157	$0	$843
01711014-57301	THS-Technology Education-Equipment Instructi	$2,000	$0	$2,000	$908	$908	$818	$273
01711016-57301	THS-Music-Equipment Instructional	$2,500	$0	$2,500	$758	$758	$0	$1,742
01711019-57301	THS-PE/Health-Equipment Instructional	$3,500	$0	$3,500	$2,487	$2,487	$145	$868
01711027-57301	THS-Science-Equipment Instructional	$8,755	$0	$8,755	$8,076	$8,076	$0	$679
01712220-57302	THS-Library-Equipment Instructional	$775	$0	$775	$400	$400	$0	$375
01712221-57301	THS-Auditorium/Theater Tech-Equipment Instr	$4,000	$0	$4,000	$1,180	$1,180	$0	$2,820
01712400-57301	THS-Admin-Equipment	$0	$0	$0	$0	$0	$0	$0
01713201-57301	Sports-Sports General-Equipment Instructional	$30,000	$0	$30,000	$25,961	$25,961	$0	$4,039
	Classroom Equipment Total	**$380,324**	**$0**	**$380,324**	**$553,931**	**$557,017**	**$57,412**	**($234,105)**
Classroom Furniture								
01011000-57308	TECEC-Classroom-Furniture	$3,200	$0	$3,200	$2,943	$2,943	($0)	$257
01511001-57308	BHES-Classroom-Furniture	$2,000	$0	$2,000	$113	$113	$0	$1,887
01521001-57308	FTES-Classroom-Furniture	$2,000	$0	$2,000	$1,721	$1,721	($0)	$279
01531001-57308	DFES-Classroom-Furniture	$2,000	$0	$2,000	$3,196	$3,196	$106	($1,302)
01541001-57308	MBES-Classroom-Furniture	$2,000	$0	$2,000	$1,943	$1,943	$0	$57
01551001-57308	JRES-Classroom-Furniture	$2,000	$0	$2,000	$1,935	$1,935	$0	$65
01581001-57308	TES-Classroom-Furniture	$2,000	$0	$2,000	$550	$550	$0	$1,450
01611001-57308	HMS-Classroom-Furniture	$500	$0	$500	$0	$0	$0	$500
01621001-57308	MMS-Classroom-Furniture	$0	$0	$0	$0	$0	$0	$0
	Classroom Furniture Total	**$15,700**	**$0**	**$15,700**	**$12,401**	**$12,401**	**$106**	**$3,193**
Building Equipment								
01842610-57301	Facilities-Custodial-Equipment	$5,000	$0	$5,000	$0	$11,998	$0	($6,998)
01852622-57307	Facilities-Snow Removal-Equipment	$5,000	$0	$5,000	$2,999	$2,999	$0	$2,001
01852623-57307	Facilities-Vehicles-Equipment	$1,000	$0	$1,000	$1,867	$1,883	$0	($883)
01852625-57307	Facilities-Grounds-Equipment	$20,000	$0	$20,000	$6,660	$6,660	$0	$13,340
01852627-57307	Facilities-Lawn Care-Equipment	$20,000	$0	$20,000	$0	$0	$0	$20,000
01852632-57307	Facilities-Inside Maintenance-Equipment	$1,000	$0	$1,000	$0	$0	$0	$1,000
01852633-57306	FacilitiesPlantBldg-Electrical-Equipment	$0	$0	$0	$6,889	$6,889	$780	($7,669)
01852633-57307	Facilities-Electrical-Equipment	$0	$0	$0	$0	$0	$0	$0
01852639-57307	Facilities-HVAC-Equipment	$25,000	$0	$25,000	$0	$0	$0	$25,000
01852643-57307	Facilities-Plant-Equipment	$0	$0	$0	$0	$0	$0	$0
01852644-57307	Facilities-Plumbing-Equipment	$1,000	$0	$1,000	$540	$540	$0	$460
01852648-57307	Facilities-IAQ-Equipment	$5,000	$0	$5,000	$0	$0	$0	$5,000
01852654-57340	Facilities-Maintenance-Vehicle	$0	$0	$0	$0	$0	$0	$0
	Building Equipment Total	**$83,000**	**$0**	**$83,000**	**$18,955**	**$30,970**	**$780**	**$51,250**
Building Improvements								
01842611-57202	Facilities-Project Improvements to Site	$0	$0	$0	$0	$0	$0	$0
01852650-57200	Facilities-Site-Building Improvement	$15,000	$0	$15,000	$8,100	$8,910	$810	$5,280
01852650-57202	Facilities-Site-Building Improvement	$0	$0	$0	$0	$0	$0	$0
01852651-57100	Facilities-Building Improvement	$0	$0	$0	$4,780	$4,860	$195	($5,055)
01852651-57102	Facilities-Building Improvement-Other	$0	$0	$0	$0	$0	$0	$0
01852651-57202	Facilities-Building Improvement-Projects	$30,000	$0	$30,000	$285	$285	$0	$29,715
	Building Improvements Total	**$45,000**	**$0**	**$45,000**	**$13,165**	**$14,055**	**$1,005**	**$29,940**
Other Equipment								
01422520-57301	Tech-Admin-WAN Equipment	$3,550	$0	$3,550	$0	$0	$0	$3,550
	Other Equipment Total	**$3,550**	**$0**	**$3,550**	**$0**	**$0**	**$0**	**$3,550**
	Property Total	**$528,424**	**$0**	**$528,424**	**$599,498**	**$615,489**	**$59,303**	**($146,368)**
Miscellaneous								
Debt Service, Dues, Fees and Memberships								
01011000-58900	TECEC-Admin-Dues & Fees	$800	$0	$800	$731	$731	$0	$69
01011200-58900	PPS-Admin-Dues & Fees	$2,000	$0	$2,000	$7,532	$8,132	$2,590	($8,722)
01402210-58900	Instructional-Dues & Fees	$0	$0	$0	$0	$0	$0	$0
01402320-58900	Asst Super-Admin-Dues & Fees	$7,000	$0	$7,000	$5,412	$5,492	$0	$1,508
01412210-58900	Curr Dir-Admin-Dues & Fees	$0	$0	$0	$0	$0	$0	$0
01422520-58900	Tech-Admin-Dues & Fees	$0	$0	$0	$0	$0	$155	($155)
01512400-58900	BHES-Admin-Dues & Fees	$550	$0	$550	$399	$399	$0	$151
01522400-58900	FTES-Admin-Dues & Fees	$553	$0	$553	$178	$178	$0	$375
01532400-58900	DFES-Admin-Dues & Fees	$500	$0	$500	$0	$0	$132	$368

Trumbull Board of Education Expense vs Budget Detail
By Object
Report for the Period Ended 5/31/2023

Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01542400-58900	MBES-Admin-Dues & Fees	$100	$0	$100	$0	$0	$0	$100
01552400-58900	JRES-Admin-Dues & Fees	$550	$0	$550	$0	$0	$0	$550
01582400-58900	TES-Admin-Dues & Fees	$550	$0	$550	$487	$487	$0	$63
01612400-58900	HMS-Admin-Dues & Fees	$900	$0	$900	$845	$845	$0	$55
01622400-58900	MMS-Admin-Dues & Fees	$900	$0	$900	$764	$764	$0	$136
01711006-58900	THS-Ag Science-Dues & Fees	$899	$0	$899	$535	$535	$0	$364
01711019-58900	THS-PE/Health-Dues & Fees	$0	$0	$0	$0	$0	$0	$0
01712120-58900	THS-Guidance-Dues & Fees	$0	$0	$0	$0	$0	$0	$0
01712220-58900	THS-Library-Dues & Fees	$0	$0	$0	$0	$0	$0	$0
01712400-58900	THS-Admin-Dues & Fees	$11,225	$0	$11,225	$11,249	$11,249	$0	($24)
01713201-58900	Sports-Sports General-Dues & Fees	$40,000	$0	$40,000	$33,227	$34,930	$6,162	($1,092)
01741200-58900	Cont Ed-Admin-Dues & Fees	$0	$0	$0	$0	$0	$0	$0
01802130-58900	Human Resources-Admin-Dues & Fees	$1,200	$0	$1,200	$229	$229	$0	$971
01822230-58900	Facilities-Admin-Dues & Fees	$1,500	$0	$1,500	$1,130	$1,130	$0	$370
01882700-58900	Trans-Admin-Dues & Fees	$375	$0	$375	$450	$450	$0	($75)
01902320-58900	Super-Admin-Dues & Fees	$21,700	$0	$21,700	$19,769	$21,665	$422	($387)
01912520-58310	Redemption of Principal on Loans	$335,343	$0	$335,343	$166,734	$335,343	$0	$0
01912520-58320	Interest on Loans	$88,196	$0	$88,196	$45,036	$88,196	$0	($0)
01912520-58900	Bus Off-Admin-Dues & Fees	$7,132	$0	$7,132	$3,796	$3,796	$0	$3,336
	Dues, Fees and Memberships Total	**$521,973**	**$0**	**$521,973**	**$298,502**	**$514,551**	**$9,461**	**($2,039)**
Other Miscellaneous								
01912520-58904	D/W-Admin-Bad Debt Expense	$1,000	$0	$1,000	$0	$0	$0	$1,000
	Other Miscellaneous Total	**$1,000**	**$0**	**$1,000**	**$0**	**$0**	**$0**	**$1,000**
	Miscellaneous Total	**$522,973**	**$0**	**$522,973**	**$298,502**	**$514,551**	**$9,461**	**($1,039)**
Other Objects								
01412210-59000	Curr-District Wide Support	$0	$0	$0	$0	$0	$0	$0
01912520-59000	Bus Office-Admin-Anticipated Surplus	$0	$0	$0	$0	$0	$0	$0
01912520-59001	Bus Office-Intergovernmental transfer	($466,300)	$0	($466,300)	$0	$0	$0	($466,300)
	Other Objects Total	**($466,300)**	**$0**	**($466,300)**	**$0**	**$0**	**$0**	**($466,300)**
	Munis Report Total	**$115,915,558**	**$0**	**$115,915,558**	**$87,221,421**	**$96,409,484**	**$19,651,316**	**($145,242)**

Trumbull Board of Education Expense vs Budget Detail
By Location
Report for the Period Ended 5/31/2023

Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01011000-51110	TECEC-Classroom-Teachers	$808,589	$0	$808,589	$505,953	$477,456	$173,367	$157,766
01011000-51113	TECEC-Admin-Admin Salaries	$123,747	$0	$123,747	$115,235	$125,711	$15,714	($17,678)
01011000-51120	TECEC-Classroom-Paras	$209,051	$0	$209,051	$163,352	$182,681	$27,532	($1,162)
01011000-51122	TECEC-Classroom-ABA Paras	$255,146	$0	$255,146	$202,660	$226,243	$35,686	($6,783)
01011000-51130	TECEC-Admin-Secy 12 Mth	$0	$0	$0	$20,361	$22,208	$2,750	($24,957)
01011000-51131	TECEC-Admin-Secy 10 Mth	$48,862	$0	$48,862	$35,273	$39,193	$11,760	($2,091)
01011000-51135	TECEC-Admin-Clerical Xtra Time	$1,344	$0	$1,344	$519	$541	$0	$803
01011000-55800	TECEC-Admin-Professional Devt	$700	$0	$700	$825	$825	$0	($125)
01011000-55900	TECEC-Admin-Other Purch'd Prop Svcs	$23,824	$0	$23,824	$11,443	$11,443	$0	$12,381
01011000-55906	TECEC-Admin-Printing	$200	$0	$200	$304	$304	$0	($104)
01011000-56110	TECEC-Admin-Office Supplies	$4,050	$0	$4,050	$5,542	$5,542	$0	($1,492)
01011000-56111	TECEC-Classroom-Classroom Supplies	$5,400	$0	$5,400	$6,427	$6,427	$0	($1,027)
01011000-56411	TECEC-Classroom-Text & Workbooks	$1,300	$0	$1,300	$1,341	$1,341	$0	($41)
01011000-56904	TECEC-Classroom-Testing Materials	$4,600	$0	$4,600	$4,366	$5,225	$0	($625)
01011000-57301	TECEC-Classroom-Instructional Equipment	$4,000	$0	$4,000	$4,186	$4,186	($0)	($186)
01011000-57308	TECEC-Classroom-Furniture	$3,200	$0	$3,200	$2,943	$2,943	($0)	$257
01011000-58900	TECEC-Admin-Dues & Fees	$800	$0	$800	$731	$731	$0	$69
01121200-51111	TECEC-Classroom-Specialists	$170,881	$0	$170,881	$115,973	$129,362	$21,055	$20,463
01401000-55503	TECEC-Classroom-Interns	$0	$0	$0	$0	$0	$0	$0
	Total TECEC School	**$1,665,694**	**$0**	**$1,665,694**	**$1,197,433**	**$1,242,361**	**$287,864**	**$135,469**
01011200-51114	PPS-Admin-Director/Coordinator	$315,181	$0	$315,181	$309,011	$337,276	$42,175	($64,270)
01011200-51117	PPS-L/W-Teacher Subs	$0	$0	$0	$112	$112	$0	($112)
01011200-51118	PPS-L/W-Curriculum Writing	$20,000	$0	$20,000	$296	$296	$0	$19,704
01011200-51119	PPS-L/W-Teacher Xtra Time	$36,000	$0	$36,000	$34,630	$37,820	$0	($1,820)
01011200-51120	PPS-L/W-Instructional Paras	$2,414,091	$0	$2,414,091	$1,914,239	$2,143,588	$325,918	($55,415)
01011200-51121	PPS-D/W-Para Xtra Time	$200,000	$0	$200,000	$65,676	$81,285	$0	$118,715
01011200-51122	PPS-L/W-ABA Paras	$1,548,142	$0	$1,548,142	$990,942	$1,102,756	$178,757	$266,628
01011200-51130	PPS-Admin-Secy 12 Mth	$127,179	$0	$127,179	$112,839	$123,199	$15,580	($11,599)
01011200-51135	PPS-Admin-Clerical Xtra Time	$0	$0	$0	$215	$215	$0	($215)
01011200-53230	PPS-L/W-Consultants	$275,000	$0	$275,000	$304,918	$348,250	$181,755	($255,005)
01011200-53300	PPS-Admin-Prof Purch'd Services	$65,000	$0	$65,000	$20,787	$20,787	$22,000	$22,213
01011200-53308	PPS-Admin-Legal SPED	$140,000	$0	$140,000	$62,619	$74,615	$25,385	$40,000
01011200-55800	PPS-Admin-Professional Devt	$30,000	$0	$30,000	$16,057	$17,689	$1,950	$10,361
01011200-55801	PPS-D/W-Mileage	$15,000	$0	$15,000	$6,383	$7,538	$0	$7,462
01011200-55906	PPS-Admin-Printing	$500	$0	$500	$148	$441	$0	$60
01011200-56110	PPS-Admin-Office Supplies	$900	$0	$900	$1,525	$1,525	$222	($847)
01011200-56111	PPS-Classroom-Classroom Supplies	$27,000	$0	$27,000	$18,479	$19,067	$1,800	$6,134
01011200-56411	PPS-Admin-Text & Workbooks	$4,300	$0	$4,300	$3,432	$3,432	($0)	$868
01011200-56425	PPS-Admin-Periodicals	$1,000	$0	$1,000	$927	$927	$0	$73
01011200-56904	PPS-L/W-Testing Materials	$55,000	$0	$55,000	$48,582	$49,017	($0)	$5,983
01011200-58900	PPS-Admin-Dues & Fees	$2,000	$0	$2,000	$7,532	$8,132	$2,590	($8,722)
01011201-51117	PPS-L/W-Tutors Homebound	$106,000	$0	$106,000	$39,881	$44,121	$2,975	$58,904
01011201-53210	PPS Homebound Instructional Services	$0	$0	$0	$1,806	$1,806	$11,640	($13,446)
01011203-51117	PPS-L/W-Tutors Tutorial	$75,000	$0	$75,000	$44,467	$53,480	$8,000	$13,520
01011204-51117	PPS-L/W-Tutors Expulsions	$13,000	$0	$13,000	$21,712	$25,885	$3,288	($16,174)
01021201-51119	PPS-After School-Teacher Salaries	$0	$0	$0	$0	$0	$0	$0
01032130-51123	PPS-L/W-OT/PT Therapists	$553,077	$0	$553,077	$354,761	$398,667	$153,672	$738
01032130-51128	PPS-L/W-Health Aides	$87,044	$0	$87,044	$67,035	$74,886	$11,871	$286
01032130-57303	PPS-L/W-Equipment Instructional	$15,000	$0	$15,000	$14,580	$14,580	$274	$146
01052130-53305	PPS-Health Services-Service Contracts	$60,000	$0	$60,000	$5,950	$5,950	$0	$54,050
01052130-54300	PPS-Health Svcs-Repairs & Svc Fees	$2,000	$0	$2,000	$865	$865	$0	$1,135
01052130-56110	PPS-Health Services-Supplies	$7,650	$0	$7,650	$3,970	$4,320	$4,005	($675)
01052130-57304	SPED-Health Services Furniture	$0	$0	$0	$813	$813	$0	($813)
01062140-51111	PPS-L/W-Psychologists	$2,057,461	$0	$2,057,461	$1,050,911	$1,174,666	$387,298	$495,497
01062145-51111	PPS-L/W-Behaviorists	$50,882	$0	$50,882	$220,714	$247,833	$94,917	($291,867)
01072110-51111	PPS-L/W-Social Workers	$1,266,920	$0	$1,266,920	$626,040	$701,936	$260,318	$304,665
01082150-51111	PPS-L/W-Speech & Language	$1,361,659	$0	$1,361,659	$919,071	$1,017,853	$302,459	$41,346
01161200-51110	PPS-SPED-Elementary Teachers	$2,149,393	$0	$2,149,393	$1,528,764	$1,707,466	$491,281	($49,354)
01231200-51110	PPS-SPED-Middle School Teachers	$1,442,419	$0	$1,442,419	$1,007,151	$1,124,008	$383,404	($64,993)
01331200-51110	PPS-SPED-THS Teachers	$2,181,279	$0	$2,181,279	$1,362,760	$1,516,113	$500,991	$164,174
01331200-51126	PPS-SPED-Work Experience	$5,800	$0	$5,800	$6,637	$7,453	$0	($1,653)
01371200-51118	PPS-ESY-Teacher salaries	$191,000	$0	$191,000	$142,979	$146,056	$0	$44,944
01371200-51122	PPS-ESY-ABA Paras	$80,000	$0	$80,000	$88,133	$88,133	$0	($8,133)
01371200-51128	PPS-ESY-Health Aides	$0	$0	$0	$5,594	$5,594	$0	($5,594)
01371200-51129	PPS-ESY-Para	$50,000	$0	$50,000	$46,806	$46,806	$0	$3,194
01396110-55600	PPS-L/W-Tuition Outplaced	$4,807,698	$0	$4,807,698	$4,151,701	$4,390,031	$663,796	($246,129)
01396110-55601	PPS-EXCESS COST REFUND(ECR)	($1,300,000)	$0	($1,300,000)	$0	$0	($1,300,000)	$0
01412210-51120	PPS-D/W-Para Training	$0	$0	$0	$26	$26	$0	($26)

