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Introduction to the NM STEM Ready! Science Standards

Welcome!

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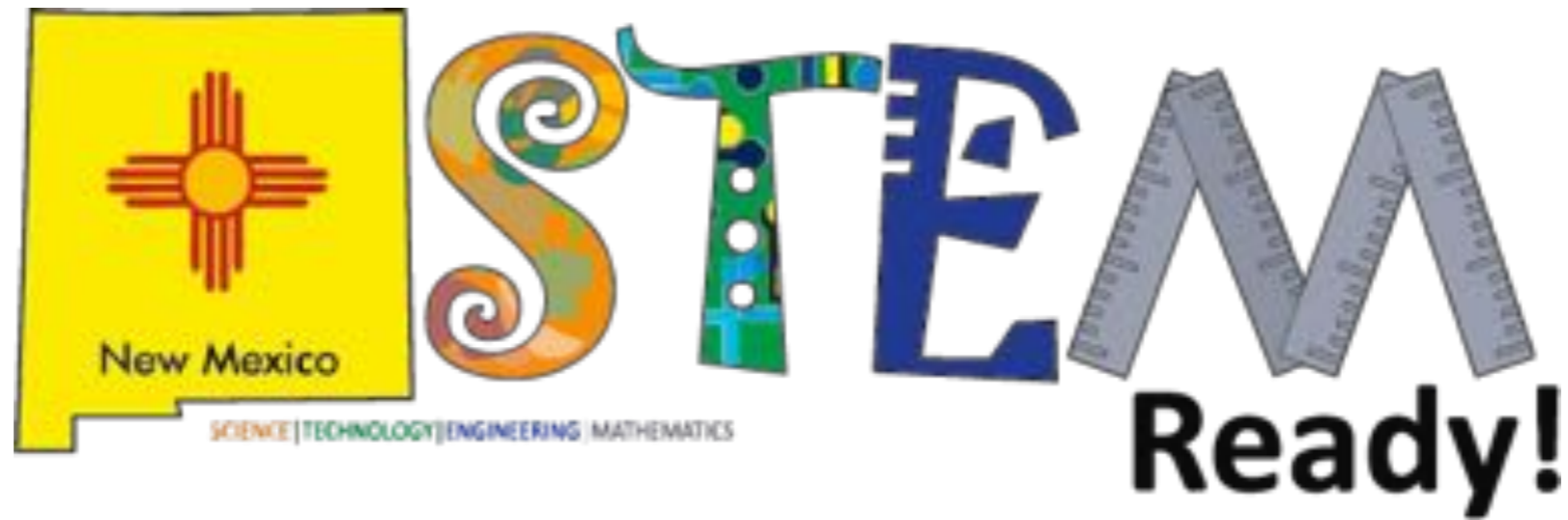
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Workshop focus & goals

This workshop is elementary. If you know your DCIs from your SEPs, then you already know most of what we will cover

Goals

1. You should be able to explain the structure of NM STEM Ready! Science Standards
2. You should understand the PED science standards roll-out plan



=


NGSS

+

New Mexico 6 specific standards

Cluck in a cup

Question	Investigation	Observation
What kinds of sounds can you make?		