Trumbull Board of Education Expense vs Budget Detail
By Location
Report for the Period Ended 5/31/2023

Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
	Total Special Education Department	**$20,539,575**	**$0**	**$20,539,575**	**$15,632,475**	**$17,177,315**	**$2,778,322**	**$583,938**
01401201-51117	Asst Super-L/W-Tutors Homebound	$0	$0	$0	$8,902	$12,488	$0	($12,488)
01401201-53210	Homebound Instructional Services	$0	$0	$0	$594	$594	$0	($594)
01401203-51117	Asst Super-L/W-Tutors Tutorial	$0	$0	$0	$0	$0	$0	$0
01401203-55801	Asst Super-L/W-Mileage	$12,000	$0	$12,000	$7,573	$8,335	$0	$3,665
01401204-51117	Asst Super-L/W-Tutors Expulsions	$0	$0	$0	$577	$577	$0	($577)
01402210-51110	Curr Dir-D/W-ELL Teachers	$584,808	$0	$584,808	$440,208	$491,461	$149,482	($56,135)
01402210-58900	Instructional-Dues & Fees	$0	$0	$0	$0	$0	$0	$0
01402320-51116	Asst Super-Admin-Teacher Stipends	$0	$0	$0	$0	$0	$0	$0
01402320-51118	Asst Super-L/W-Prof Devt Prep	$0	$0	$0	$0	$0	$0	$0
01402320-51130	Asst Super-Admin-Secy 12 Mth	$72,260	$0	$72,260	$61,452	$66,984	$8,298	($3,023)
01402320-51135	Asst Super-Admin-Clerical Xtra Time	$0	$0	$0	$26	$26	$0	($26)
01402320-51200	Asst Super-Admin-Teacher Mentors	$5,000	$0	$5,000	$0	$0	$0	$5,000
01402320-55600	Asst Super-Admin-Tuition	$454,000	$0	$454,000	$458,178	$458,178	$0	($4,178)
01402320-55800	Asst Super-Admin-Professional Devt	$20,000	$0	$20,000	$3,431	$6,430	$144	$13,426
01402320-55900	Asst Super-Other Purchased Services	$0	$0	$0	$0	$0	$0	$0
01402320-55906	Asst Super-Admin-Printing	$1,500	$0	$1,500	$0	$51	$415	$1,034
01402320-56110	Asst Super-Admin-Office Supplies	$4,050	$0	$4,050	$16,343	$19,420	$1,696	($17,066)
01402320-57308	Asst. Super.-Furniture	$0	$0	$0	$208	$208	$0	($208)
01402320-58900	Asst Super-Admin-Dues & Fees	$7,000	$0	$7,000	$5,412	$5,492	$0	$1,508
01411250-51110	Curr Dir-D/W-TAG Teachers	$116,413	$0	$116,413	$76,116	$85,071	$31,342	$0
01412210-51111	Curr Dir-D/W-Program Leaders	$384,824	$0	$384,824	$287,569	$319,830	$55,860	$9,134
01412210-51113	D/W-Elem Asst Principal	$0	$0	$0	$0	$0	$0	$0
01412210-51114	Assistant Superintendent	$197,200	$0	$197,200	$163,809	$178,700	$22,338	($3,838)
01412210-51117	Curr Dir-D/W-Teacher Training	$50,000	$0	$50,000	$944	$944	$49,057	$0
01412210-51118	Curr Dir-D/W-Prof Devt Prep	$30,000	$0	$30,000	$27,068	$27,068	$0	$2,932
01412210-51119	Curr Dir-Admin-Curriculum Writing	$83,555	$0	$83,555	$38,918	$40,338	$0	$43,217
01412210-51129	Curr Dir-D/W-Other Non-Certified	$75,922	$0	$75,922	$61,858	$67,481	$8,435	$5
01412210-51130	Curr Dir-Admin-Secy 12 Mth	$60,011	$0	$60,011	$50,987	$55,622	$6,953	($2,564)
01412210-51135	Curr Dir-Admin-Clerical Xtra Time	$0	$0	$0	$1,572	$1,599	$0	($1,599)
01412210-53300	Curr Dir-D/W-Other Professional Svcs	$19,000	$0	$19,000	$0	$0	$0	$19,000
01412210-55800	Curr Dir-Admin-Professional Devt	$64,370	$0	$64,370	$48,398	$48,398	$0	$15,972
01412210-55802	Admin-Prof Devt Admin	$0	$0	$0	$0	$0	$0	$0
01412210-55906	Curr Dir-Admin-Printing	$0	$0	$0	$0	$0	$0	$0
01412210-56110	Curr Dir-Admin-Office Supplies	$0	$0	$0	$0	$0	$0	$0
01412210-56118	Curr Dir-D/W Software	$5,000	$0	$5,000	$4,875	$4,875	$0	$125
01412210-56411	Curr Dir-D/W-Text & Workbooks	$112,300	$0	$112,300	$98,053	$98,053	$22,935	($8,688)
01412210-56425	Curr Dir-Admin-Periodicals	$0	$0	$0	$0	$0	$0	$0
01412210-56904	Curr Dir-D/W-Testing Materials	$110,000	$0	$110,000	$88,301	$88,301	$3,700	$17,999
01412210-57301	Curr Dir-D/W-Equipment Instructional	$20,000	$0	$20,000	$2,484	$2,484	$0	$17,516
01412210-58900	Curr Dir-Admin-Dues & Fees	$0	$0	$0	$0	$0	$0	$0
01412210-59000	Curr-District Wide Support	$0	$0	$0	$0	$0	$0	$0
01412214-56111	Curr Dir-D/W-Classroom Supplies	$90,000	$0	$90,000	$67,847	$68,117	$969	$20,914
01412214-56426	Cur Dir-D/W-Online Subscriptions	$281,048	$0	$281,048	$280,071	$280,071	$0	$977
01922530-51125	Asst Super-Dir Digital Learning	$156,827	$0	$156,827	$127,785	$139,402	$17,425	($0)
01922530-51129	Asst Super-Info Svcs-Oth Non-Certified	$71,558	$0	$71,558	$60,684	$66,201	$8,275	($2,918)
01922530-51135	Asst Super-Admin-Clerical Xtra Time	$3,000	$0	$3,000	$4,682	$5,578	$0	($2,578)
01922530-53302	Asst Super-Info Svcs-Dbase Students	$190,767	$0	$190,767	$191,161	$191,161	$0	($394)
01922530-55804	Asst Super-Info Svcs-Oth Purch Svcs	$14,000	$0	$14,000	$13,000	$14,080	$2,680	($2,760)
	Total Assistant Superintendent Department	**$3,296,413**	**$0**	**$3,296,413**	**$2,699,084**	**$2,853,618**	**$390,003**	**$52,792**
01421001-57310	Tech-Classroom-Computer Equipment	$192,325	$0	$192,325	$416,500	$418,450	$55,365	($281,490)
01422214-53300	Tech-L/W-Other Professional Svcs	$4,600	$0	$4,600	$3,987	$4,132	$266	$202
01422214-54300	Tech-L/W-Repairs & Svc Fees	$1,200	$0	$1,200	$0	$0	$0	$1,200
01422214-56117	Tech-L/W-Computer Supplies	$500	$0	$500	$0	$0	$0	$500
01422214-56118	Tech-L/W-Software	$188,925	$0	$188,925	$207,393	$207,393	$0	($18,468)
01422214-56900	Tech-L/W-Parts	$8,550	$0	$8,550	$21,111	$21,111	$0	($12,561)
01422214-57301	Tech-L/W-Computer Equipment	$10,500	$0	$10,500	$9,280	$9,330	($0)	$1,170
01422220-51124	Tech-Dist A/V/Ch 17-Technician	$0	$0	$0	$0	$0	$0	$0
01422220-53300	Tech-Dist AV/Ch17-Other Prof Svcs	$3,500	$0	$3,500	$883	$883	$0	$2,617
01422220-54300	Tech-Dist AV/Ch17-Repairs & Svc Fees	$500	$0	$500	$0	$0	$0	$500
01422220-56117	Tech-Dist AV/Chan 17-Supplies	$300	$0	$300	$0	$0	$0	$300
01422220-56900	Tech-Dist AV/Ch17-Parts	$6,800	$0	$6,800	$1,993	$2,520	($0)	$4,280
01422220-57301	Tech-Dist AV/Ch17-Equipment Instructional	$22,000	$0	$22,000	$19,757	$19,757	$0	$2,243
01422520-51125	Tech-Admin-Manager	$137,932	$0	$137,932	$112,389	$122,606	$15,326	$0
01422520-51129	Tech-Admin-Other Technical	$499,173	$0	$499,173	$412,959	$449,935	$55,464	($6,226)
01422520-51130	Tech-Admin-Secy 12 Mth	$51,867	$0	$51,867	$38,239	$41,877	$6,011	$3,979
01422520-51135	Tech-Admin--Clerical Xtra Time	$0	$0	$0	$0	$0	$0	$0
01422520-51141	Tech-Admin-Xtra Time/Help	$15,000	$0	$15,000	$5,674	$5,851	$0	$9,149

Trumbull Board of Education Expense vs Budget Detail
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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01422520-53300	Tech-Admin-Other Professional Svcs	$8,500	$0	$8,500	$1,003	$1,003	$0	$7,497
01422520-53305	Tech-Admin-Maintenance Contracts	$59,900	$0	$59,900	$15,208	$20,553	$0	$39,347
01422520-54300	Tech-Admin-Repairs & Svc Fees	$1,500	$0	$1,500	$0	$0	$0	$1,500
01422520-54409	D/W Copiers	$265,000	$0	$265,000	$219,832	$240,247	$20,415	$4,338
01422520-55800	Tech-Admin-Professional Devt	$2,500	$0	$2,500	$130	$130	$0	$2,370
01422520-55804	Tech-Admin-Milelage	$3,000	$0	$3,000	$905	$1,027	$0	$1,973
01422520-55903	Tech-Admin-Telephone Cell	$33,500	$0	$33,500	$29,484	$29,484	$5,577	($1,561)
01422520-55904	Tech-Admin-Telephone LAN	$68,100	$0	$68,100	$49,516	$50,294	$52,425	($34,618)
01422520-55907	Tech-Admin-WAN Communications	$198,100	$0	$198,100	$190,166	$204,434	$0	($6,334)
01422520-56110	Tech-Admin-Office Supplies	$1,170	$0	$1,170	$2,875	$2,875	$0	($1,705)
01422520-56425	Tech-Admin-Periodicals	$200	$0	$200	$0	$0	$0	$200
01422520-56900	Tech-Admin-Parts	$4,320	$0	$4,320	$975	$988	$0	$3,332
01422520-57301	Tech-Admin-WAN Equipment	$3,550	$0	$3,550	$0	$0	$0	$3,550
01422520-58900	Tech-Admin-Dues & Fees	$0	$0	$0	$0	$0	$155	($155)
	Total Technology Department	**$1,793,012**	**$0**	**$1,793,012**	**$1,760,260**	**$1,854,879**	**$211,003**	**($272,870)**
01511001-51110	BHES-Classroom-Teachers	$2,189,116	$0	$2,189,116	$1,465,527	$1,644,425	$589,873	($45,182)
01511001-51120	BHES-Classroom-Instructional Aides	$72,675	$0	$72,675	$32,624	$37,461	$6,000	$29,214
01511001-55500	BHES-Classroom-Interns	$32,500	$0	$32,500	$30,300	$30,300	$0	$2,200
01511001-56111	BHES-Classroom Supplies	$24,300	$0	$24,300	$27,968	$27,968	($0)	($3,668)
01511001-56411	BHES-Classroom-Text & Workbooks	$34,000	$0	$34,000	$31,417	$31,417	$84	$2,500
01511001-57301	BHES-Classroom-Equipment Instructional	$2,500	$0	$2,500	$1,263	$1,263	$0	$1,237
01511001-57308	BHES-Classroom-Furniture	$2,000	$0	$2,000	$113	$113	$0	$1,887
01511002-51110	BHES-Classroom-Specialists	$668,894	$0	$668,894	$355,588	$396,115	$137,223	$135,557
01512220-51110	BHES Library-Teachers-Salaries	$96,273	$0	$96,273	$62,948	$70,353	$25,920	($0)
01512220-56420	BHES-Library-Books & Media	$8,000	$0	$8,000	$9,882	$9,882	($0)	($1,882)
01512220-56425	BHES-Library-Periodicals	$1,300	$0	$1,300	$286	$286	$0	$1,014
01512220-56901	BHES-Library-Supplies	$2,700	$0	$2,700	$3,539	$3,539	$0	($839)
01512220-57302	BHES-Library-Equipment Instructional	$2,200	$0	$2,200	$0	$0	$0	$2,200
01512400-51113	BHES-Admin-Principal	$182,000	$0	$182,000	$148,296	$161,778	$20,222	$0
01512400-51120	BHES-Admin-Paras	$19,689	$0	$19,689	$8,022	$9,140	$1,500	$9,049
01512400-51121	BHES-Admin-Lunch Aides	$0	$0	$0	$0	$0	$0	$0
01512400-51130	BHES-Admin-Secy 12 Mth	$62,036	$0	$62,036	$52,751	$57,524	$7,159	($2,647)
01512400-51131	BHES-Admin-Secy 10 Mth	$39,149	$0	$39,149	$28,667	$31,852	$9,556	($2,259)
01512400-51135	BHES-Admin-Clerical Xtra Time	$0	$0	$0	$148	$171	$0	($171)
01512400-54900	BHES-Admin-Other Purch'd Svcs	$300	$0	$300	$301	$301	$0	($1)
01512400-55800	BHES-Admin-Professional Devt	$500	$0	$500	$239	$239	$0	$261
01512400-56110	BHES-Admin-Office Supplies	$3,600	$0	$3,600	$3,446	$3,621	$1,400	($1,420)
01512400-58900	BHES-Admin-Dues & Fees	$550	$0	$550	$399	$399	$0	$151
	Total Booth Hill School	**$3,444,282**	**$0**	**$3,444,282**	**$2,263,723**	**$2,518,147**	**$798,936**	**$127,200**
01521001-51110	FTES-Classroom-Teachers	$2,481,988	$0	$2,481,988	$1,495,784	$1,672,705	$556,294	$252,989
01521001-51120	FTES-Classroom-Instructional Aides	$69,460	$0	$69,460	$40,503	$47,058	$6,500	$15,902
01521001-55500	FTES-Classroom-Interns	$32,500	$0	$32,500	$30,300	$30,300	$0	$2,200
01521001-56111	FTES-Classroom Supplies	$27,900	$0	$27,900	$23,481	$24,544	$1,165	$2,191
01521001-56411	FTES-Classroom-Text & Workbooks	$30,000	$0	$30,000	$27,185	$27,185	$95	$2,720
01521001-57301	FTES-Classroom-Equipment Instructional	$2,400	$0	$2,400	$2,198	$2,198	$0	$202
01521001-57308	FTES-Classroom-Furniture	$2,000	$0	$2,000	$1,721	$1,721	($0)	$279
01521002-51110	FTES-Classroom-Specialists	$895,790	$0	$895,790	$598,245	$668,316	$205,341	$22,133
01522220-51110	FTES Library-Teachers-Salaries	$107,279	$0	$107,279	$70,144	$78,396	$28,883	($0)
01522220-56420	FTES-Library-Books & Media	$5,000	$0	$5,000	$2,777	$4,653	$600	($253)
01522220-56425	FTES-Library-Periodicals	$1,200	$0	$1,200	$1,033	$1,033	$0	$167
01522220-56901	FTES-Library-Supplies	$2,250	$0	$2,250	$1,327	$1,327	$53	$869
01522220-57302	FTES-Library-Equipment Instructional	$2,300	$0	$2,300	$562	$562	$0	$1,738
01522400-51113	FTES-Admin-Principal/Asst Principal	$290,133	$0	$290,133	$216,192	$235,845	$29,481	$24,807
01522400-51120	FTES-Admin-Paras	$34,036	$0	$34,036	$32,870	$36,955	$2,249	($5,167)
01522400-51121	FTES-Admin-Lunch Aides	$0	$0	$0	$0	$0	$0	$0
01522400-51130	FTES-Admin-Secy 12 Mth	$62,286	$0	$62,286	$53,009	$57,781	$7,159	($2,655)
01522400-51131	FTES-Admin-Secy 10 Mth	$40,520	$0	$40,520	$34,628	$38,427	$3,799	($1,706)
01522400-51135	FTES-Admin-Clerical Xtra Time	$500	$0	$500	$1,895	$2,122	$0	($1,622)
01522400-54900	FTES-Admin-Other Purch'd Svcs	$300	$0	$300	$0	$0	$0	$300
01522400-55800	FTES-Admin-Professional Devt	$500	$0	$500	$0	$0	$0	$500
01522400-56110	FTES-Admin-Office Supplies	$3,600	$0	$3,600	$2,839	$2,839	$0	$761
01522400-58900	FTES-Admin-Dues & Fees	$553	$0	$553	$178	$178	$0	$375
	Total Frenchtown School	**$4,092,495**	**$0**	**$4,092,495**	**$2,636,871**	**$2,934,146**	**$841,619**	**$316,730**
01531001-51110	DFES-Classroom-Teachers	$2,364,243	$0	$2,364,243	$1,454,219	$1,625,646	$598,796	$139,801
01531001-51120	DFES-Classroom-Instructional Aides	$51,867	$0	$51,867	$36,931	$42,062	$5,000	$4,806
01531001-55500	DFES-Classroom-Interns	$32,500	$0	$32,500	$15,300	$15,300	$0	$17,200
01531001-56111	DFES-Classroom Supplies	$26,100	$0	$26,100	$32,753	$34,133	$1,764	($9,797)

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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01531001-56411	DFES-Classroom-Text & Workbooks	$28,664	$0	$28,664	$20,493	$20,583	$92	$7,988
01531001-57301	DFES-Classroom-Equipment Instructional	$2,500	$0	$2,500	$0	$0	$0	$2,500
01531001-57308	DFES-Classroom-Furniture	$2,000	$0	$2,000	$3,196	$3,196	$106	($1,302)
01531002-51110	DFES-Classroom-Specialists	$618,171	$0	$618,171	$436,757	$487,816	$120,031	$10,324
01532220-51110	DFES Library-Teachers-Salaries	$83,051	$0	$83,051	$54,303	$60,691	$22,360	($0)
01532220-56420	DFES-Library-Books & Media	$5,000	$0	$5,000	$7,602	$7,602	$859	($3,461)
01532220-56425	DFES-Library-Periodicals	$1,200	$0	$1,200	$0	$0	$0	$1,200
01532220-56901	DFES-Library-Supplies	$2,250	$0	$2,250	$2,795	$2,795	($0)	($545)
01532220-57302	DFES-Library-Equipment Instructional	$2,400	$0	$2,400	$0	$0	$0	$2,400
01532400-51113	DFES-Admin-Principal	$182,000	$0	$182,000	$148,296	$161,778	$20,222	$0
01532400-51120	DFES-Admin-Paras	$21,812	$0	$21,812	$5,447	$5,918	$1,000	$14,894
01532400-51121	DFES-Admin-Lunch Aides	$0	$0	$0	$0	$0	$0	$0
01532400-51130	DFES-Admin-Secy 12 Mth	$62,286	$0	$62,286	$53,078	$57,851	$7,159	($2,724)
01532400-51131	DFES-Admin-Secy 10 Mth	$39,334	$0	$39,334	$28,571	$31,741	$9,556	($1,963)
01532400-51135	DFES-Admin-Clerical Xtra Time	$500	$0	$500	$647	$693	$0	($193)
01532400-54900	DFES-Admin-Other Purch'd Svcs	$300	$0	$300	$225	$225	$0	$75
01532400-55800	DFES-Admin-Professional Devt	$500	$0	$500	$582	$582	$0	($82)
01532400-56110	DFES-Admin-Office Supplies	$3,600	$0	$3,600	$1,414	$1,527	$527	$1,546
01532400-58900	DFES-Admin-Dues & Fees	$500	$0	$500	$0	$0	$132	$368
	Total Daniels Farm School	**$3,530,778**	**$0**	**$3,530,778**	**$2,302,609**	**$2,560,140**	**$787,604**	**$183,034**
01541001-51110	MBES-Classroom-Teachers	$2,303,050	$0	$2,303,050	$1,527,308	$1,707,805	$546,983	$48,261
01541001-51120	MBES-Classroom-Instructional Aides	$64,834	$0	$64,834	$36,036	$40,989	$5,000	$18,846
01541001-55500	MBES-Classroom-Interns	$32,500	$0	$32,500	$15,300	$15,300	$15,300	$1,900
01541001-56111	MBES-Classroom Supplies	$27,000	$0	$27,000	$25,717	$25,717	$136	$1,147
01541001-56411	MBES-Classroom-Text & Workbooks	$29,000	$0	$29,000	$27,888	$28,056	$95	$849
01541001-57301	MBES-Classroom-Equipment Instructional	$4,000	$0	$4,000	$1,796	$1,796	$0	$2,204
01541001-57308	MBES-Classroom-Furniture	$2,000	$0	$2,000	$1,943	$1,943	$0	$57
01541002-51110	MBES-Classroom-Specialists	$909,472	$0	$909,472	$569,897	$636,909	$181,730	$90,834
01542220-51110	MBES Library-Teachers-Salaries	$116,413	$0	$116,413	$76,116	$85,071	$31,342	$0
01542220-56420	MBES-Library-Books & Media	$5,000	$0	$5,000	$4,997	$4,997	($0)	$3
01542220-56425	MBES-Library-Periodicals	$1,200	$0	$1,200	$1,200	$1,200	$0	$0
01542220-56901	MBES-Library-Supplies	$2,250	$0	$2,250	$2,249	$2,249	$0	$1
01542220-57302	MBES-Library-Equipment Instructional	$2,200	$0	$2,200	$2,197	$2,197	$0	$3
01542400-51113	MBES-Admin-Principal	$240,755	$0	$240,755	$193,560	$211,156	$26,395	$3,204
01542400-51120	MBES-Admin-Paras	$11,961	$0	$11,961	$9,207	$10,557	$1,500	($96)
01542400-51121	MBES-Admin-Lunch Aides	$0	$0	$0	$0	$0	$0	$0
01542400-51130	MBES-Admin-Secy 12 Mth	$61,786	$0	$61,786	$52,512	$57,285	$7,159	($2,659)
01542400-51131	MBES-Admin-Secy 10 Mth	$31,767	$0	$31,767	$23,872	$26,544	$7,905	($2,683)
01542400-51135	MBES-Admin-Clerical Xtra Time	$500	$0	$500	$0	$0	$0	$500
01542400-54900	MBES-Admin-Other Purch'd Svcs	$300	$0	$300	$0	$0	$0	$300
01542400-55800	MBES-Admin-Professional Devt	$250	$0	$250	$0	$0	$0	$250
01542400-56110	MBES-Admin-Office Supplies	$3,600	$0	$3,600	$3,428	$3,428	$0	$172
01542400-58900	MBES-Admin-Dues & Fees	$100	$0	$100	$0	$0	$0	$100
	Total Middlebrook School	**$3,849,938**	**$0**	**$3,849,938**	**$2,575,222**	**$2,863,198**	**$823,545**	**$163,194**
01551001-51110	JRES-Classroom-Teachers	$1,975,733	$0	$1,975,733	$1,305,186	$1,458,074	$495,813	$21,846
01551001-51120	JRES-Classroom-Instructional Aides	$55,806	$0	$55,806	$38,837	$44,156	$5,000	$6,649
01551001-55500	JRES-Classroom-Interns	$32,500	$0	$32,500	$0	$0	$0	$32,500
01551001-56111	JRES-Classroom Supplies	$24,300	$0	$24,300	$22,385	$22,586	$329	$1,385
01551001-56411	JRES-Classroom-Text & Workbooks	$29,000	$0	$29,000	$26,247	$27,509	$92	$1,400
01551001-57301	JRES-Classroom-Equipment Instructional	$2,500	$0	$2,500	$557	$557	$0	$1,943
01551001-57308	JRES-Classroom-Furniture	$2,000	$0	$2,000	$1,935	$1,935	$0	$65
01551002-51110	JRES-Classroom-Specialists	$609,591	$0	$609,591	$415,970	$464,908	$125,300	$19,383
01552220-51110	JRES Library-Teachers-Salaries	$116,413	$0	$116,413	$59,358	$66,341	$24,442	$25,630
01552220-56420	JRES-Library-Books & Media	$5,000	$0	$5,000	$4,899	$4,899	$98	$3
01552220-56425	JRES-Library-Periodicals	$1,250	$0	$1,250	$1,225	$1,225	$0	$25
01552220-56901	JRES-Library-Supplies	$2,250	$0	$2,250	$2,213	$2,213	$0	$37
01552220-57302	JRES-Library-Equipment Instructional	$2,200	$0	$2,200	$1,628	$1,628	$463	$109
01552400-51113	JRES-Admin-Principal	$171,244	$0	$171,244	$139,532	$152,217	$19,027	$0
01552400-51120	JRES-Admin-Paras	$21,237	$0	$21,237	$13,646	$14,961	$1,700	$4,576
01552400-51121	JRES-Admin-Lunch Aides	$0	$0	$0	$0	$0	$0	$0
01552400-51130	JRES-Admin-Secy 12 Mth	$62,386	$0	$62,386	$53,101	$57,874	$7,159	($2,647)
01552400-51131	JRES-Admin-Secy 10 Mth	$39,703	$0	$39,703	$28,667	$31,852	$9,556	($1,705)
01552400-51135	JRES-Admin-Clerical Xtra Time	$500	$0	$500	$1,567	$1,651	$0	($1,151)
01552400-54900	JRES-Admin-Other Purch'd Svcs	$500	$0	$500	$0	$0	$0	$500
01552400-55800	JRES-Admin-Professional Devt	$500	$0	$500	$0	$0	$0	$500
01552400-56110	JRES-Admin-Office Supplies	$3,600	$0	$3,600	$3,525	$3,525	($0)	$75
01552400-58900	JRES-Admin-Dues & Fees	$550	$0	$550	$0	$0	$0	$550
	Total Jane Ryan School	**$3,158,762**	**$0**	**$3,158,762**	**$2,120,477**	**$2,358,112**	**$688,977**	**$111,672**

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Trumbull Board of Education Expense vs Budget Detail
By Location
Report for the Period Ended 5/31/2023

Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01581001-51110	TES-Classroom-Teachers	$1,724,357	$0	$1,724,357	$1,251,418	$1,401,208	$462,970	($139,821)
01581001-51120	TES-Classroom-Instructional Aides	$45,952	$0	$45,952	$41,575	$47,726	$5,500	($7,273)
01581001-55500	TES-Classroom-Interns	$32,500	$0	$32,500	$22,950	$22,950	$7,650	$1,900
01581001-56111	TES-Classroom Supplies	$22,500	$0	$22,500	$20,058	$20,058	$0	$2,442
01581001-56411	TES-Classroom-Text & Workbooks	$29,000	$0	$29,000	$26,762	$26,770	($0)	$2,230
01581001-57301	TES-Classroom-Equipment Instructional	$2,500	$0	$2,500	$1,668	$1,668	$200	$632
01581001-57308	TES-Classroom-Furniture	$2,000	$0	$2,000	$550	$550	$0	$1,450
01581002-51110	TES-Classroom-Specialists	$568,020	$0	$568,020	$391,116	$437,130	$130,890	($0)
01582220-51110	TES Library-Teachers-Salaries	$90,783	$0	$90,783	$59,358	$66,341	$24,442	$0
01582220-56420	TES-Library-Books & Media	$5,000	$0	$5,000	$4,007	$4,611	$0	$389
01582220-56425	TES-Library-Periodicals	$1,250	$0	$1,250	$1,178	$1,209	$0	$41
01582220-56901	TES-Library-Supplies	$2,250	$0	$2,250	$2,214	$2,229	$0	$21
01582220-57302	TES-Library-Equipment Instructional	$2,200	$0	$2,200	$2,160	$2,160	$0	$40
01582400-51113	TSES-Admin-Principal	$182,000	$0	$182,000	$148,296	$161,778	$20,222	$0
01582400-51120	TES-Admin-Paras	$21,237	$0	$21,237	$16,923	$19,098	$2,500	($361)
01582400-51121	TES-Admin-Lunch Aides	$0	$0	$0	$0	$0	$0	$0
01582400-51130	TES-Admin-Secy 12 Mth	$62,056	$0	$62,056	$52,771	$57,544	$7,159	($2,647)
01582400-51131	TES-Admin-Secy 10 Mth	$39,149	$0	$39,149	$28,151	$31,292	$9,422	($1,565)
01582400-51135	TES-Admin-Clerical Xtra Time	$500	$0	$500	$403	$441	$0	$59
01582400-54900	TES-Admin-Other Purch'd Svcs	$300	$0	$300	$0	$0	$0	$300
01582400-55800	TES-Admin-Professional Devt	$500	$0	$500	$420	$420	$0	$80
01582400-56110	TES-Admin-Office Supplies	$3,600	$0	$3,600	$3,048	$3,185	$22	$393
01582400-58900	TES-Admin-Dues & Fees	$550	$0	$550	$487	$487	$0	$63
	Total Tashua School	**$2,838,203**	**$0**	**$2,838,203**	**$2,075,512**	**$2,308,853**	**$670,977**	**($141,627)**
01611001-51110	HMS-Classroom-Teacher Salaries	$3,883,900	$0	$3,883,900	$2,522,414	$2,806,164	$937,044	$140,692
01611001-51111	HMS-Teacher Specialists	$0	$0	$0	$76,116	$85,071	$31,342	($116,413)
01611001-55500	HMS-Classroom-Interns	$48,750	$0	$48,750	$36,900	$36,900	$6,300	$5,550
01611001-56111	HMS-Classroom-Classroom Supplies	$31,500	$0	$31,500	$26,094	$28,104	$126	$3,270
01611001-56411	HMS-Classroom-Text & Workbooks	$15,000	$0	$15,000	$12,794	$12,794	$1,380	$827
01611001-57301	HMS-Classroom-Equipment Instructional	$3,400	$0	$3,400	$2,840	$2,840	$0	$560
01611001-57308	HMS-Classroom-Furniture	$500	$0	$500	$0	$0	$0	$500
01611016-51110	HMS-Music-Teacher Salaries	$333,180	$0	$333,180	$234,549	$262,143	$71,037	$0
01611016-54900	HMS-Music-Other Purch'd Property Svcs	$1,200	$0	$1,200	$1,060	$1,200	$0	$0
01611016-56111	HMS-Music-Classroom Supplies	$2,250	$0	$2,250	$2,237	$2,237	$0	$13
01611016-57301	HMS-Music-Equipment Instructional	$3,300	$0	$3,300	$3,188	$3,188	$0	$112
01611019-51110	HMS-PE/Health-Teacher Salaries	$399,827	$0	$399,827	$245,198	$274,045	$65,948	$59,834
01611019-56111	HMS-PE/Health-Classroom Supplies	$3,420	$0	$3,420	$3,390	$3,390	$0	$30
01612120-51110	HMS-Guidance-Teacher Salaries	$293,419	$0	$293,419	$196,471	$218,015	$75,404	$0
01612120-51131	HMS-Guidance-Secy 10 Mth	$48,862	$0	$48,862	$35,243	$39,163	$11,760	($2,061)
01612120-51135	HMS-Guidance-Clerical Xtra Time	$0	$0	$0	$444	$600	$0	($600)
01612220-51110	HMS-Library-Teacher Salaries	$104,290	$0	$104,290	$68,190	$76,212	$28,078	$0
01612220-51120	HMS-Library-Paras	$0	$0	$0	$0	$0	$0	$0
01612220-56111	HMS-Library-Supplies	$1,935	$0	$1,935	$1,934	$1,934	$0	$1
01612220-56420	HMS-Library-Books & Media	$2,000	$0	$2,000	$1,966	$1,966	$0	$34
01612220-56425	HMS-Library-Periodicals	$1,750	$0	$1,750	$1,689	$1,689	$60	$1
01612220-57302	HMS-Library-Equipment Instructional	$1,700	$0	$1,700	$478	$1,564	$0	$136
01612400-51110	HMS-Admin-Teacher Xtra days	$0	$0	$0	$3,156	$3,156	$0	($3,156)
01612400-51113	HMS-Admin-Principal/Asst Principal	$346,615	$0	$346,615	$271,148	$295,798	$36,975	$13,842
01612400-51120	HMS-Admin-Admin Para	$12,229	$0	$12,229	$13,107	$15,048	$2,300	($5,119)
01612400-51130	HMS-Admin-Secy 12 Mth	$62,056	$0	$62,056	$52,493	$57,536	$7,159	($2,639)
01612400-51131	HMS-Admin-Secy 10 Mth	$42,976	$0	$42,976	$25,906	$28,928	$8,879	$5,169
01612400-51135	HMS-Admin-Clerical Xtra Time	$0	$0	$0	$538	$538	$0	($538)
01612400-54900	HMS-Classroom-Other Purch'd Svcs	$1,700	$0	$1,700	$1,621	$1,621	$0	$79
01612400-55800	HMS-Admin-Professional Devt	$1,500	$0	$1,500	$318	$318	$0	$1,182
01612400-55906	HMS-Classroom-Printing	$0	$0	$0	$0	$0	$0	$0
01612400-56110	HMS-Admin-Office Supplies	$6,750	$0	$6,750	$6,646	$6,678	$0	$72
01612400-57301	HMS-Admin-Equipment	$500	$0	$500	$26	$26	$0	$474
01612400-58900	HMS-Admin-Dues & Fees	$900	$0	$900	$845	$845	$0	$55
01613202-51116	HMS-Activities-Advisors	$40,000	$0	$40,000	$0	$38,000	$0	$2,000
01613202-53301	HMS-Activities-Police	$700	$0	$700	$0	$0	$0	$700
01613202-56119	HMS-Activities-Supplies	$3,000	$0	$3,000	$0	$0	$0	$3,000
	Total Hillcrest Middle School	**$5,699,109**	**$0**	**$5,699,109**	**$3,849,000**	**$4,307,712**	**$1,283,791**	**$107,606**
01621001-51110	MMS-Classroom-Teacher Salaries	$4,250,701	$0	$4,250,701	$2,751,968	$3,077,099	$1,038,917	$134,686
01621001-51111	MMS-Teacher Specialists	$0	$0	$0	$40,718	$46,748	$21,104	($67,852)
01621001-55500	MMS-Classroom-Interns	$48,750	$0	$48,750	$30,600	$30,600	$15,300	$2,850
01621001-56111	MMS-Classroom-Classroom Supplies	$31,500	$0	$31,500	$38,096	$38,237	$2,295	($9,032)
01621001-56411	MMS-Classroom-Text & Workbooks	$15,000	$0	$15,000	$7,396	$7,859	$710	$6,432