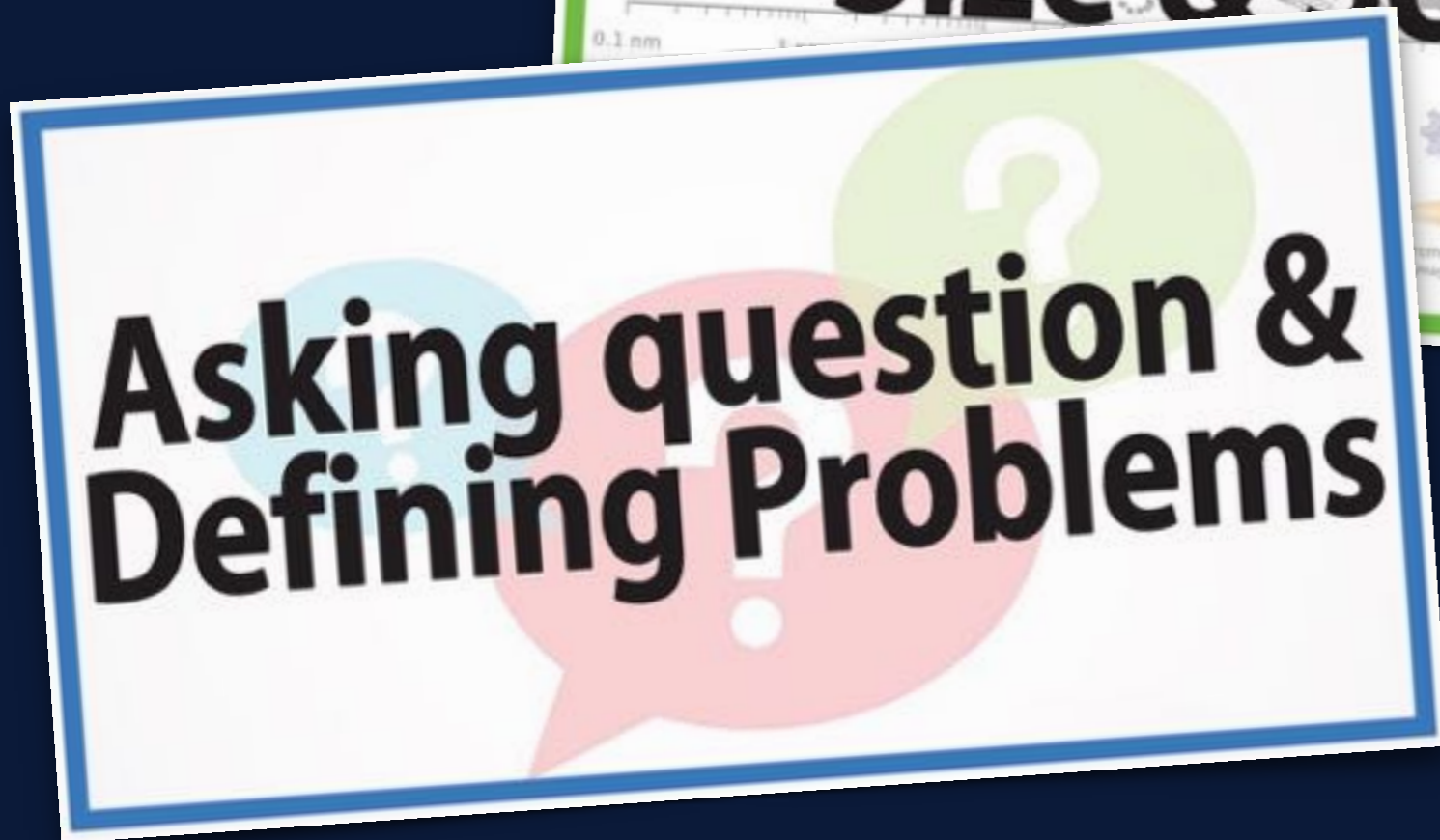
**NEXT GENERATION
SCIENCE
STANDARDS**
For States, By States



Life Science



Size & Scale



**Asking question &
Defining Problems**

Select the cards that seem appropriate to what you have been doing.

The cards are not random ...



Title slide



Orange border

Disciplinary core ideas (DCIs)



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Science & engineering practices