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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01621001-57301	MMS-Classroom-Equipment Instructional	$3,400	$0	$3,400	$3,803	$3,803	$0	($403)
01621001-57308	MMS-Classroom-Furniture	$0	$0	$0	$0	$0	$0	$0
01621016-51110	MMS-Music-Teacher Salaries	$302,714	$0	$302,714	$214,629	$239,880	$62,834	($0)
01621016-54900	MMS-Music-Other Purch'd Property Svcs	$1,000	$0	$1,000	$220	$220	$720	$60
01621016-56111	MMS-Music-Classroom Supplies	$2,475	$0	$2,475	$2,322	$2,723	$159	($407)
01621016-56411	MMS-Music-Text & Workbooks	$0	$0	$0	$0	$0	$0	$0
01621016-57301	MMS-Music-Equipment Instructional	$3,500	$0	$3,500	$2,700	$2,700	$146	$654
01621019-51110	MMS-PE/Health-Teacher Salaries	$413,343	$0	$413,343	$244,966	$273,785	$75,326	$64,232
01621019-56111	MMS-PE/Health-Classroom Supplies	$2,250	$0	$2,250	$1,992	$1,992	$0	$258
01622120-51110	MMS-Guidance-Teacher Salaries	$324,258	$0	$324,258	$208,239	$231,167	$80,250	$12,841
01622120-51131	MMS-Guidance-Secy 10 Mth	$49,820	$0	$49,820	$36,008	$39,964	$11,870	($2,014)
01622120-51135	MMS-Guidance-Clerical Xtra Time	$0	$0	$0	$144	$144	$0	($144)
01622220-51110	MMS-Library-Teacher Salaries	$116,413	$0	$116,413	$76,116	$85,071	$31,342	$0
01622220-51120	MMS-Library-Paras	$0	$0	$0	$0	$0	$0	$0
01622220-56420	MMS-Library-Books & Media	$2,250	$0	$2,250	$2,035	$2,142	$83	$25
01622220-56425	MMS-Library-Periodicals	$1,250	$0	$1,250	$1,232	$1,232	($0)	$18
01622220-56901	MMS-Library-Supplies	$1,800	$0	$1,800	$1,684	$1,716	$0	$84
01622220-57302	MMS-Library-Equipment Instructional	$1,700	$0	$1,700	$613	$613	($0)	$1,087
01622400-51110	MMS-Admin-Teacher Xtra days	$0	$0	$0	$3,156	$3,156	$0	($3,156)
01622400-51113	MMS-Admin-Principal/Asst Principal	$350,163	$0	$350,163	$285,318	$311,256	$38,907	$0
01622400-51120	MMS-Admin-Admin Para	$40,109	$0	$40,109	$8,623	$9,973	$1,500	$28,636
01622400-51130	MMS-Admin-Secy 12 Mth	$62,336	$0	$62,336	$52,787	$57,560	$7,159	($2,383)
01622400-51131	MMS-Admin-Secy 10 Mth	$49,062	$0	$49,062	$36,600	$40,116	$3,498	$5,449
01622400-51135	MMS-Admin-Clerical Xtra Time	$0	$0	$0	$295	$295	$0	($295)
01622400-54900	MMS-Classroom-Other Purch'd Svcs	$1,700	$0	$1,700	$790	$790	$435	$475
01622400-55800	MMS-Admin-Professional Devt	$1,500	$0	$1,500	$0	$0	$0	$1,500
01622400-55906	MMS-Classroom-Printing	$0	$0	$0	$0	$0	$0	$0
01622400-56110	MMS-Admin-Office Supplies	$7,650	$0	$7,650	$390	$390	$0	$7,260
01622400-57301	MMS-Admin-Equipment	$0	$0	$0	$0	$0	$0	$0
01622400-58900	MMS-Admin-Dues & Fees	$900	$0	$900	$764	$764	$0	$136
01623202-51116	MMS-Activities-Advisors	$40,000	$0	$40,000	$1,826	$1,826	$38,174	$0
01623202-53301	MMS-Activities-Police	$700	$0	$700	$304	$304	$0	$396
01623202-56119	MMS-Activities-Supplies	$2,000	$0	$2,000	$543	$977	$623	$400
	Total Madison Middle School	**$6,128,245**	**$0**	**$6,128,245**	**$4,056,876**	**$4,515,101**	**$1,431,352**	**$181,791**
01711001-51110	THS-Classroom-Teacher Salaries	$11,224,689	$0	$11,224,689	$7,406,244	$8,278,026	$2,752,440	$194,224
01711001-51111	THS-Teacher Specialists	$0	$0	$0	$78,299	$87,510	$32,241	($119,751)
01711001-54900	THS-Classroom-Other Purch'd Property Svcs	$0	$0	$0	$0	$0	$0	$0
01711001-55800	THS-Classroom-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01711001-56111	THS-Classroom-Classroom Supplies	$31,500	$0	$31,500	$30,911	$30,911	($0)	$589
01711001-57301	THS-Classroom-Equipment	$0	$0	$0	$0	$0	$0	$0
01711002-55800	THS-Art-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01711002-56112	THS-Art-Supplies	$16,740	$0	$16,740	$13,498	$14,012	$222	$2,506
01711002-57301	THS-Art-Equipment Instructional	$8,500	$0	$8,500	$3,361	$3,361	$0	$5,139
01711003-51110	THS-Admin-Detention Duty	$3,000	$0	$3,000	$1,332	$1,332	$0	$1,668
01711003-56112	THS-Business Ed-Supplies	$1,530	$0	$1,530	$1,069	$1,248	$0	$282
01711003-56411	THS-Business Ed-Text & Workbooks	$9,225	$0	$9,225	$8,485	$8,485	($0)	$740
01711003-57301	THS-Business Ed-Equipment Instructional	$0	$0	$0	$0	$0	$0	$0
01711006-51110	THS-Ag Science-Teachers Salaries	$613,002	$0	$613,002	$436,054	$481,597	$130,701	$704
01711006-51114	THS-Ag Science-Director	$80,651	$0	$80,651	$65,716	$71,690	$8,961	$0
01711006-51129	THS-Ag Science-Misc Salaries	$6,000	$0	$6,000	$3,900	$4,114	$0	$1,886
01711006-51131	THS-Ag Science-Secy 10 Mths	$37,292	$0	$37,292	$27,010	$29,977	$8,903	($1,589)
01711006-51135	THS-Ag Science-Secy Xtra Time	$0	$0	$0	$459	$459	$0	($459)
01711006-54300	THS-Ag Science-Repairs & Svc Fees	$3,000	$0	$3,000	$1,286	$2,258	$1,601	($859)
01711006-54900	THS-Ag Science-Other Purch'd Prop Svcs	$3,000	$0	$3,000	$1,269	$1,269	$0	$1,731
01711006-55809	THS-Ag Science-Transportation	$2,629	$0	$2,629	$805	$805	$0	$1,824
01711006-55906	THS-Ag Science-Printing	$1,500	$0	$1,500	$0	$0	$0	$1,500
01711006-56112	THS-Ag Science-Supplies	$27,900	$0	$27,900	$25,185	$28,463	$7,424	($7,987)
01711006-56411	THS-Ag Science-Text & Workbooks	$4,000	$0	$4,000	$0	$0	$0	$4,000
01711006-57301	THS-Ag Science-Equipment Instructional	$969	$0	$969	$7,825	$7,825	$0	($6,856)
01711006-58900	THS-Ag Science-Dues & Fees	$899	$0	$899	$535	$535	$0	$364
01711010-56112	THS-English-Supplies	$900	$0	$900	$882	$882	$0	$18
01711010-56411	THS-English-Text & Workbooks	$18,000	$0	$18,000	$17,997	$17,997	$0	$3
01711011-51110	THS-World Language-Teacher Salaries	$0	$0	$0	$782	$782	$0	($782)
01711011-55800	THS-World Language-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01711011-56112	THS-World Language-Supplies	$1,350	$0	$1,350	$896	$1,396	$182	($228)
01711011-56411	THS-World Language-Text & Workbooks	$12,500	$0	$12,500	$10,498	$10,498	($0)	$2,002
01711011-57301	THS-World Language-Equipment Instructional	$5,600	$0	$5,600	$6,380	$6,380	$0	($780)
01711013-56112	THS-Family Consumer Science-Supplies	$13,140	$0	$13,140	$9,757	$10,570	$4,075	($1,506)
01711013-56411	THS-Family Consumer Science-Text & Workbooks	$0	$0	$0	$257	$257	$0	($257)

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01711013-57301	THS-Family Consumer Science-Equipment Instructional	$3,000	$0	$3,000	$2,157	$2,157	$0	$843
01711014-54900	THS-Technology Education-Other Purch'd Prop Svcs	$0	$0	$0	$0	$0	$0	$0
01711014-56112	THS-Technology Education-Supplies	$18,900	$0	$18,900	$14,656	$14,918	$1,853	$2,129
01711014-57301	THS-Technology Education-Equipment Instructional	$2,000	$0	$2,000	$908	$908	$818	$273
01711015-56112	THS-Mathematics-Supplies	$1,395	$0	$1,395	$803	$803	$0	$592
01711015-56411	THS-Mathematics-Text & Workbooks	$15,100	$0	$15,100	$1,624	$1,624	$0	$13,476
01711016-51110	THS-Music-Teacher Salaries	$242,048	$0	$242,048	$195,495	$218,177	$56,883	($33,012)
01711016-51116	THS-Music-Directors	$0	$0	$0	$0	$0	$0	$0
01711016-53300	THS-Music-Other Professional Svcs	$47,575	$0	$47,575	$42,643	$42,753	$1,280	$3,543
01711016-54201	THS-Music-Uniform Cleaning	$1,500	$0	$1,500	$0	$0	$0	$1,500
01711016-55809	THS-Music-Transportation	$17,500	$0	$17,500	$15,165	$15,938	($0)	$1,562
01711016-56112	THS-Music-Supplies	$5,400	$0	$5,400	$5,152	$5,299	$23	$78
01711016-57301	THS-Music-Equipment Instructional	$2,500	$0	$2,500	$758	$758	$0	$1,742
01711019-51110	THS-PE/Health-Teacher Salaries	$870,251	$0	$870,251	$576,217	$643,414	$235,191	($8,354)
01711019-56112	THS-PE/Health-Supplies	$2,700	$0	$2,700	$1,986	$1,986	$0	$714
01711019-56411	THS-PE/Health-Text & Workbooks	$500	$0	$500	$0	$0	$0	$500
01711019-57301	THS-PE/Health-Equipment Instructional	$3,500	$0	$3,500	$2,487	$2,487	$145	$868
01711019-58900	THS-PE/Health-Dues & Fees	$0	$0	$0	$0	$0	$0	$0
01711022-51110	THS-Alternate School-Teachers Salaries	$405,751	$0	$405,751	$246,620	$275,371	$100,631	$29,749
01711022-51131	THS-Alternate School-Secy 10 Mths	$0	$0	$0	$0	$0	$0	$0
01711022-55809	THS-Alternate School-Field Trips	$0	$0	$0	$0	$0	$0	$0
01711022-56112	THS-Alternate School-Supplies	$450	$0	$450	$0	$0	$0	$450
01711022-56411	THS-Alternate School-Text & Workbooks	$0	$0	$0	$0	$0	$0	$0
01711027-56112	THS-Science-Supplies	$11,124	$0	$11,124	$10,685	$10,685	$0	$439
01711027-56411	THS-Science-Text & Workbooks	$9,800	$0	$9,800	$1,908	$1,908	$0	$7,892
01711027-57301	THS-Science-Equipment Instructional	$8,755	$0	$8,755	$8,076	$8,076	$0	$679
01711028-51110	THS-Admin-Teacher Xtra Tme	$0	$0	$0	$0	$0	$0	$0
01711028-56112	THS-Social Studies-Supplies	$792	$0	$792	$758	$758	$0	$34
01711028-56411	THS-Social Studies-Text & Workbooks	$12,774	$0	$12,774	$1,900	$10,363	$0	$2,411
01712120-51110	THS-Guidance-Teacher Salaries	$1,350,082	$0	$1,350,082	$955,814	$1,056,921	$312,330	($19,169)
01712120-51130	THS-Guidance-Secy 12 Mths	$178,276	$0	$178,276	$151,521	$165,268	$20,622	($7,614)
01712120-51135	THS-Guidance-Clerical Xtra Time	$0	$0	$0	$11	$11	$0	($11)
01712120-53220	THS-Guidance-Career Guidance	$920	$0	$920	$767	$767	$0	$153
01712120-56112	THS-Guidance-Supplies	$0	$0	$0	$0	$0	$0	$0
01712120-56118	THS-Guidance-Software	$0	$0	$0	$0	$0	$0	$0
01712120-56903	THS-Guidance-Testing Materials	$400	$0	$400	$0	$0	$0	$400
01712120-58900	THS-Guidance-Dues & Fees	$0	$0	$0	$0	$0	$0	$0
01712220-51110	THS-Library-Teacher Salaries	$90,927	$0	$90,927	$59,452	$66,447	$24,480	$0
01712220-51130	THS-Library-Secy 12 Mths	$0	$0	$0	$1,304	$1,304	$0	($1,304)
01712220-51131	THS-Library-Secy 10 Mths	$0	$0	$0	$0	$0	$0	$0
01712220-51135	THS-Library-Clerical Xtra Time	$0	$0	$0	$0	$0	$0	$0
01712220-56420	THS-Library-Books & Media	$7,040	$0	$7,040	$6,119	$6,119	$779	$142
01712220-56425	THS-Library-Periodicals	$2,200	$0	$2,200	$1,642	$1,642	$0	$558
01712220-56901	THS-Library-Supplies	$2,740	$0	$2,740	$2,634	$2,634	$0	$106
01712220-57302	THS-Library-Equipment Instructional	$775	$0	$775	$400	$400	$0	$375
01712220-58900	THS-Library-Dues & Fees	$0	$0	$0	$0	$0	$0	$0
01712221-56112	THS-Auditorium/Theater Tech-Supplies	$0	$0	$0	$0	$0	$0	$0
01712221-56900	THS-Auditorium/Theater Tech-Parts & Maintenance	$1,350	$0	$1,350	$0	$0	$0	$1,350
01712221-57301	THS-Auditorium/Theater Tech-Equipment Instructional	$4,000	$0	$4,000	$1,180	$1,180	$0	$2,820
01712400-51110	THS-Detention-Teacher Salaries	$0	$0	$0	$1,887	$2,331	$0	($2,331)
01712400-51113	THS-Admin-Principals	$868,490	$0	$868,490	$707,658	$771,991	$96,499	$0
01712400-51120	THS-L/W-Paras	$77,211	$0	$77,211	$61,794	$68,968	$11,033	($2,790)
01712400-51130	THS-Admin-Secy 12 Mth	$110,965	$0	$110,965	$91,981	$100,441	$12,926	($2,402)
01712400-51131	THS-Admin-Secy 10 Mth	$146,665	$0	$146,665	$109,709	$121,047	$27,018	($1,400)
01712400-51135	THS-Admin-Clerical Xtra Time	$250	$0	$250	$114	$148	$0	$102
01712400-53301	THS-Admin-Police Services	$65,000	$0	$65,000	$84,512	$93,632	$21,368	($50,000)
01712400-55800	THS-Admin-Professional Devt	$3,500	$0	$3,500	$1,915	$1,915	$0	$1,585
01712400-55901	THS-Admin-Other Purch'd Svcs	$1,750	$0	$1,750	$124	$124	$0	$1,626
01712400-55906	THS-Admin-Printing	$9,000	$0	$9,000	$5,103	$5,103	$537	$3,360
01712400-56110	THS-Admin-Office Supplies	$3,150	$0	$3,150	$3,906	$4,007	$0	($857)
01712400-56116	THS-Admin-Supplies	$6,975	$0	$6,975	$4,884	$6,953	$0	$22
01712400-56270	THS-Admin-Security Supplies	$1,500	$0	$1,500	$172	$259	$0	$1,241
01712400-56425	THS-Admin-Periodicals	$750	$0	$750	$0	$0	$0	$750
01712400-56907	THS-Admin-Graduation	$16,800	$0	$16,800	$6,811	$6,811	$16,379	($6,390)
01712400-57301	THS-Admin-Equipment	$0	$0	$0	$0	$0	$0	$0
01712400-57308	THS-Admin-Office Furniture	$0	$0	$0	$0	$0	$0	$0
01712400-58900	THS-Admin-Dues & Fees	$11,225	$0	$11,225	$11,249	$11,249	$0	($24)
01713202-51116	THS-Activities-Advisors	$128,578	$0	$128,578	$37,833	$135,159	$0	($6,581)
01713202-55807	THS-Activities-Competitions	$45,000	$0	$45,000	$40,000	$40,655	$845	$3,500
01713202-55906	THS-Activities-Printing	$500	$0	$500	$0	$0	$0	$500