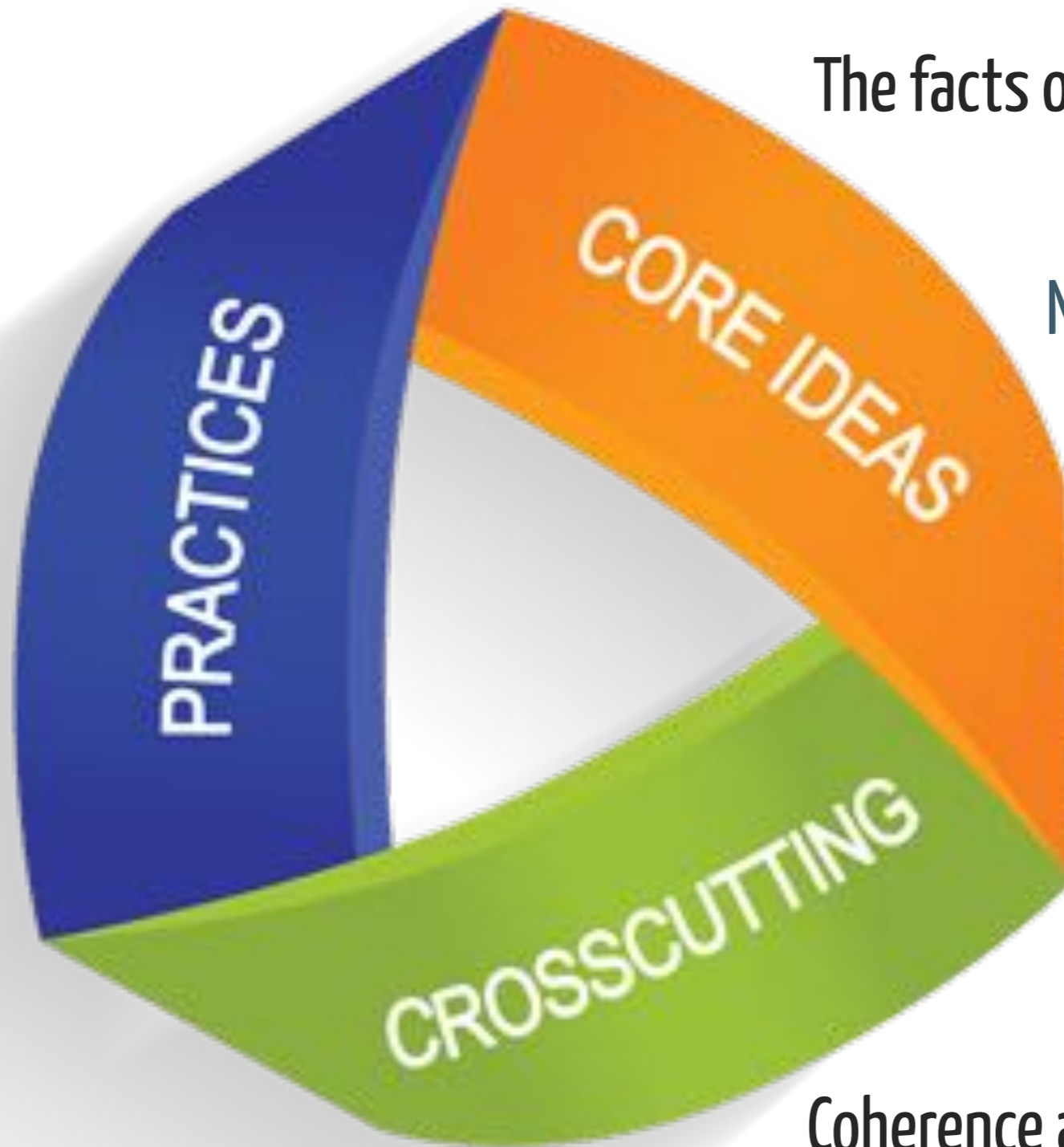


Green border

Crosscutting concepts

A significant logo

What students do
Strand 1 of the
New Mexico
standards



The facts of science + technology

Strands 2 & 3 of the
New Mexico standards

Coherence across disciplines



NGSS vision

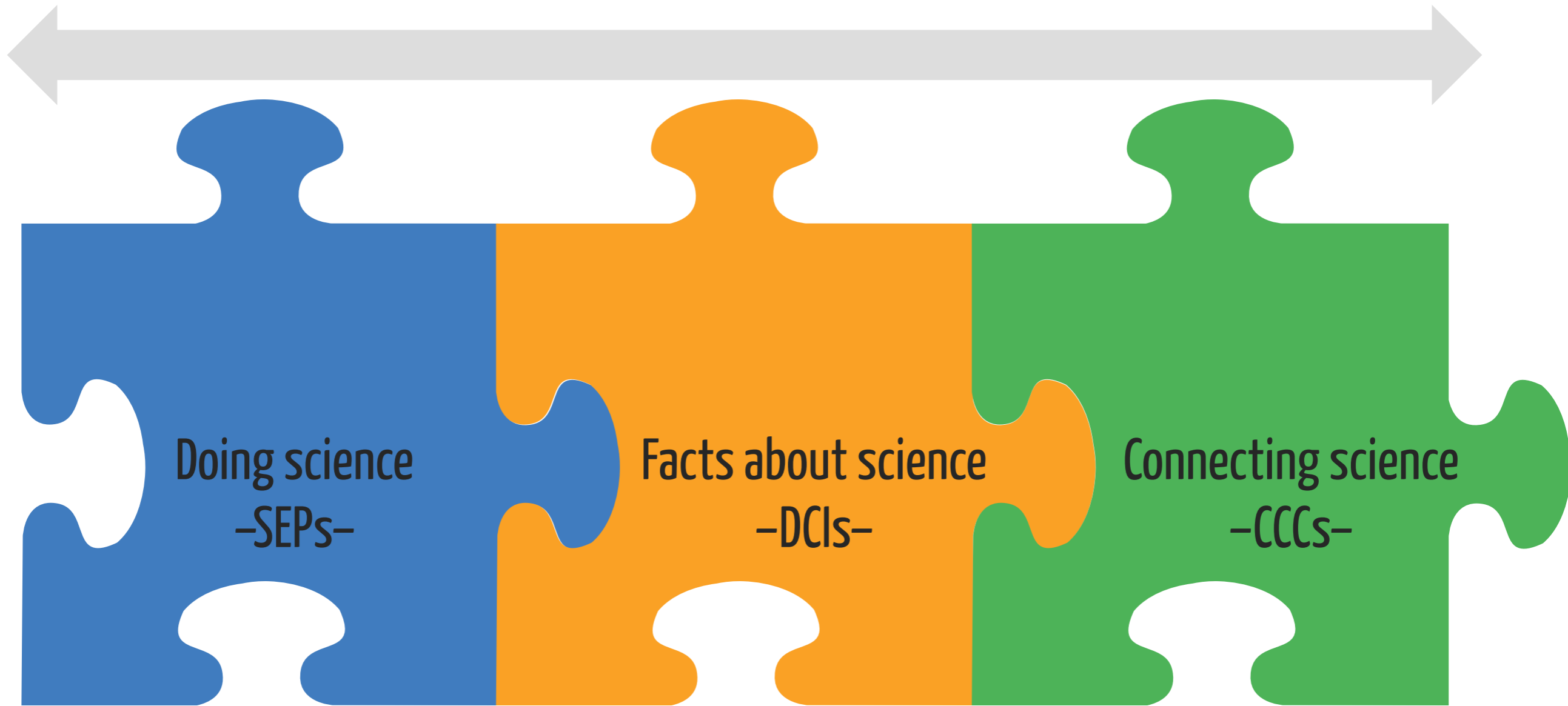
2003 Science Standards



Doing
science
(Strand 1)

Facts about science
(Strands 2 & 3)

2018 STEM Ready! Standards



Think of it this way...



tools & techniques

+



cake

+



frosting

=



finished product

Science and Engineering Practices

Asking questions and defining problems
A practice of science is to ask and define questions that lead to an investigation of the natural and designed world(s) works and how they change over time.

Developing and using models
A practice of both science and engineering is to use and construct models. These tools include diagrams, drawings, physical replicas, mathematical representations, and analogies.

Planning and carrying out investigations
Scientists and engineers plan and carry out investigations in the field. Their investigations are systematic and require clarifying what is to be done, what resources are available, what risks are present, and what safety precautions are needed.

Analyzing and interpreting data
Scientific investigations produce data that must be analyzed in order to draw conclusions. Scientists use a range of tools—including tabulation, graphical interpretation, and statistical analysis—to analyze data. Scientists identify sources of error in their data and assess their effects on the results.

Using mathematics and computational thinking
In both science and engineering, mathematics and computational thinking are used to analyze data, model systems, and solve problems. They are used for a range of purposes, including quantifying, measuring, and representing relationships, and recognizing patterns.

Constructing explanations and designing solutions
The end-products of science are explanations and theories that provide explanatory power. The end-products of engineering are designs that solve problems. Both are based on evidence and require multiple lines of empirical evidence and rigorous testing.

Engaging in argument from evidence
Argumentation is the process by which evidence-based conclusions are reached. It is essential to identifying the best explanation for a phenomenon or the most effective solution to a problem.

Obtaining, evaluating, and communicating information
Scientists and engineers must be able to communicate their findings. This includes writing reports, giving presentations, and participating in peer review.

Crosscutting Concepts

Patterns
Patterns and regularities in natural and designed systems allow us to recognize and classify them and prompt questions about relationships and causes underlying them.

Cause and effect
Mechanistic models are used to understand and predict the behavior of systems. They are based on the understanding of cause and effect relationships. Discerning causal relationships, and the ability to use them to make predictions, is a major activity of science and engineering.

Scale, proportion, and quantity
What is relevant at different scales, times, and energy scales, and how different quantities in systems change.

System models
Models are used for understanding and predicting the behavior of systems. They are based on the understanding of cause and effect relationships.

Stability and change
Stability helps one understand their system's behavior. It is the ability of a system to resist change. Change is the process by which a system's state or structure is altered.