Trumbull Board of Education Expense vs Budget Detail
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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01713203-56906	THS-Activities-Fees, Awards & Supplies	$1,500	$0	$1,500	$12	$12	$0	$1,488
01401000-55502	THS-Classroom-Interns	$48,750	$0	$48,750	$17,823	$17,823	$15,300	$15,627
	Total Trumbull High School	**$16,997,100**	**$0**	**$16,997,100**	**$11,659,024**	**$13,052,345**	**$3,903,692**	**$41,062**
01711019-51114	Sports-Sports General-Director	$168,163	$0	$168,163	$137,022	$149,478	$18,685	($0)
01713201-51116	Sports-Sports General-Coaches	$637,583	$0	$637,583	$398,479	$398,479	$239,104	$0
01713201-51131	Sports-Sports General-Secy 10 Mths	$49,820	$0	$49,820	$29,945	$32,884	$8,879	$8,057
01713201-51135	Sports-Sports Gen-Clerical Xtra Time	$4,500	$0	$4,500	$2,678	$2,678	$0	$1,822
01713201-51170	Sports-Athletic Game Staff	$0	$0	$0	$42,066	$49,086	$0	($49,086)
01713201-53300	Sports-Sports GeneraL-Purch'd Svcs	$282,000	$0	$282,000	$227,787	$238,922	$41,198	$1,880
01713201-53301	Athletic Student Activity-Police Services	$15,000	$0	$15,000	$11,113	$14,301	$3,187	($2,488)
01713201-54200	Sports-Sports General-Cleaning Svcs	$15,000	$0	$15,000	$14,649	$14,649	$351	($0)
01713201-55809	THS-Transportation-Sports	$130,810	$0	$130,810	$91,993	$123,671	$7,344	($205)
01713201-56112	Sports-Sports General-Supplies	$126,000	$0	$126,000	$89,146	$89,764	$33,029	$3,208
01713201-57301	Sports-Sports General-Equipment Instructional	$30,000	$0	$30,000	$25,961	$25,961	$0	$4,039
01713201-58900	Sports-Sports General-Dues & Fees	$40,000	$0	$40,000	$33,227	$34,930	$6,162	($1,092)
01723301-53300	Sports-Baseball-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723302-53300	Sports-Basketball-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723304-53300	Sports-Field Hockey-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723304-53300	Sports-Football-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723305-53300	Sports-Ice Hockey-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723306-53300	Sports-Lacrosse-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723307-53300	Sports-Soccer-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723308-53300	Sports-Swimming-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723312-53300	Sports-Wrestling-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723315-53300	Sports-Gymnastics-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723317-53300	Sports-Cross Country-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01723318-53300	Sports-Cheerleading-Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
	Total Athletics Department	**$1,498,876**	**$0**	**$1,498,876**	**$1,104,065**	**$1,174,801**	**$357,939**	**($33,864)**
01741200-51110	Continiung Ed-Classroom Instructors	$0	$0	$0	$0	$0	$0	$0
01741200-51113	Continuing Ed-Admin-Administrator	$0	$0	$0	$0	$0	$0	$0
01741200-51130	Continuing Ed-Admin-Secy	$0	$0	$0	$0	$0	$0	$0
01741200-53300	Continuing Ed-Admin-In Service	$0	$0	$0	$0	$0	$0	$0
01741200-55600	Adult Ed - Outgoing Tuition	$0	$0	$0	$0	$61,050	$0	($61,050)
01741200-55800	Continuing Ed-Admin-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01741200-55900	Continuing Ed-Other Purch'd Svcs	$61,050	$0	$61,050	$0	$0	$0	$61,050
01741200-56110	Continuing Ed-Teaching Supplies	$0	$0	$0	$0	$0	$0	$0
01741200-56117	Continuing Ed-Office Supplies	$0	$0	$0	$0	$0	$0	$0
01741200-56411	Continuing Ed-Textbooks	$0	$0	$0	$0	$0	$0	$0
01741200-58900	Cont Ed-Admin-Dues & Fees	$0	$0	$0	$0	$0	$0	$0
	Total Continuing Education Department	**$61,050**	**$0**	**$61,050**	**$0**	**$61,050**	**$0**	**$0**
01402320-51114	Human Resource Director	$130,000	$0	$130,000	$97,944	$110,167	$18,333	$1,500
01802130-55800	HR-Professional Devt	$16,550	$0	$16,550	$0	$0	$0	$16,550
01802130-55900	HR-Personnel-Other Purch'd Svcs	$115,800	$0	$115,800	$119,124	$119,124	$19,824	($23,147)
01802130-55903	Human Resources-Admin-Advertising	$1,675	$0	$1,675	$1,750	$1,750	$0	($75)
01802130-56110	Human Resources-Admin-Office Supplies	$2,925	$0	$2,925	$2,664	$2,664	$814	($553)
01802130-58900	Human Resources-Admin-Dues & Fees	$1,200	$0	$1,200	$229	$229	$0	$971
	Total Human Resources Department	**$268,150**	**$0**	**$268,150**	**$221,711**	**$233,934**	**$38,971**	**($4,755)**
01802320-51140	Facilities-Admin-Substitutes	$55,000	$0	$55,000	$31,432	$34,489	$4,000	$16,511
01802320-55800	Super-Personnel-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01822230-51125	Facilities-Admin-Director/Managers	$247,562	$0	$247,562	$203,836	$222,366	$27,796	($2,600)
01822230-51127	Facilities-D/W-Security Guards	$723,946	$0	$723,946	$562,269	$627,046	$111,928	($15,028)
01822230-51128	Facilities-D/W-Security Guards OT	$60,000	$0	$60,000	$15,273	$16,859	$0	$43,141
01822230-51130	Facilities-Admin-Secy 12 Mth	$126,517	$0	$126,517	$107,488	$117,173	$14,527	($5,183)
01822230-51135	Facilities-Admin-Clerical Xtra Time	$500	$0	$500	$208	$255	$0	$245
01822230-51141	Facilities-Admin-Manager OT	$0	$0	$0	$0	$0	$0	$0
01822230-55800	Facilities-Admin-Professional Devt	$2,000	$0	$2,000	$190	$386	$0	$1,614
01822230-55910	Facilities-Admin-Other Purch'd Svcs	$21,000	$0	$21,000	$16,451	$16,451	$0	$4,549
01822230-56110	Facilities-Admin-Office Supplies	$5,400	$0	$5,400	$1,760	$1,781	$816	$2,803
01822230-56425	Facilities-Admin-Periodicals	$350	$0	$350	$0	$0	$0	$350
01822230-57301	Facilities-Admin-Equipment	$350	$0	$350	$0	$0	$0	$350
01822230-57308	Facilities-Admin-Furniture	$0	$0	$0	$0	$0	$0	$0
01822230-58900	Facilities-Admin-Dues & Fees	$1,500	$0	$1,500	$1,130	$1,130	$0	$370
01842610-51140	Facilities-Custodial-Salaries	$2,926,013	$0	$2,926,013	$2,180,697	$2,395,769	$328,471	$201,773
01842610-51141	Facilities-Custodial-Custodial OT	$55,000	$0	$55,000	$85,378	$92,643	$0	($37,643)
01842610-51142	Facilities-Custodial-School OT	$68,000	$0	$68,000	$142,174	$154,792	$0	($86,792)
01842610-51143	Facilities-Snow Removal-Salaries	$19,000	$0	$19,000	$348	$348	$0	$18,652

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Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01842610-51145	Facilities-Custodial- Custodial Support	$8,736	$0	$8,736	$4,542	$5,214	$0	$3,522
01842610-51149	Facilities-Custodial-Custodial Night Diff	$6,900	$0	$6,900	$8,457	$9,591	$0	($2,691)
01842610-54103	Facilities-Custodial-Trash/Recycling	$50,000	$0	$50,000	$57,638	$62,980	$10,934	($23,913)
01842610-54202	Facilities-Custodial-Cleaning	$3,900	$0	$3,900	$6,228	$6,593	$774	($3,468)
01842610-54300	Facilities-Custodial-Repairs	$8,000	$0	$8,000	$10,896	$14,499	$2,821	($9,320)
01842610-55803	Facilities-Admin-Mileage	$2,500	$0	$2,500	$1,841	$1,938	$0	$562
01842610-56130	Facilities-Custodial-Supplies	$116,000	$0	$116,000	$210,757	$225,367	$59,222	($168,589)
01842610-56132	Facilities-Custodial-Supplies Replacement	$0	$0	$0	$2,576	$2,576	$424	($3,000)
01842610-57301	Facilities-Custodial-Equipment	$5,000	$0	$5,000	$0	$11,998	$0	($6,998)
01842611-54101	Facilities-D/W-Electricity	$1,034,705	$0	$1,034,705	$780,085	$850,022	$173,933	$10,750
01842611-54105	Facilities-D/W-Water	$125,000	$0	$125,000	$100,777	$110,830	$14,170	($0)
01842611-56201	Facilities-D/W-Heating Oil	$0	$0	$0	$0	$0	$0	$0
01842611-56202	Facilities-D/W-Natural Gas	$599,400	$0	$599,400	$478,832	$544,595	$30,405	$24,400
01842611-57202	Facilities-Project Improvements to Site	$0	$0	$0	$0	$0	$0	$0
01852620-51140	Facilities-Maintenance-Salaries	$801,924	$0	$801,924	$549,094	$599,308	$76,645	$125,972
01852620-51141	Facilities-Maintenance-Maint OT	$25,000	$0	$25,000	$18,640	$21,672	$0	$3,328
01852620-51142	Facilities-Maintenance-Security Checks	$0	$0	$0	$0	$0	$0	$0
01852620-51145	Facilities-Maintenance-Summer Help	$32,000	$0	$32,000	$26,880	$26,880	$0	$5,121
01852622-54300	Facilities-Snow Removal-Repairs & Svc Fees	$10,000	$0	$10,000	$0	$0	$0	$10,000
01852622-56134	Facilities-Snow Removal-Supplies	$9,000	$0	$9,000	$6,482	$6,482	$318	$2,200
01852622-57307	Facilities-Snow Removal-Equipment	$5,000	$0	$5,000	$2,999	$2,999	$0	$2,001
01852623-54300	Facilities-Vehicles-Repairs & Svc Fees	$10,000	$0	$10,000	$1,646	$2,119	$0	$7,881
01852623-56133	Facilities-Vehicles-Gas/Diesel	$30,000	$0	$30,000	$37,494	$41,112	$6,137	($17,249)
01852623-56134	Facilities-Vehicles-Supplies	$15,000	$0	$15,000	$13,144	$14,552	$4,585	($4,138)
01852623-57307	Facilities-Vehicles-Equipment	$1,000	$0	$1,000	$1,867	$1,883	$0	($883)
01852625-54300	Facilities-Grounds-Repairs & Svc Fees	$8,000	$0	$8,000	$4,820	$4,820	$1,065	$2,115
01852625-56134	Facilities-Grounds-Supplies	$10,000	$0	$10,000	$6,432	$7,265	$17,290	($14,555)
01852625-56900	Fences/Playground-Supplies	$0	$0	$0	$0	$0	$0	$0
01852625-57307	Facilities-Grounds-Equipment	$20,000	$0	$20,000	$6,660	$6,660	$0	$13,340
01852626-56134	Facilities-Fertilizer	$0	$0	$0	$0	$0	$0	$0
01852627-54300	Facilities-Lawn Care-Repairs & Svc Fees	$5,000	$0	$5,000	$8,800	$8,800	$679	($4,479)
01852627-56134	Facilities-Lawn Care-Supplies	$5,000	$0	$5,000	$8,701	$8,956	$1,899	($5,855)
01852627-57307	Facilities-Lawn Care-Equipment	$20,000	$0	$20,000	$0	$0	$0	$20,000
01852628-56134	Facilities-Paving-Supplies	$0	$0	$0	$20,243	$20,243	$0	($20,243)
01852631-54300	Facilities-Maintenance-Repairs & Svc Fees	$45,000	$0	$45,000	$41,219	$52,647	$28,183	($35,830)
01852631-54301	Facilities-Maint-Oth Prof Purch'd Svcs	$30,000	$0	$30,000	$19,456	$19,456	$10,794	($250)
01852631-56134	Facilities-Maintenance-Supplies	$2,000	$0	$2,000	$1,576	$1,576	$0	$424
01852632-54300	Facilities-Inside Maint-Repairs & Svcs Fees	$10,000	$0	$10,000	$1,550	$1,550	$0	$8,450
01852632-55910	Facilities-Inside Maint-Other Purch'd Svcs	$0	$0	$0	$0	$0	$0	$0
01852632-56134	Facilities-Inside Maintenance-Supplies	$30,000	$0	$30,000	$19,516	$21,721	$5,378	$2,902
01852632-57307	Facilities-Inside Maintenance-Equipment	$1,000	$0	$1,000	$0	$0	$0	$1,000
01852633-54300	Facilities-Electrical-Repairs & Svc Fees	$50,000	$0	$50,000	$27,581	$29,229	$316	$20,455
01852633-54301	Facilities-Security-Service Contracts	$0	$0	$0	$0	$0	$0	$0
01852633-54301	Facilities-Elevator-Oth Prof Purch'd Svcs	$1,000	$0	$1,000	$0	$0	$0	$1,000
01852633-56134	Facilities-Electrical-Supplies	$33,500	$0	$33,500	$17,052	$20,448	$11,418	$1,634
01852633-57306	FacilitiesPlantBldg-Electrical-Equipment	$0	$0	$0	$6,889	$6,889	$780	($7,669)
01852633-57307	Facilities-Electrical-Equipment	$0	$0	$0	$0	$0	$0	$0
01852634-54300	Facilities-Fire Protection-Repairs & Svc Fees	$20,000	$0	$20,000	$18,013	$18,013	$4,995	($3,008)
01852634-56134	Facilities-Fire Prot-Supplies	$0	$0	$0	$0	$0	$0	$0
01852635-54300	Facilities-Floor-Repairs & Svc Fees	$40,000	$0	$40,000	$34,469	$34,469	$11,005	($5,474)
01852635-56134	Facilities-Floor Repair-Supplies	$5,000	$0	$5,000	$525	$525	$1,974	$2,501
01852636-56900	Facilities-Furniture Repairs-Supplies	$0	$0	$0	$0	$0	$0	$0
01852637-54300	Facilities-Glass-Repairs & Svc Fees	$5,000	$0	$5,000	$6,414	$7,109	$2,091	($4,200)
01852637-56134	Facilities-Glass-Supplies	$1,000	$0	$1,000	$0	$0	$0	$1,000
01852638-54300	Facilities-Hardware-Repairs & Svc Fees	$0	$0	$0	$0	$0	$2,649	($2,649)
01852638-56134	Facilities-Hardware-Supplies	$5,000	$0	$5,000	$6,763	$7,381	$2,303	($4,684)
01852639-54300	Facilities-HVAC-Repairs & Svc Fees	$100,000	$0	$100,000	$111,591	$151,529	$17,301	($68,830)
01852639-56134	Facilities-HVAC-Supplies	$55,000	$0	$55,000	$30,685	$32,566	$6,782	$15,652
01852639-57307	Facilities-HVAC-Equipment	$25,000	$0	$25,000	$0	$0	$0	$25,000
01852641-56134	Facilities-Masonry-Supplies	$0	$0	$0	$0	$0	$0	$0
01852642-54300	Facilities-Painting-Repairs & Svc Fees	$10,000	$0	$10,000	$0	$0	$0	$10,000
01852642-56134	Facilities-Painting-Supplies	$5,000	$0	$5,000	$6,660	$6,660	$1,944	($3,605)
01852643-54300	Facilities-Equipment-Repairs & Svc Fees	$0	$0	$0	$12,162	$12,162	$3,068	($15,230)
01852643-56134	Facilities-Plant Eqiuip-Supplies	$0	$0	$0	$0	$0	$0	$0
01852643-57307	Facilities-Plant-Equipment	$0	$0	$0	$0	$0	$0	$0
01852644-54300	Facilities-Plumbing-Repairs & Svc Fees	$10,000	$0	$10,000	$8,199	$9,774	$1,780	($1,554)
01852644-56134	Facilities-Plumbing-Supplies	$35,000	$0	$35,000	$28,843	$31,432	$3,040	$528
01852644-57307	Facilities-Plumbing-Equipment	$1,000	$0	$1,000	$540	$540	$0	$460
01852645-54300	Facilities-Roofing-Repairs & Svc Fees	$40,000	$0	$40,000	$75,727	$77,602	$1,217	($38,819)
01852645-56134	Facilities-Roofing-Supplies	$0	$0	$0	$0	$0	$0	$0

Trumbull Board of Education Expense vs Budget Detail
By Location
Report for the Period Ended 5/31/2023

Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01852646-54300	Facilities-Pest Control-Repairs & Svc Fees	$10,000	$0	$10,000	$7,865	$8,710	$1,290	$0
01852646-56134	Facilities-Pest Control-Supplies	$1,000	$0	$1,000	$0	$0	$0	$1,000
01852647-53300	Facilities-Bldg Improvement-Oth Prof Svcs	$3,000	$0	$3,000	$0	$1,388	$762	$850
01852647-54300	Facilities-Bldg Improve-Repairs & Svc Fees	$10,000	$0	$10,000	$101,063	$107,488	$9,424	($106,912)
01852648-54300	Facilities-IAQ-Repairs & Svc Fees	$15,000	$0	$15,000	$15,646	$15,646	$3,500	($4,146)
01852648-56134	Facilities-Indoor Air Quality-IAQ-Supplies	$10,000	$0	$10,000	$18,419	$18,419	$1,087	($9,506)
01852648-57307	Facilities-IAQ-Equipment	$5,000	$0	$5,000	$0	$0	$0	$5,000
01852649-54300	Facilities-Welding-Repairs & Svc Fees	$0	$0	$0	$0	$0	$0	$0
01852649-56134	Facilities-Welding-Supplies	$0	$0	$0	$1,101	$1,446	$204	($1,650)
01852650-57200	Facilities-Site-Building Improvement	$15,000	$0	$15,000	$8,100	$8,910	$810	$5,280
01852650-57202	Facilities-Site-Building Improvement	$0	$0	$0	$0	$0	$0	$0
01852651-57100	Facilities-Building Improvement	$0	$0	$0	$4,780	$4,860	$195	($5,055)
01852651-57102	Facilities-Building Improvement-Other	$0	$0	$0	$0	$0	$0	$0
01852651-57202	Facilities-Building Improvement-Projects	$30,000	$0	$30,000	$285	$285	$0	$29,715
01852651-57301	Facilities-Building Improvement-Furniture	$0	$0	$0	$0	$0	$0	$0
01852654-57340	Facilities-Maintenance-Vehicle	$0	$0	$0	$0	$0	$0	$0
	Total Facilities Department	**$7,937,704**	**$0**	**$7,937,704**	**$6,357,851**	**$7,011,870**	**$1,023,132**	**($97,298)**
01882700-51125	Trans-Admin-Manager	$74,589	$0	$74,589	$60,776	$66,301	$8,288	$0
01882700-51130	Trans-Admin-Secy 12 Mth	$106,417	$0	$106,417	$89,982	$98,673	$12,272	($4,527)
01882700-51131	Trans-Admin-Secy 10 Mth	$0	$0	$0	$0	$0	$0	$0
01882700-51135	Trans-Admin-Clerical Xtra Time	$3,890	$0	$3,890	$5,768	$6,265	$0	($2,375)
01882700-53300	Transportation-Professional Svcs	$0	$0	$0	$13,500	$13,500	$1,500	($15,000)
01882700-53303	Trans-Admin-Software Support	$7,000	$0	$7,000	$7,670	$7,670	$0	($670)
01882700-54900	Trans-Admin-Purch'd Property Svcs	$500	$0	$500	$165	$165	$0	$335
01882700-55101	Trans-Admin-Reg Buses	$3,533,461	$0	$3,533,461	$2,649,887	$2,928,128	$564,002	$41,331
01882700-55102	Trans-Admin-ACE Trips	$3,000	$0	$3,000	$0	$0	$0	$3,000
01882700-55105	Trans-Admin-SPED-Summer Buses	$237,280	$0	$237,280	$273,859	$273,859	$0	($36,579)
01882700-55109	Trans-Admin-Fuel	$344,300	$0	$344,300	$351,027	$401,521	$10,831	($68,051)
01882700-55800	Trans-Admin-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01882700-55809	Trans-Admin-Field Trips	$8,000	$0	$8,000	$474	$1,017	$6,983	$0
01882700-56110	Transportation-Office Supplies	$3,600	$0	$3,600	$858	$858	$2,742	$0
01882700-56270	Transportation-Bus Supplies	$0	$0	$0	$0	$0	$0	$0
01882700-56425	Trans-Admin-Periodicals	$0	$0	$0	$0	$0	$0	$0
01882700-58900	Trans-Admin-Dues & Fees	$375	$0	$375	$450	$450	$0	($75)
01882701-55101	Trans-Admin-SPED In District	$1,389,649	$0	$1,389,649	$1,214,745	$1,343,583	$305,534	($259,469)
01882701-55105	Trans-Admin-SPED Out of District	$770,100	$0	$770,100	$692,135	$740,179	$119,531	($89,610)
01882701-55108	Trans-Admin-Monitors	$263,000	$0	$263,000	$156,432	$176,736	$52,264	$34,000
	Total Transportation Department	**$6,745,162**	**$0**	**$6,745,162**	**$5,517,728**	**$6,058,906**	**$1,083,946**	**($397,690)**
01902310-51136	Super-BOE-Secy-BOE Mtgs	$4,000	$0	$4,000	$2,450	$2,800	$0	$1,200
01902310-53300	Super-BOE-Professional Services	$24,000	$0	$24,000	$25,242	$25,278	$2,521	($3,798)
01902310-53308	Super-BOE-Legal-Reg Ed	$110,000	$0	$110,000	$72,503	$75,698	$14,627	$19,675
01902310-55800	Super-BOE-Professional Devt	$1,400	$0	$1,400	$0	$0	$1,200	$200
01902310-56425	Super-BOE-Periodicals	$0	$0	$0	$0	$0	$0	$0
01902320-51115	Super-Admin-Superintendent	$262,679	$0	$262,679	$222,932	$243,199	$30,400	($10,920)
01902320-51130	Super-Admin-Support Staff	$156,298	$0	$156,298	$130,044	$141,784	$17,609	($3,095)
01902320-51135	Super-Admin-Clerical Xtra Time	$0	$0	$0	$93	$104	$0	($104)
01902320-54409	D/W-Admin-Copiers	$0	$0	$0	$6,148	$6,591	$3,409	($10,000)
01902320-55800	Super-Admin-Professional Devt	$5,000	$0	$5,000	$5,549	$5,549	($0)	($549)
01902320-55900	Super-Admin-Postage	$46,000	$0	$46,000	$28,076	$30,022	$7,343	$8,635
01902320-55905	Super-Admin-Printing	$550	$0	$550	$0	$180	$0	$370
01902320-56110	Super-Admin-Office Supplies	$5,400	$0	$5,400	$3,488	$4,214	$1,176	$10
01902320-56425	Super- Admin-Periodicals	$700	$0	$700	$527	$630	$0	$70
01902320-58900	Super-Admin-Dues & Fees	$21,700	$0	$21,700	$19,769	$21,665	$422	($387)
01802320-51113	Substitute Administrators	$0	$0	$0	$0	$0	$0	$0
01802320-51115	Super-Personnel-Support Staff	$173,320	$0	$173,320	$141,409	$154,174	$19,147	($0)
01802320-51117	Substitute Teachers	$684,900	$0	$684,900	$758,866	$898,206	$145,000	($358,306)
01802320-51119	Super-Personnel-Teacher Xtra Time	$0	$0	$0	$2,736	$2,736	$0	($2,736)
01802320-51127	Substitute-Security Guards	$0	$0	$0	$40,220	$48,027	$0	($48,027)
01802320-51129	Substitute Paraprofessionals	$95,000	$0	$95,000	$163,364	$188,682	$50,000	($143,682)
01802320-51131	Super-Personnel-Support Staff-10 Mth	$44,529	$0	$44,529	$32,151	$35,724	$10,717	($1,911)
01802320-51135	Super-Personnel-Clerical Xtra Time	$0	$0	$0	$3,557	$3,996	$0	($3,996)
01802320-51139	Substitute Secretaries	$0	$0	$0	$20,534	$23,480	$0	($23,480)
	Total Superintendent Department	**$1,635,477**	**$0**	**$1,635,477**	**$1,679,659**	**$1,912,738**	**$303,571**	**($580,832)**
01912520-51113	Bus Off-Admin-Business Administrator	$172,890	$0	$172,890	$143,690	$156,753	$19,594	($3,457)
01912520-51129	Bus Off-Admin-Acctg Manager	$88,623	$0	$88,623	$72,211	$78,776	$9,847	($0)
01912520-51130	Bus Off-Admin-Support 12 Mth	$288,532	$0	$288,532	$243,714	$265,729	$33,022	($10,219)
01912520-51135	Bus Off-Admin-Support-Clerical Xtra Time	$1,500	$0	$1,500	$7,182	$7,902	$0	($6,402)

Trumbull Board of Education Expense vs Budget Detail
By Location
Report for the Period Ended 5/31/2023

Account #	Account Description	Budget Original	Budget Transfers	Budget Revised	April Expended	May Expended	Committed/ Estimates	Available/ (Over)
01912520-51196	D/W-Admin-Retirement/LOA Savings	($350,000)	$0	($350,000)	$0	$0	$0	($350,000)
01912520-51197	D/W-Admin-Degree Changes	$70,000	$0	$70,000	$0	$0	$0	$70,000
01912520-51198	D/W-Admin-Retiree Payments	$300,000	$0	$300,000	$270,920	$270,920	$0	$29,080
01912520-51199	D/W-Admin-Reserve For Negotiations	$98,000	$0	$98,000	$0	$0	$0	$98,000
01912520-52001	Benefits-FICA	$1,932,381	$0	$1,932,381	$1,412,298	$1,563,970	$303,343	$65,068
01912520-52002	Benefits-Health & Dental	$17,401,837	$0	$17,401,837	$18,639,199	$20,516,462	$1,914,884	($5,029,509)
01912520-52003	D/W-Admin-Medical Waiver	$200,000	$0	$200,000	$167,671	$167,567	$32,329	$104
01912520-52004	Benefits-Disability Insurance	$22,000	$0	$22,000	$18,924	$20,796	$2,097	($893)
01912520-52005	Benefits-Life Insurance	$117,000	$0	$117,000	$91,925	$101,222	$9,983	$5,796
01912520-52006	D/W-Admin-Unemployment	$50,000	$0	$50,000	$5,762	$5,765	$4,000	$40,235
01912520-52008	Benefits-Administrative Fees	$18,000	$0	$18,000	$18,387	$19,317	$941	($2,257)
01912520-52010	Benefits-TBOE 401a Contribution	$180,000	$0	$180,000	$233,920	$258,506	$36,878	($115,384)
01912520-52011	Benefits-Health Premium Share - Medical	$0	$0	$0	($3,979,647)	($4,379,017)	($395,738)	$4,774,754
01912520-52012	Benefits-Health Premium Share - Dental	$0	$0	$0	($241,308)	($265,159)	($25,239)	$290,397
01912520-53300	Bus Off-Admin-Professional Svcs	$500	$0	$500	$0	$0	$0	$500
01912520-53310	Bus Off-Admin-Athletic Insurance	$92,000	$0	$92,000	$92,602	$92,602	$0	($602)
01912520-55800	Bus Off-Admin-Professional Devt	$0	$0	$0	$0	$0	$0	$0
01912520-55903	Bus Off-Admin-Advertising	$1,300	$0	$1,300	$0	$0	$0	$1,300
01912520-56110	Bus Off-Admin-Office Supplies	$3,600	$0	$3,600	$8,423	$10,336	$127	($6,863)
01912520-58310	Redemption of Principal on Loans	$335,343	$0	$335,343	$166,734	$335,343	$0	$0
01912520-58320	Interest on Loans	$88,196	$0	$88,196	$45,036	$88,196	$0	($0)
01912520-58900	Bus Off-Admin-Dues & Fees	$7,132	$0	$7,132	$3,796	$3,796	$0	$3,336
01912520-58904	D/W-Admin-Bad Debt Expense	$1,000	$0	$1,000	$0	$0	$0	$1,000
01912520-59000	Bus Office-Admin-Anticipated Surplus	$0	$0	$0	$0	$0	$0	$0
01912520-59001	Bus Office-Intergovernmental transfer	($466,300)	$0	($466,300)	$0	$0	$0	($466,300)
01922530-53301	Bus Off-Admin-Prof Purch'd Svcs	$82,000	$0	$82,000	$83,202	$83,278	$0	($1,278)
01922530-53304	Bus Off-Admin-Training	$0	$0	$0	$7,200	$7,200	$0	($7,200)
	Total Business Department	**$20,735,534**	**$0**	**$20,735,534**	**$17,511,841**	**$19,410,260**	**$1,946,070**	**($620,796)**
	Grand Total by Location	**$115,915,558**	**$0**	**$115,915,558**	**$87,221,421**	**$96,409,484**	**$19,651,316**	**($145,242)**

FOR 2023 11

	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
51111 TEACHERS-SPECIALISTS							
09006001 51111 NP Teach	0	110,000	110,000	81,207.52	29,918.56	-1,126.08	101.0%
TOTAL TEACHERS-SPECIALISTS	0	110,000	110,000	81,207.52	29,918.56	-1,126.08	101.0%
TOTAL EXPENSES	0	110,000	110,000	81,207.52	29,918.56	-1,126.08	
51125 ADMINISTRATOR							
09007001 51125 NP Admin	0	15,499	15,499	13,776.96	1,722.12	-.08	100.0%
TOTAL ADMINISTRATOR	0	15,499	15,499	13,776.96	1,722.12	-.08	100.0%
TOTAL EXPENSES	0	15,499	15,499	13,776.96	1,722.12	-.08	
51130 SECRETARY-CAL YR							
09007001 51130 SEC-CALYR	0	15,970	15,970	14,180.12	1,761.27	28.61	99.8%
TOTAL SECRETARY-CAL YR	0	15,970	15,970	14,180.12	1,761.27	28.61	99.8%
TOTAL EXPENSES	0	15,970	15,970	14,180.12	1,761.27	28.61	
51140 CUST./MAINT. - REGULAR PAY							
09005000 51140 CUST.MAINT	0	25,000	25,000	.00	.00	25,000.00	.0%
09006200 51140 POOLMAN	0	60,000	60,000	464.16	.00	59,535.84	.8%
TOTAL CUST./MAINT. - REGULAR PAY	0	85,000	85,000	464.16	.00	84,535.84	.5%
TOTAL EXPENSES	0	85,000	85,000	464.16	.00	84,535.84	
51141 CUST./MAINT. - OT - SCHOOL							
09005000 51141 OT/SCHOOLS	0	100,000	100,000	46,880.03	.00	53,119.97	46.9%
09005000 51141 COVID OT/SCHOOLS	0	1,000	1,000	.00	.00	1,000.00	.0%
TOTAL CUST./MAINT. - OT - SCHOOL	0	101,000	101,000	46,880.03	.00	54,119.97	46.4%
TOTAL EXPENSES	0	101,000	101,000	46,880.03	.00	54,119.97	

FOR 2023 11

53302 Other Prof Services	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
53302 Other Prof Services							
09006200 53302 Emer	0	500	500	.00	.00	500.00	.0%
TOTAL Other Prof Services	0	500	500	.00	.00	500.00	.0%
TOTAL EXPENSES	0	500	500	.00	.00	500.00	
54101 UTILITY EXPENSE - ELECTRICITY							
09002611 54101 Electricit	0	24,000	24,000	22,000.00	.00	2,000.00	91.7%
TOTAL UTILITY EXPENSE - ELECTRICITY	0	24,000	24,000	22,000.00	.00	2,000.00	91.7%
TOTAL EXPENSES	0	24,000	24,000	22,000.00	.00	2,000.00	
55102 Ace/Bei/THSJobShadow							
09007001 55102 NP Bus	0	937,579	937,579	788,915.49	179,794.50	-31,130.99	103.3%
TOTAL Ace/Bei/THSJobShadow	0	937,579	937,579	788,915.49	179,794.50	-31,130.99	103.3%
TOTAL EXPENSES	0	937,579	937,579	788,915.49	179,794.50	-31,130.99	
56136 SUPPLIES - OTHER PROJECTS							
09006200 56136 OTH PROJ	0	15,000	15,000	.00	.00	15,000.00	.0%
TOTAL SUPPLIES - OTHER PROJECTS	0	15,000	15,000	.00	.00	15,000.00	.0%
TOTAL EXPENSES	0	15,000	15,000	.00	.00	15,000.00	
GRAND TOTAL	0	1,304,548	1,304,548	967,424.28	213,196.45	123,927.27	90.5%

** END OF REPORT - Generated by Peg Brindisi **

ACCOUNT ACCOUNT NAME	BEG. BALANCE	DEBITS	CREDITS	NET CHANGE	END BALANCE
100 10410 SA CASH ACCT - M&T BANK	457,956.90	97,291.57	143,469.17	-46,177.60	411,779.30
100 11130 ACCTS RECEIVABLE	3,796.49	314.36	3,694.49	-3,380.13	416.36
100 20032 THS Model Congress	121.20	.00	.00	.00	121.20
100 20063 THS WELLNESS CENTER	-150.00	.00	.00	.00	-150.00
100 20068 MATH HONOR SOCIETY	-2,007.64	.00	.00	.00	-2,007.64
100 20082 THS ORCHESTRA	-535.60	.00	.00	.00	-535.60
100 20101 THS LIBRARY CLUB	-3,906.61	.00	172.00	-172.00	-4,078.61
100 20110 THS Pink Ribbon	-1,357.00	.00	.00	.00	-1,357.00
100 20130 THS BOOK STORE	-1,023.97	616.74	.00	616.74	-407.23
100 20133 THS NEWSPAPER	-308.01	.00	.00	.00	-308.01
100 20139 THS TRILLIUM YEARBOOK	-20,258.13	.00	60.00	-60.00	-20,318.13
100 20152 HILLCREST MIDDLE SCHOOL	-21,867.79	16,610.38	25,962.72	-9,352.34	-31,220.13
100 20156 MADISON MIDDLE SCHOOL	-18,765.50	13,189.33	19,470.08	-6,280.75	-25,046.25
100 20165 THS Class of 2018	-8,098.26	.00	.00	.00	-8,098.26
100 20166 THS Class of 2019	-2,291.64	.00	.00	.00	-2,291.64
100 20167 THS Class of 2020	-13,251.30	.00	.00	.00	-13,251.30
100 20168 THS Class of 2021	-1,815.58	.00	.00	.00	-1,815.58
100 20169 THS Class of 2022	-7,521.20	.00	.00	.00	-7,521.20
100 20170 THS Class of 2023	-83,622.66	68,403.27	3,015.00	65,388.27	-18,234.39
100 20171 THS Class of 2024	-14,683.73	.00	.00	.00	-14,683.73
100 20172 THS Class of 2025	-7,388.09	793.48	.00	793.48	-6,594.61
100 20173 THS Class of 2026	-1,700.00	700.00	.00	700.00	-1,000.00
100 20174 THS Class of 2027	.00	.00	1,000.00	-1,000.00	-1,000.00
100 20180 THS VOAG FUTURE FARMERS	-1,391.69	.00	.00	.00	-1,391.69
100 20190 THS VOAG FARM	-22,876.82	1,275.84	8,611.50	-7,335.66	-30,212.48
100 20251 BOOTH HILL SCHOOL	-4,274.42	976.87	7,726.83	-6,749.96	-11,024.38
100 20252					