Disciplinary Core Ideas

Life Science	Earth & Space Science	Physical Science
<p>From molecules to organisms: Structures and processes</p> <p>LS1.A. Structure and function LS1.B. Growth and development of organisms LS1.C. Organization for matter & flow in organisms LS1.D. Information processing</p>	<p>Earth's place in the universe</p> <p>ESS1.A. The universe and its stars ESS1.B. Earth and the solar system ESS1.C. The history of planet Earth</p>	<p>Matter and its interactions</p> <p>PS1.A. Structure and properties of matter PS1.B. Chemical reactions PS1.C. Nuclear processes</p>
<p>Ecosystems: Interactions, energy, and dynamics</p> <p>LS2.A. Interdependent relationships in ecosystems LS2.B. Cycles of matter and energy transfer in ecosystems LS2.C. Ecosystem dynamics, functioning, and resilience LS2.D. Social interactions and group behavior</p>	<p>Earth's systems</p> <p>ESS2.A. Earth materials and systems ESS2.B. Plate tectonics and large-scale system interactions ESS2.C. The roles of water in Earth's surface processes ESS2.D. Weather and climate ESS2.E. Biogeology</p>	<p>Motion and stability: Forces and interactions</p> <p>PS2.A. Forces and motion PS2.B. Types of interactions PS2.C. Stability and instability in physical systems</p>
<p>Heredity: Inheritance and variation of traits</p> <p>LS3.A. Inheritance of traits LS3.B. Variation of traits</p>	<p>Earth and human activity</p> <p>ESS3.A. Natural resources ESS3.B. Natural hazards ESS3.C. Human impacts on Earth systems ESS3.D. Global climate change</p>	<p>Energy</p> <p>PS3.A. Definitions of energy PS3.B. Conservation of energy & energy transfer PS3.C. Relationship between energy & forces PS3.D. Energy in chemical processes & everyday life</p>
<p>Biological evolution: Unity and diversity</p> <p>LS4.A. Evidence of common ancestry and diversity LS4.B. Natural selection LS4.C. Adaptation LS4.D. Biodiversity and humans</p>		<p>Waves and their applications in technologies for information transfer</p> <p>PS4.A. Wave properties PS4.B. Electromagnetic radiation PS4.C. Information technologies & instrumentation</p>
<p>Engineering, Technology, and the Application of Science</p> <p>ETS1.A. Defining and delimiting engineering problems ETS1.B. Developing possible solutions ETS1.C. Optimizing the design solution</p>		



The three dimensions, defined

Disciplinary core ideas (DCIs)