ACCOUNT ACCOUNT NAME	BEG. BALANCE	DEBITS	CREDITS	NET CHANGE	END BALANCE
FRENCHTOWN SCHOOL 100 20253	-4,154.82	4,364.80	499.81	3,864.99	-289.83
DANIELS FARM 100 20254	-3,800.45	1,408.00	4,323.67	-2,915.67	-6,716.12
MIDDLEBROOK SCHOOL 100 20255	-5,933.21	30.41	2,068.00	-2,037.59	-7,970.80
JANE RYAN SCHOOL 100 20258	-244.84	1,775.00	4,844.81	-3,069.81	-3,314.65
TASHUA SCHOOL 100 20259	-7,145.15	3,428.20	2,386.50	1,041.70	-6,103.45
TECEC Student Activity 100 20510	-432.65	200.00	.00	200.00	-232.65
THS STUDENT COUNCIL 100 20550	-4,284.05	426.49	.00	426.49	-3,857.56
GENERAL FUND 100 20599	-5,524.05	.00	304.00	-304.00	-5,828.05
THS HISTORY HONOR SOCIETY 100 20603	-460.91	348.00	.00	348.00	-112.91
THS DECA (MARKETING EDUCATION) 100 20604	-7,331.44	3,461.29	1,747.00	1,714.29	-5,617.15
THS BAND 100 20605	-967.02	.00	.00	.00	-967.02
THS KEY CLUB 100 20606	-477.26	.00	.00	.00	-477.26
THS BEST BUDDIES 100 20607	-1,049.52	.00	.00	.00	-1,049.52
THS HOME ECON. CLUB 100 20608	-2.23	.00	.00	.00	-2.23
THS LOST TEXTBOOKS 100 20609	-7,159.80	.00	141.99	-141.99	-7,301.79
THS Creative Minds 100 20611	-2,572.87	.00	.00	.00	-2,572.87
THS ACADEMIC DECATHLON 100 20613	-1,843.56	.00	.00	.00	-1,843.56
THS LATIN CLUB 100 20614	-691.83	615.30	152.00	463.30	-228.53
THS CHORAL GROUP 100 20615	-4,909.25	.00	.00	.00	-4,909.25
THS ITALIAN CLUB 100 20617	-924.65	300.00	.00	300.00	-624.65
THS FUTURE BUSINESS LEADERS 100 20619	-2,658.76	2,050.00	.00	2,050.00	-608.76
FRENCH HONOR SOCIETY 100 20620	-396.00	.00	.00	.00	-396.00
THS FRENCH CLUB 100 20621	-877.64	158.75	.00	158.75	-718.89
THS MISCELLANEOUS 100 20622	-1,041.89	410.93	46.87	364.06	-677.83
THS IN/OUT 100 20624	-2,502.82	144.00	5,329.00	-5,185.00	-7,687.82
THS SPANISH CLUB 100 20625	-512.97	50.00	.00	50.00	-462.97
THS SODA MACHINE	-1,001.27	.00	55.93	-55.93	-1,057.20

ACCOUNT ACCOUNT NAME	BEG. BALANCE	DEBITS	CREDITS	NET CHANGE	END BALANCE
100 20627 THS World Lang.HONOR SOCIETIES	-2,413.41	265.00	816.00	-551.00	-2,964.41
100 20628 THS A.V. CLUB	-11.13	.00	.00	.00	-11.13
100 20629 THS SUNSHINE FUND	-539.38	.00	.00	.00	-539.38
100 20630 THS SKI CLUB	-58.33	.00	.00	.00	-58.33
100 20631 THS SOAR Enterprises	-3,604.07	257.76	.00	257.76	-3,346.31
100 20633 THS WE THE PEOPLE	-70.04	.00	.00	.00	-70.04
100 20637 THS Ethics Club	177.95	.00	.00	.00	177.95
100 20639 THS MODEL U.N. CLUB	-2,257.54	.00	.00	.00	-2,257.54
100 20640 THS INTERACT CLUB	-1,726.04	1,778.77	109.97	1,668.80	-57.24
100 20641 THS THESPIAN SOCIETY	-8,372.52	129.00	1,000.00	-871.00	-9,243.52
100 20642 THS Youth to Youth	-410.62	.00	.00	.00	-410.62
100 20643 THS GRADUATION-CAP & GOWNS	-32,282.98	15,983.00	70.00	15,913.00	-16,369.98
100 20644 THS ROBOTICS CLUB	-2,962.94	2,387.32	.00	2,387.32	-575.62
100 20645 THS LINK CREW LEADERS	-16,355.34	1,981.00	700.00	1,281.00	-15,074.34
100 20646 THS CHEERLEADING	702.00	.00	.00	.00	702.00
100 20647 THS FASHION CLUB	-390.12	.00	.00	.00	-390.12
100 20648 THS Shades Club	-1,710.59	.00	.00	.00	-1,710.59
100 20649 THS Dance Team	-5,790.47	3,071.77	.00	3,071.77	-2,718.70
100 20650 THS Geography Club	-600.00	.00	.00	.00	-600.00
100 20702 THS PEER LEADERS	-308.03	.00	.00	.00	-308.03
100 20703 THS PEER MEDIATION CLUB	-3,498.74	.00	.00	.00	-3,498.74
100 20704 THS BOYS TENNIS	-541.09	273.08	2,348.90	-2,075.82	-2,616.91
100 20706 THS NATIONAL ENGLISH HONOR SOC	-2,968.75	754.00	.00	754.00	-2,214.75
100 20707 THS NATIONAL HONOR SOCIETY	-1,801.53	140.00	.00	140.00	-1,661.53
100 20708 THS POETRY	-55.40	.00	.00	.00	-55.40
100 20709 THS ALT METHODS OF PYMNT	37.77	.00	.00	.00	37.77
100 20710					

ACCOUNT ACCOUNT NAME	BEG. BALANCE	DEBITS	CREDITS	NET CHANGE	END BALANCE
THS GIRLS BASKETBALL 100 20711	-839.28	42.50	.00	42.50	-796.78
THS BOYS BASKETBALL 100 20712	-40.27	.00	.00	.00	-40.27
THS GLOW CLUB 100 20713	-83.00	.00	.00	.00	-83.00
THS GRAPHIC DESIGN 100 20714	-214.00	.00	.00	.00	-214.00
THS GYMNASTICS 100 20715	622.99	2,432.48	2,330.50	101.98	724.97
THS BUS.ED.ENTREPRENEUR 100 20718	-961.85	974.25	776.00	198.25	-763.60
THS GIRLS CROSS COUNTRY 100 20719	-22.25	.00	.00	.00	-22.25
THS GOLF 100 20726	-566.95	.00	.00	.00	-566.95
THS GIRLS INDOOR TRACK 100 20727	177.98	.00	.00	.00	177.98
THS BOYS INDOOR TRACK 100 20728	-2,276.96	.00	.00	.00	-2,276.96
THS MOCK TRIAL 100 20732	-161.46	.00	.00	.00	-161.46
THS GIRLS OUTDOOR TRACK 100 20733	-1,269.74	.00	.00	.00	-1,269.74
THS GIRLS TENNIS 100 20736	-150.57	905.91	.00	905.91	755.34
THS Allies for Angles 100 20737	-1,570.20	.00	.00	.00	-1,570.20
THS Science Honor Society 100 20738	-894.86	.00	.00	.00	-894.86
THS SEAL OF BILITERACY 100 20741	-891.00	770.50	78.00	692.50	-198.50
THS Save Promise Club 100 20810	-450.00	.00	.00	.00	-450.00
Trumbull Football Alumni Assoc 100 24004	-1,000.00	.00	.00	.00	-1,000.00
Due to Fund 001/Town 100 24008	-52,596.28	.00	7,072.61	-7,072.61	-59,668.89
Due to Fund 205/BOE Programs 100 29280	-2,879.00	.00	1,106.00	-1,106.00	-3,985.00
ACCOUNTS PAYABLE	.00	149,173.53	149,173.53	.00	.00
TOTALS FOR FUND 100 STUDENT ACTIVITY FUND	.00	400,662.88	400,662.88	.00	.00

FUND 100

ACCOUNT ACCOUNT NAME	BEG. BALANCE	DEBITS	CREDITS	NET CHANGE	END BALANCE
REPORT TOTALS	.00	400,662.88	400,662.88	.00	

YEAR-TO-DATE BUDGET REPORT

FOR 2023 11

	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
2009010 IDEA-611 20977	0	1,667,031	1,667,031	1,142,018.54	300,704.91	224,307.55	86.5%
2009011 IDEA-611 NP 20977	0	98,778	98,778	29,105.63	10,723.14	58,949.07	40.3%
2009063 CT SEDS Grant	0	30,000	30,000	8,500.00	.00	21,500.00	28.3%
2009065 CT SEDS Grant Non Public	0	1,000	1,000	.00	.00	1,000.00	.0%
2009080 TITLE III-A 20868	0	63,221	63,221	35,408.17	19,003.44	8,809.32	86.1%
2009081 TITLE III-A NP	0	7,065	7,065	279.00	.00	6,786.38	3.9%
2009112 ESSER NonPublic 9.30.22	0	16,733	16,733	16,073.87	.00	658.84	96.1%
2009118 ESSER II-$25K SERA 6.30.23	0	14,961	14,961	10,684.91	4,276.56	.00	100.0%
2009119 ESSER II-SERA 6.30.23	0	65,723	65,723	58,217.47	7,450.00	55.90	99.9%
2009120 ESSER II 9.30.23	0	117,110	117,110	92,962.42	24,146.99	.93	100.0%
2009121 ESSER ARP 9.30.24	0	1,243,029	1,243,029	543,719.71	151,008.11	548,301.18	55.9%
2009124 ARP IDEA 611 6.30.23	0	298,209	298,209	274,544.55	23,646.26	17.86	100.0%
2009125 ARP IDEA 619 6.30.23	0	17,351	17,351	17,351.00	.00	.00	100.0%
2009126 ARP IDEA 611 Private School	0	14,704	14,704	10,747.44	3,956.78	.00	100.0%
2009140 TITLE I 20679	0	281,509	281,509	171,189.03	66,497.74	43,822.16	84.4%
2009141 TITLE I NP	0	3,966	3,966	.00	.00	3,966.24	.0%
2009300 TITLE IV-A 20873	0	16,025	16,025	2,775.00	.00	13,249.77	17.3%
2009301 TITLE IV-A NP 20873	0	5,369	5,369	931.29	.00	4,438.00	17.3%
2009350 HEADSTART ABCD OCT-SEPT	0	399,628	399,628	279,784.52	59,914.80	59,928.72	85.0%
2009370 HEADSTARTFOOD-CACFP 10/1-9/	0	30,646	30,646	27,550.51	3,095.25	.00	100.0%
2009450 IDEA PRE-K 20983	0	46,407	46,407	29,756.31	4,671.07	11,979.26	74.2%
2009460 OPEN CHOICE	0	322,920	322,920	151,292.48	95,177.45	76,450.50	76.3%
2009470 PERKINS GRANT 20742	0	61,404	61,404	53,351.85	1,398.60	6,653.55	89.2%
2009480 TITLE II PART A 20858	0	183,427	183,427	154,567.16	22,222.67	6,637.34	96.4%
2009481 TITLE II-A NP 20858	0	32,878	32,878	7,543.68	3,000.00	22,333.97	32.1%
2009505 TPAUD-DFC	0	166,870	166,870	126,773.84	12,784.11	27,311.70	83.6%
2009507 TPAUD-Opioid Prevention	0	5,000	5,000	950.00	2,445.60	1,604.40	67.9%
2009509 TPAUD-Local Prevention Coun	0	5,663	5,663	4,549.75	1,113.15	.00	100.0%
2009520 MAGNET TRANSPORTATION	0	102,800	102,800	.00	.00	102,800.00	.0%
2009710 SPED Stipend	0	10,000	10,000	10,000.00	.00	.00	100.0%
2009712 SPEDStipend-ParaDevlpmnt	0	5,000	5,000	5,000.00	.00	.00	100.0%
2009720 STATE BILINGUAL 6.30.23	0	3,141	3,141	.00	3,140.17	.83	100.0%
GRAND TOTAL	0	5,337,568	5,337,568	3,265,628.13	820,376.80	1,251,563.47	76.6%

** END OF REPORT - Generated by Peg Brindisi **

Trumbull Board of Education													
Special Revenue BOE Programs													
							7/1/22 to 5/31/23			Fund Balance(Deficit) as of			
Org#	Description	Org	Obj	Prj	Revenues	Operating Transfer In (Out) also reflected in Revenue (Expense)	Expenditures	Encumbrances	Revenues over (under) Expenditures includes Operating Transfers	7/1/22	Adj Journal for Prior Year Unliquidated POs closed out to the Fund Balance	5/31/2023
2051660	ACE Foundation	205	31510	Ace	-	-	-	-	-	58	-	58
2059530	Agriscience	205	31510	Agri	-	-	25,659	(0)	(25,659)	203,581	-	177,922
2051121	Athletics	205	31510	Athle	322,814	-	66,190	10,000	246,624	151,433	66	398,123
2052651	Building Use	205	31510	bldgu	27,119	-	12,629	10	14,480	27,577	-	42,057
2051650	Continuing Ed	205	31510	ContE	48,089	-	41,965	6,053	71	3,493	-	3,563
2051100	Driver's Education	205	31510	DrEd	23,310	-	4,320	3,600	15,390	22,874	-	38,264
2051711	E Sports	205	31510	Sport	15,869	-	10,319	(0)	5,550	-	-	5,550
2051717	Elementary Strings/Band	205	31510	Pay	82,001	-	196,163	55,170	(169,332)	25,301	-	(144,031)
2051713	ELITE Business Program	205	31510	ELITE	44,748	-	95,485	16,352	(67,090)	2,976	-	(64,113)
2056230	Guidance/Testing	205	31510	Guid	285	-	-	96	190	11,305	1	11,496
2059240	Interdistrict (TECEC*/REACH*/IIP*)	205	31510	Inter	407,945	-	287,164	99,378	21,403	41,078	-	62,481
2059540	Madison Grant	205	31510	Mad	-	-	-	-	-	368	-	368
2059490	THS Miscellaneous	205	31510	Misc	-	-	-	-	-	2,401	-	2,401
2051019	PE Day	205	31510	PE	-	-	-	-	-	247	-	247
2051200	SBCH-PPS Medicaid Program	205	31510	Medic	141,599	-	66,362	9,931	65,306	4,308	-	69,614
2055904	Rebates	205	31510	Reb	160,472	-	12,412	-	148,060	34,532	-	182,592
2051600	Summer Explorations	205	31510	SS	268,559	-	219,780	3,609	45,169	2,838	1,235	49,242
2052221	Take Home Device Insurance	205	31510	Take	69,937	-	33,574	-	36,363	(40)	-	36,322
2057100	THS AP Testing	205	31510	TEST	1,482	-	4,939	100,448	(103,905)	17,500	-	(86,405)
2051380	THS Auditorium	205	31510	Audi	2,648	-	2,344	0	304	3,762	-	4,065
2059400	THS Connections	205	31510	Cnnct	-	-	-	-	-	1,125	-	1,125
2059450	THS Culinary Kitchen Catering	205	31510	Culin	6,247	-	7,974	1,109	(2,836)	5,960	-	3,124
2055400	THS Musical	205	31510	music	76,994	-	85,421	121	(8,548)	44,953	157	36,561
2051709	THS Student Parking	205	31510	Park	16,650	-	6,233	9,747	670	-	-	670
2059510	Typical or Troubled Grant	205	31510	typic	-	-	-	-	-	643	-	643
2056207	Used Book Sales	205	31510	UsedB	-	-	-	-	-	2,145	-	2,145
2055213	Voluntary Insurance	205	31510	VSION	-	-	5,104	24,990	(30,094)	3,341	-	(26,753)
	Total Special Revenue Fund				**$ 1,716,767**	**$ -**	**$ 1,184,038**	**$ 340,614**	**$ 192,115**	**$ 613,758**	**$ 1,459**	**$ 807,332**
*	**TECEC-Trumbull Early Childhood Education Center**											
*	**REACH-Regional Educational Academic and Counseling Help**											
*	**IIP-Interim Instructional (transition) Program**											