LS1 – From Molecules to Organisms: Structures & Processes

LS2 – Ecosystems: Interactions, Energy, and Dynamics

LS3 – Heredity: Inheritance and Variation of Traits

LS4 – Biological Evolution: Unity and Diversity



PS1 – Matter and its Interactions

PS2 – Motion and Stability: Forces and Interactions

PS3 – Energy

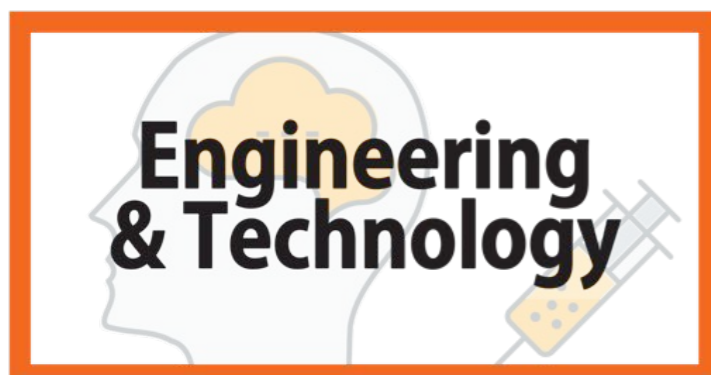
PS4 – Wave Properties



ESS1 – Earth's Place in the Universe

ESS2 – Earth's Systems

ESS3 – Earth and Human Activity



Engineering, Technology and Applications of Science

ETS1 – Engineering Design

ETS2 – Links Among Engineering, Technology, Science, and Society

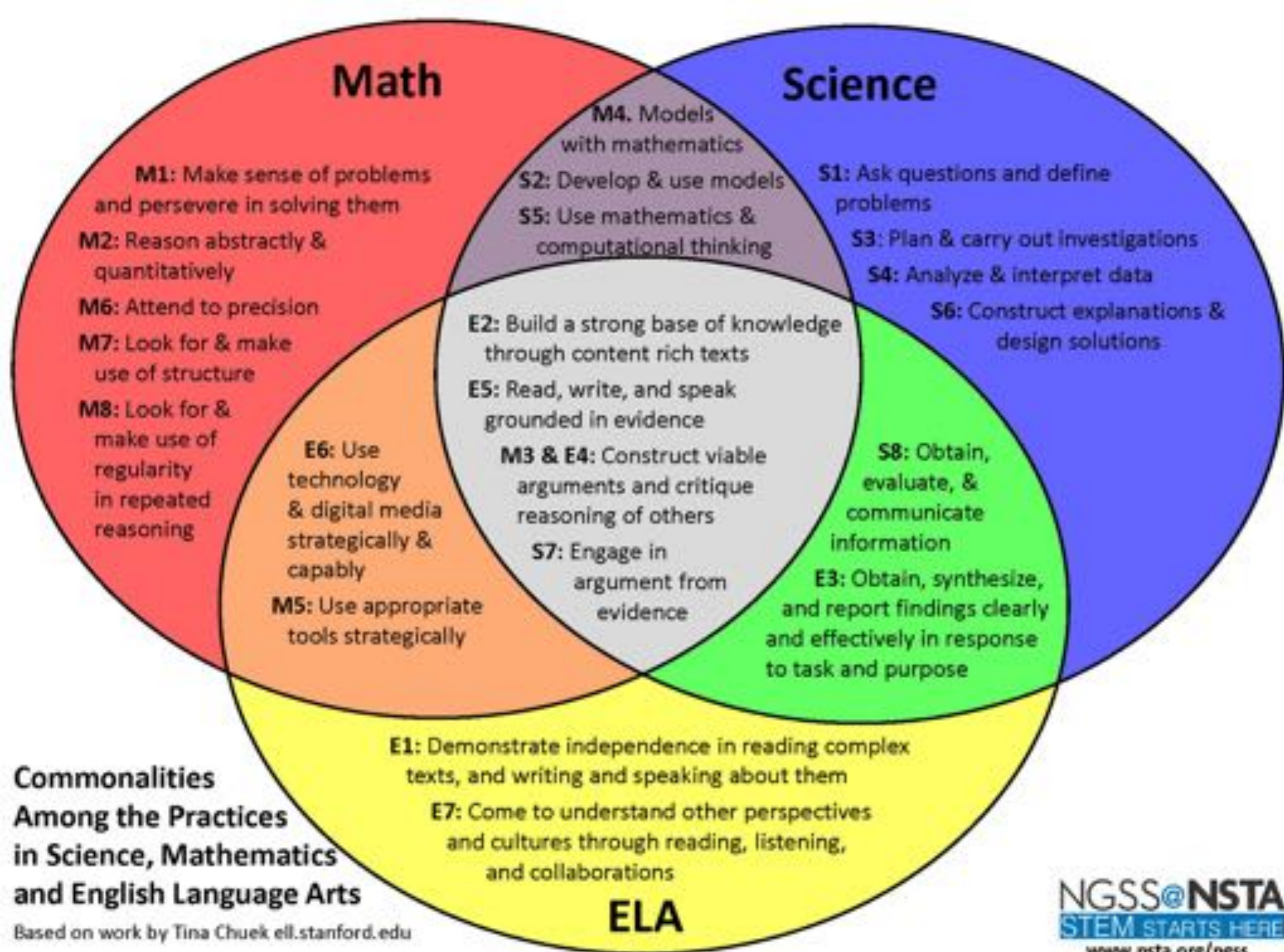
Life Science	Earth & Space Science	Physical Science	Engineering & Technology
<p>LS1: From Molecules to Organisms: Structures and Processes</p> <p>LS1.A: Structure and Function LS1.B: Growth and Development of Organisms LS1.C: Organization for Matter and Energy Flow in Organisms LS1.D: Information Processing</p> <p>LS2: Ecosystems: Interactions, Energy, and Dynamics</p> <p>LS2.A: Interdependent Relationships in Ecosystems LS2.B: Cycles of Matter and Energy Transfer in Ecosystems LS2.C: Ecosystem Dynamics, Functioning, and Resilience LS2.D: Social Interactions and Group Behavior</p> <p>LS3: Heredity: Inheritance and Variation of Traits</p> <p>LS3.A: Inheritance of Traits LS3.B: Variation of Traits</p> <p>LS4: Biological Evolution: Unity and Diversity</p> <p>LS4.A: Evidence of Common Ancestry and Diversity LS4.B: Natural Selection LS4.C: Adaptation LS4.D: Biodiversity and Humans</p>	<p>ESS1: Earth's Place in the Universe</p> <p>ESS1.A: The Universe and Its Stars ESS1.B: Earth and the Solar System ESS1.C: The History of Planet Earth</p> <p>ESS2: Earth's Systems</p> <p>ESS2.A: Earth Materials and Systems ESS2.B: Plate Tectonics and Large-Scale System Interactions ESS2.C: The Roles of Water in Earth's Surface Processes ESS2.D: Weather and Climate ESS2.E: Biogeology</p> <p>ESS3: Earth and Human Activity</p> <p>ESS3.A: Natural Resources ESS3.B: Natural Hazards ESS3.C: Human Impacts on Earth Systems ESS3.D: Global Climate Change</p>	<p>PS1: Matter and Its Interactions</p> <p>PS1.A: Structure and Properties of Matter PS1.B: Chemical Reactions PS1.C: Nuclear Processes</p> <p>PS2: Motion and Stability: Forces and Interactions</p> <p>PS2.A: Forces and Motion PS2.B: Types of Interactions PS2.C: Stability and Instability in Physical Systems</p> <p>PS3: Energy</p> <p>PS3.A: Definitions of Energy PS3.B: Conservation of Energy and Energy Transfer PS3.C: Relationship Between Energy and Forces PS3.D: Energy in Chemical Processes and Everyday Life</p> <p>PS4: Waves and Their Applications in Technologies for Information Transfer</p> <p>PS4.A: Wave Properties PS4.B: Electromagnetic Radiation PS4.C: Information Technologies and Instrumentation</p>	<p>ETS1: Engineering Design</p> <p>ETS1.A: Defining and Delimiting an Engineering Problem ETS1.B: Developing Possible Solutions ETS1.C: Optimizing the Design Solution</p> <p>ETS2: Links Among Engineering, Technology, Science, and Society</p> <p>ETS2.A: Interdependence of Science, Engineering, and Technology ETS2.B: Influence of Engineering, Technology, and Science on Society and the Natural World</p>

Science & engineering practices

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Science & engineering practices

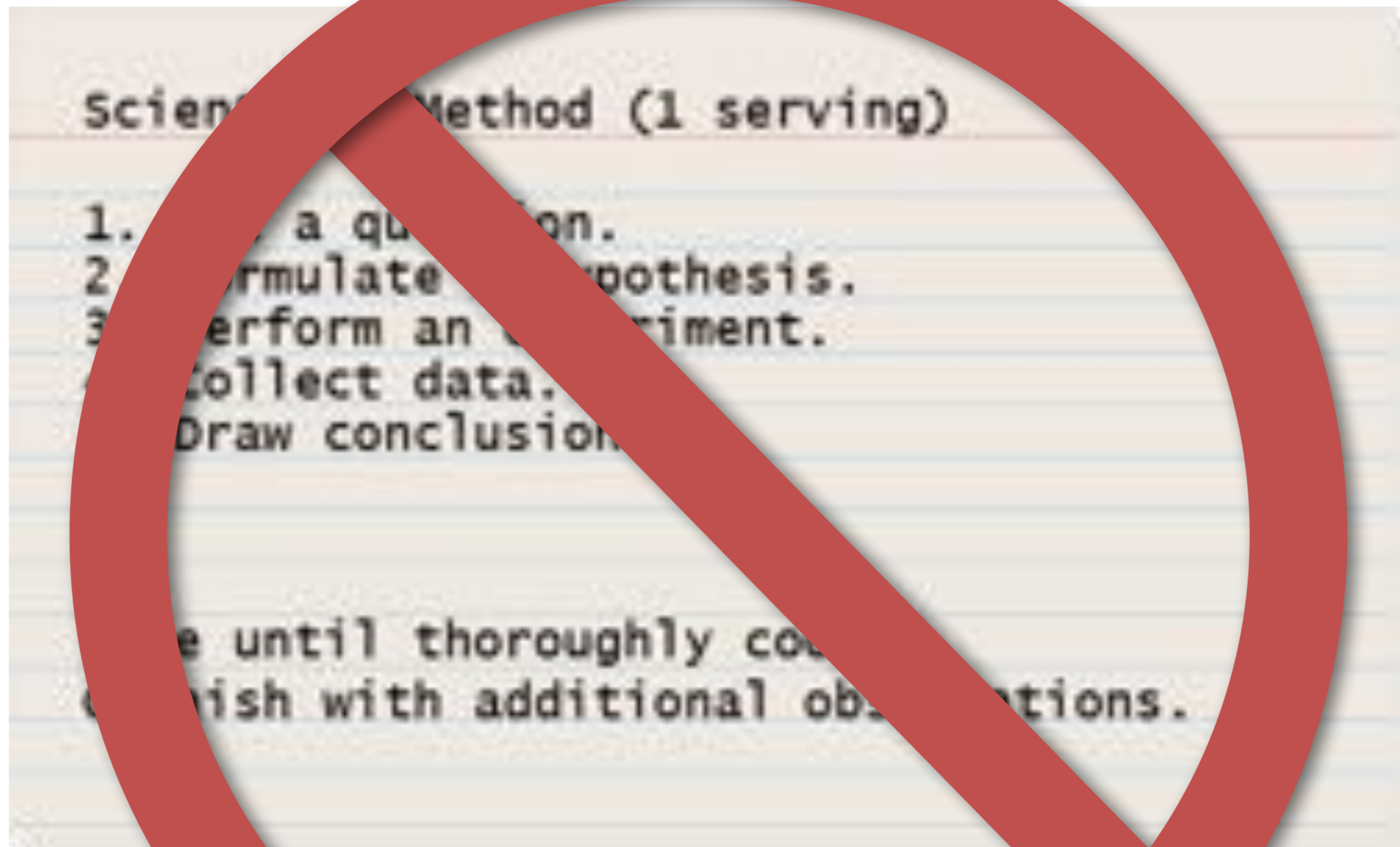
1. Asking questions (for science) and defining problems (for engineering)
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 4. Analyzing and interpreting data
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 6. Using mathematics and computational thinking
 7. Constructing explanations (for science) and designing solutions (for engineering)
 8. Constructing explanations (for science) and designing solutions (for engineering)
 9. Engaging in argument from evidence
 10. Obtaining, evaluating, and communicating information
- } Science
- } CCSS math
- } CCSS LA