School Lunch Financials for 2022-2023 School Year - FUND 210

	7/31/2022 YTD	7/31/2022 Month	8/31/2022 YTD	8/31/2022 Month	9/30/2022 YTD	9/30/2022 Month	10/31/2022 YTD	10/31/2022 Month	11/30/2022 YTD	11/30/2022 Month	12/31/2022 YTD	12/31/2022 Month	1/31/2023 YTD	1/31/2023 Month	2/28/2023 YTD	2/28/2023 Month	3/31/2023 YTD	3/31/2023 Month	4/30/2023 YTD	4/30/2023 Month	5/31/2023 YTD	5/31/2023 Month
Balance Sheet																						
Assets:																						
Cash	2,353,522		2,651,224		2,731,309		2,509,757		2,922,960		3,324,584		3,762,475		2,931,363		3,028,913		2,983,768		3,374,743	
Receivables	353,365		94,481		241,334		379,432		864,371		573,585		341,736		341,972		403,984		418,526		861,656	
Inventory	36,643		36,643		84,817		78,447		81,720		79,929		78,466		84,536		89,271		74,913		62,989	
Prepaid Expense	-		-		-		-		-		-		-		-		-		-		-	
Due From Others	-		-		-		-		-		-		-		-		-		-		-	
Total Assets:	2,743,529		2,782,347		3,057,460		2,967,636		3,869,051		3,978,099		4,182,677		3,357,871		3,522,169		3,477,206		4,299,388	
Liabilities:											-		-									
Accounts Payable	-		-		285,869		176,278		144,554		126,407		129,747		139,684		195,510		130,217		211,377	
Deferred Revenue	78,517		117,296		122,734		122,694		(308)		149,547		148,420		145,445		136,407		132,194		117,611	
Due to Town	1,142,004		1,194,143		1,342,132		1,488,537		1,636,565		1,830,980		1,959,247		1,109,846		1,276,256		1,406,530		1,558,587	
Reserve for Encumbrance	-		-		-		-		-		-		-		-		-		-		-	
Total Liabilities:	1,220,521		1,311,439		1,750,735		1,787,510		1,780,812		2,106,933		2,237,413		1,394,975		1,608,172		1,668,941		1,887,575	
Fund Balances:	1,523,008		1,470,908		1,306,725		1,180,126		2,088,240		1,871,166		1,945,264		1,962,897		1,913,996		1,808,266		2,411,813	
Statement of Revenues, Expenditures and Changes in Fund Balances																						
Revenue/increases:																						
Food Sales/Charges for Service	297	297	747	450	70,562	69,816	134,221	63,659	342,277	208,056	366,350	24,073	587,282	220,932	788,773	201,491	878,963	90,190	939,962	60,999	1,039,269	
Intergovernmental	(0)	(0)	(0)	(0)	151,685	151,685	290,516	138,831	1,161,090	870,574	1,242,587	81,497	1,347,070	104,484	1,445,595	98,525	1,609,928	164,333	1,718,069	108,141	1,897,220	
Other Income/Interest	-	-	-	-	-	-	-	-	118,753	118,753	118,753	-	126,912	8,159	126,912	-	180,673	53,761	180,673	-	881,120	
Intergovernmental (Town) Transfer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Increases	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total revenue/increases	297	297	747	450	222,247	221,501	424,737	202,490	1,622,120	1,197,383	1,727,690	105,570	2,061,265	333,575	2,361,281	300,016	2,669,565	308,284	2,838,704	169,140	3,817,609	
Expenses/decreases											-		-									
Wages	-	-	6,707	6,707	115,832	109,124	218,727	102,896	325,273	106,546	472,086	146,812	559,483	87,398	668,598	109,115	791,896	123,298	881,495	89,599	991,576	
FICA	-	-	470	470	6,078	5,608	11,464	5,385	16,948	5,484	25,257	8,309	29,901	4,644	35,573	5,672	42,389	6,816	47,211	4,822	53,013	
Medical	46,860	46,860	91,804	44,944	124,028	32,224	161,036	37,008	195,939	34,903	233,722	37,783	269,041	35,319	303,761	34,720	338,756	34,995	373,731	34,976	408,872	
Other Expenses	(468)	(468)	(102)	367	22,817	22,918	27,460	4,643	30,811	3,351	39,951	9,139	44,365	4,415	52,209	7,844	55,356	3,147	58,509	3,152	67,444	
Supplies	-	-	62	62	15,309	15,248	27,968	12,659	40,476	12,508	51,027	10,551	62,008	10,981	71,628	9,620	78,431	6,803	96,684	18,253	113,638	
Cost of Food	-	-	-	-	193,051	193,051	356,178	163,126	482,655	126,478	588,879	106,223	701,941	113,062	809,683	107,743	961,469	151,785	1,069,380	107,911	1,237,136	
Equipment/Capital	-	-	-	-	7,511	7,511	10,882	3,371	10,882	-	14,707	3,826	18,367	3,660	26,035	7,668	56,375	30,340	72,532	16,157	103,220	
Intergovernmental Transfer	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Decreases	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Expenditures/Increases	46,392	46,392	98,942	52,550	484,626	385,684	813,715	329,088	1,102,984	289,269	1,425,628	322,644	1,685,105	259,477	1,967,488	282,383	2,324,672	357,184	2,599,542	274,870	2,974,900	
Incr/(Decr) in fund balances before operating transfers	(46,095)		(98,195)		(262,379)		(388,977)		519,136		302,062		376,160		393,793		344,893		239,162		842,709	
Operating Transfers in/(out)	-		-		-		-		-		-		-		-		-		-		-	
Incr/(Decr) in fund balances after operating transfers	**(46,095)**		**(98,195)**		**(262,379)**		**(388,977)**		**519,136**		**302,062**		**376,160**		393,793		**344,893**		**239,162**		**842,709**	
Fund Balances:											-		-									
Beginning of year	1,569,104		1,569,104		1,569,104		1,569,104		1,569,104		1,569,104		1,569,104		1,569,104		1,569,104		1,569,104		1,569,104	
End of period	1,523,008		1,470,908		1,306,725		1,180,126		2,088,240		1,871,166		1,945,264		1,962,897		1,913,996		1,808,266		2,411,813	
Months Revenue Control	297		450		221,501		202,490		1,197,383		105,570		333,575		300,016		308,284		169,139		978,905	
Month Expenditure Control	46,392		52,550		385,684		329,088		289,269		322,644		266,332		282,383		357,184		274,870		375,357	
Profit (Loss) for the month	(46,095)		(52,100)		(164,183)		(126,599)		908,113		(217,074)		67,243		17,633		(48,900)		(105,731)		603,547	

School Lunch Financials As of May 31, 2023 - FUND 210

Balance Sheet as of 5/31	Budget	5/31/23 School Lunch	Encumbered	Available/ (Over)	5/31/22 School Lunch	YTY Diff.	% Change
Assets:							
Cash		3,374,743			1,723,507	1,651,236	95.81%
Receivables		861,656			891,358	(29,702)	-3.33%
Inventory		62,989			68,457	(5,467)	-7.99%
Prepaid Expense		-			-		
Due From Others		-			-		
Total Assets:		4,299,388			2,683,321	1,616,066	60.23%
Liabilities:							
Accounts Payable		211,377			166,234	45,143	27.16%
Deferred Revenue		117,611			102,688	14,923	14.53%
Due to Town		1,558,587			933,240	625,347	67.01%
Reserve for Encumbrance						-	
Total Liabilities:		1,887,575			1,202,163	685,412	57.01%
Fund Balances:		2,411,813			1,481,158	930,655	62.83%
Statement of Revenues, Expenditures and Changes in Fund Balances for the 9 months ended 5/31							
Revenue/increases:							
Food Sales/Charges for Service	2,095,000	1,039,269	-	1,055,731	575,804	463,465	80.49%
Intergovernmental	533,100	1,897,220	-	(1,364,120)	3,346,624	(1,449,404)	-43.31%
Other Income/Interest	-	881,120	-	(881,120)	126,277	754,843	
Intergovernmental (Town) Transfer Increases				-		-	
Total revenue/increases	2,628,100	3,817,609	-	(1,189,509)	4,048,705	(231,096)	-5.71%
Expenses/decreases						-	
Wages	980,469	991,576	113,330	(124,438)	952,999	38,578	4.05%
FICA	76,360	53,013	-	23,347	51,724	1,289	2.49%
Medical	342,800	408,872	44,974	(111,046)	381,853	27,019	7.08%
Other Expenses	36,366	67,444	-	(31,078)	52,076	15,368	29.51%
Supplies	67,500	113,638	-	(46,138)	85,302	28,336	33.22%
Cost of Food	1,213,099	1,237,136	28,913	(52,950)	1,272,727	(35,591)	-2.80%
Equipment/Capital	100,566	103,220	92,063	(94,717)	9,391	93,829	999.17%
Intergovernmental (Town) Transfer Decreases							
Total Expenditures/Increases	2,817,160	2,974,900	279,280	(437,019)	2,806,072	168,828	6.02%
Incr/(Decr) in fund balances before operating transfers		842,709			1,242,633	(399,924)	-32.18%
Operating Transfers in/(out)		-			-	-	
Incr/(Decr) in fund balances after operating transfers		**842,709**			**1,242,633**	(399,924)	-32.18%
Fund Balances:							
Beginning of year		1,569,104			238,525	1,330,579	557.84%
End of period		2,411,813			1,481,158	930,655	62.83%
Months Revenue Control		978,905			669,829		
Months Exp Control		375,357			321,040		
Profit (Loss) for the month		**603,547**			**348,788**	254,759	73.04%

Trumbull Board of Education									
Scholarship Details									
Fund Balance as of 7/1/22				7/1/22 to 5/31/23			Fund Balance as of 5/31/23		
Restricted	Unrestricted	Total	Account Name	Revenues	Expenditures	Net Rev(Exp)	Restricted	Unrestricted	Total
1,685	195	1,880	Brewster	0	-	0	1,685	195	1,880
-	7,446	7,446	Peter Burke	1	500	(499)	-	6,947	6,947
-	1,640	1,640	K. Capobianco	0	200	(200)	-	1,440	1,440
-	9,955	9,955	Donna Cassidy	2	1,500	(1,498)	-	8,457	8,457
-	40	40	Citizenship/Holdsworth	0	-	0	-	40	40
-	33,543	33,543	Chelsea Cunha	3,866	5,000	(1,134)	-	32,408	32,408
-	6,477	6,477	Mary Curtiss	1	500	(499)	-	5,979	5,979
10,000	1,135	11,135	S. Dick Electronics	2	-	2	10,000	1,137	11,137
-	1,093	1,093	Ran Grinnell	0	-	0	-	1,094	1,094
-	3,891	3,891	Clare Hampford	1	-	1	-	3,892	3,892
-	10	10	G. Hartz	0	-	0	-	10	10
-	-	-	Peter Horton	11,135	-	11,135	-	11,135	11,135
-	3,242	3,242	Klein/ Danaher	1	-	1	-	3,242	3,242
-	78	78	Lorimer	0	-	0	-	78	78
-	557	557	Dr. Gloria Maina	0	-	0	-	557	557
-	165	165	Frances S. Mallett	0	-	0	-	165	165
-	13,219	13,219	Loretta McDougall	3	-	3	-	13,222	13,222
-	-	-	Middlebrook Wings	6,310	1,000	5,310	-	5,310	5,310
-	9,128	9,128	Karen Mraz	1,007	500	507	-	9,635	9,635
-	537	537	National Merit	0	-	0	-	537	537
-	512	512	Ralph Pascale	0	-	0	-	512	512
8,000	1,036	9,036	PHNA	2	-	2	8,000	1,038	9,038
-	15,913	15,913	Jill Resnick	3	500	(497)	-	15,416	15,416
5,190	969	6,159	R. Rossomando	1	-	1	5,190	971	6,161
2,500	313	2,813	R. Simses	1	-	1	2,500	314	2,814
2,200	276	2,476	R. Stowe	0	-	0	2,200	277	2,477
-	1,113	1,113	Trumbull High	0	-	0	-	1,114	1,114
-	212	212	Jennie N. Villano	0	-	0	-	212	212
10,000	1,137	11,137	Zink	2	-	2	10,000	1,140	11,140
39,575	113,832	153,407	Total Scholarship Fund	$ 22,339	$ 9,700	$ 12,639	$ 39,575	$ 126,471	$ 166,046

FOR 2023 11

		ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USE/COL
2051713 ELITE Business Program								
2051713 40205	DONATIONS	0	0	0	-3,864.20	.00	3,864.20	100.0%
2051713 40400	REVENUE	0	0	0	-40,000.88	.00	40,000.88	100.0%
2051713 40410	GCRev	0	0	0	-580.00	.00	580.00	100.0%
2051713 40490	MiscRev	0	0	0	-302.69	.00	302.69	100.0%
2051713 51120	AIDE-CLSRM	0	0	0	16,714.83	.00	-16,714.83	100.0%*
2051713 52001	FICA/MEDIC	0	0	0	445.99	.00	-445.99	100.0%*
2051713 54000	PURCH.PROP	0	0	0	5,627.82	972.18	-6,600.00	100.0%*
2051713 54101	ELECTRIC	0	0	0	4,309.60	690.40	-5,000.00	100.0%*
2051713 54410	RENT	0	0	0	44,372.88	4,077.08	-48,449.96	100.0%*
2051713 54900	PROP SERV	0	0	0	8,896.74	52.11	-8,948.85	100.0%*
2051713 55000	Other Purc	0	0	0	3,474.66	472.34	-3,947.00	100.0%*
2051713 56000	Supplies	0	0	0	8,182.91	10,049.88	-18,232.79	100.0%*
2051713 56202	NATUR. GAS	0	0	0	1,961.55	38.45	-2,000.00	100.0%*
2051713 57000	Equipment	0	0	0	699.00	.00	-699.00	100.0%*
2051713 58900	DUES	0	0	0	798.85	.00	-798.85	100.0%*
2051713 59998	PR YR SUR	0	2,976	2,976	.00	.00	2,976.07	.0%
TOTAL ELITE Business Program		0	2,976	2,976	50,737.06	16,352.44	-64,113.43	2254.3%
	TOTAL REVENUES	0	0	0	-44,747.77	.00	44,747.77	
	TOTAL EXPENSES	0	2,976	2,976	95,484.83	16,352.44	-108,861.20	
	GRAND TOTAL	0	2,976	2,976	50,737.06	16,352.44	-64,113.43	2254.3%

** END OF REPORT - Generated by Peg Brindisi **

FOR 2023 11

		ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USE/COL
2051709 THS Student Parking								
2051709 40400	Parking	0	0	0	-16,650.00	.00	16,650.00	100.0%
2051709 51127	SEC. GRD	0	0	0	.00	9,747.36	-9,747.36	100.0%*
2051709 56110	SUPPLIES	0	0	0	3,504.47	.00	-3,504.47	100.0%*
2051709 57202	SITE IMPR	0	0	0	2,050.00	.00	-2,050.00	100.0%*
2051709 58900	DUES	0	0	0	678.57	.00	-678.57	100.0%*
TOTAL THS Student Parking		0	0	0	-10,416.96	9,747.36	669.60	100.0%
	TOTAL REVENUES	0	0	0	-16,650.00	.00	16,650.00	
	TOTAL EXPENSES	0	0	0	6,233.04	9,747.36	-15,980.40	
	GRAND TOTAL	0	0	0	-10,416.96	9,747.36	669.60	100.0%

** END OF REPORT - Generated by Peg Brindisi **

TRUMBULL BOARD OF EDUCATION
TRUMBULL, CONNECTICUT

Report to the Board of Education
Regular Meeting, July 11, 2023 Martin Semmel, Ed.D.

Agenda Item IV-A Pending Litigation

Recommendation: Receive and file.

PENDING LITIGATION

CASE TOWN/BOARD	DESCRIPTION	CASE	REPRESENTATIVE TOWN/BOARD
1. C.T., J.T. and L.T. vs.	C.T., a Trumbull minor, his parents J.T. and L.T., alleged that he was injured on or about November 13, 2019 while playing soccer at recess and fell into a hole on the soccer field near the goal. Their claim covers that the soccer field was in an uneven, defective and/or dangerous condition. This claim seeks monetary damages against Board of Education, Town of Trumbull and Parks and Recreation Department. (Notice of claim received January 9, 2020).	Pending	Town/Board
2. M.D. vs.	M.D., former Director of Facilities, claims his termination of employment on 2/7/20 constitutes a breach of his employment contract with Trumbull Board of Education. This claim seeks monetary damages against Trumbull Board of Education. (Notice of claim received 5/20/20).	Pending	Town/Board

TRUMBULL BOARD OF EDUCATION
TRUMBULL, CONNECTICUT

Report to the Board of Education
Regular Meeting, July 11, 2023

Agenda Item IV-B

Status of Negotiations

Please see reverse side for status of negotiations with the eight bargaining units.

Recommendation:

Receive and file.

STATUS OF NEGOTIATIONS

Unit	Member of Board's Negotiating Team	Status of Negotiations
Teachers TEA	Attorney Floyd Dugas Marie Petitti Alison Squiccimaro	The TEA Agreement covers the period from July 1, 2023 to June 30, 2026.
Administrators TAA	Attorney Floyd Dugas Marie Petitti Alison Squiccimaro	The TAA Agreement covers the period from July 1, 2021 to June 30, 2024.
Administrative Support Services	Attorney Floyd Dugas	The (TASS) Administrative Support covers the period from July 1, 2021 to June 30, 2025.
CALU		
Custodial/Maintenance UPSEU LOCAL #424	Attorney Floyd Dugas	The Custodial/Maintenance Agreement covers the period from July 1, 2021 to June 30, 2025.
Paraprofessionals UPSEU LOCAL #424	Attorney Floyd Dugas	The Paraprofessional Agreement covers the period from July 1, 2021 to June 30, 2025.
Cafeteria Workers UPSEU LOCAL #424	Attorney Floyd Dugas	The Cafeteria Workers Agreement covers the period from July 1, 2020 to June 30, 2024.
CILU Supervisor/ Support Staff CILU LOCAL #21	Attorney Floyd Dugas	The CILU Supervisors Agreement covers the period from July 1, 2021 to June 30, 2024. The CILU Support Agreement covers the period from July 1, 2021 to June 30, 2024.