**Commonalities
Among the Practices
in Science, Mathematics
and English Language Arts**

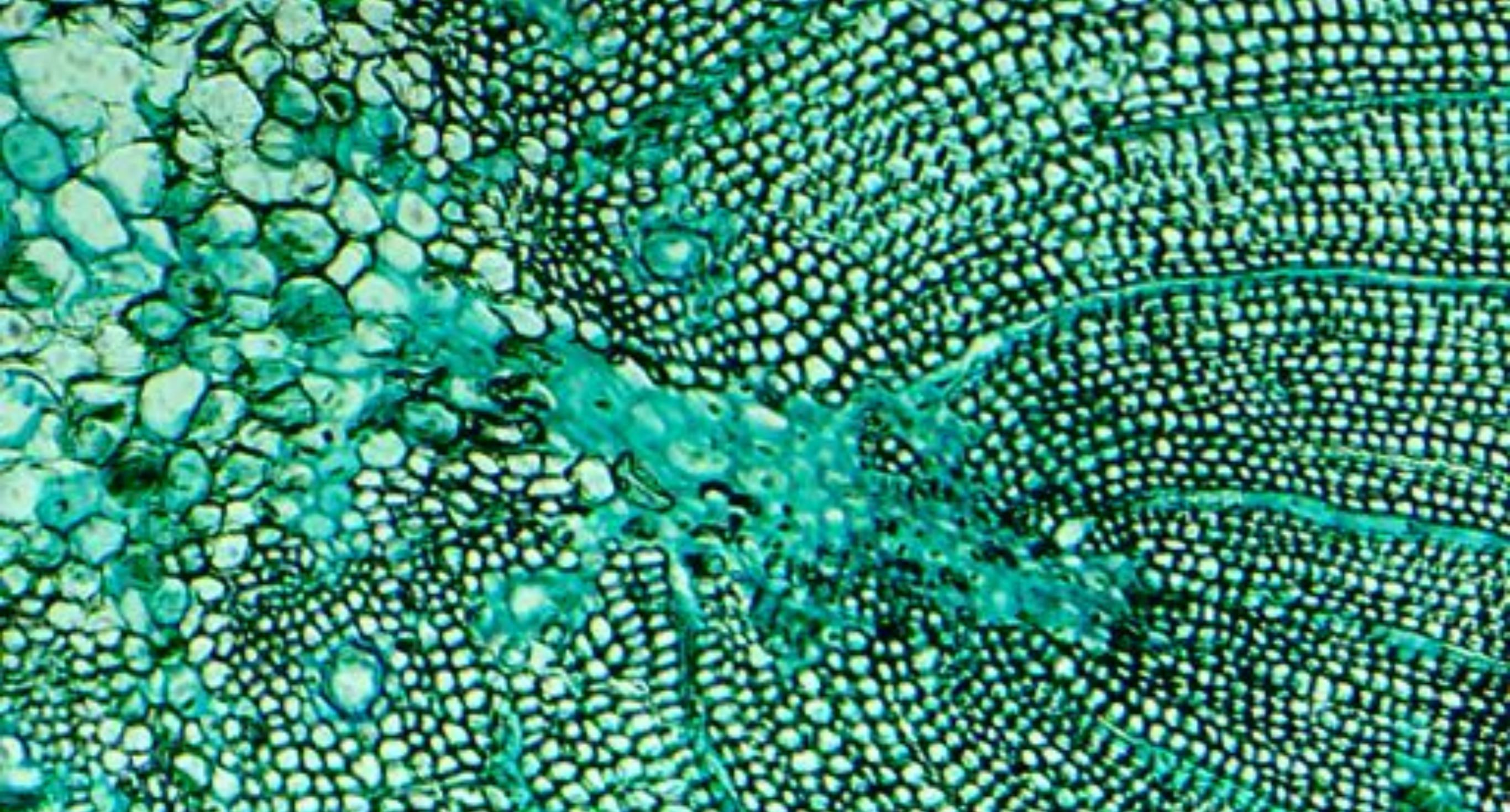
Based on work by Tina Chuek ell.stanford.edu

Science & engineering practices

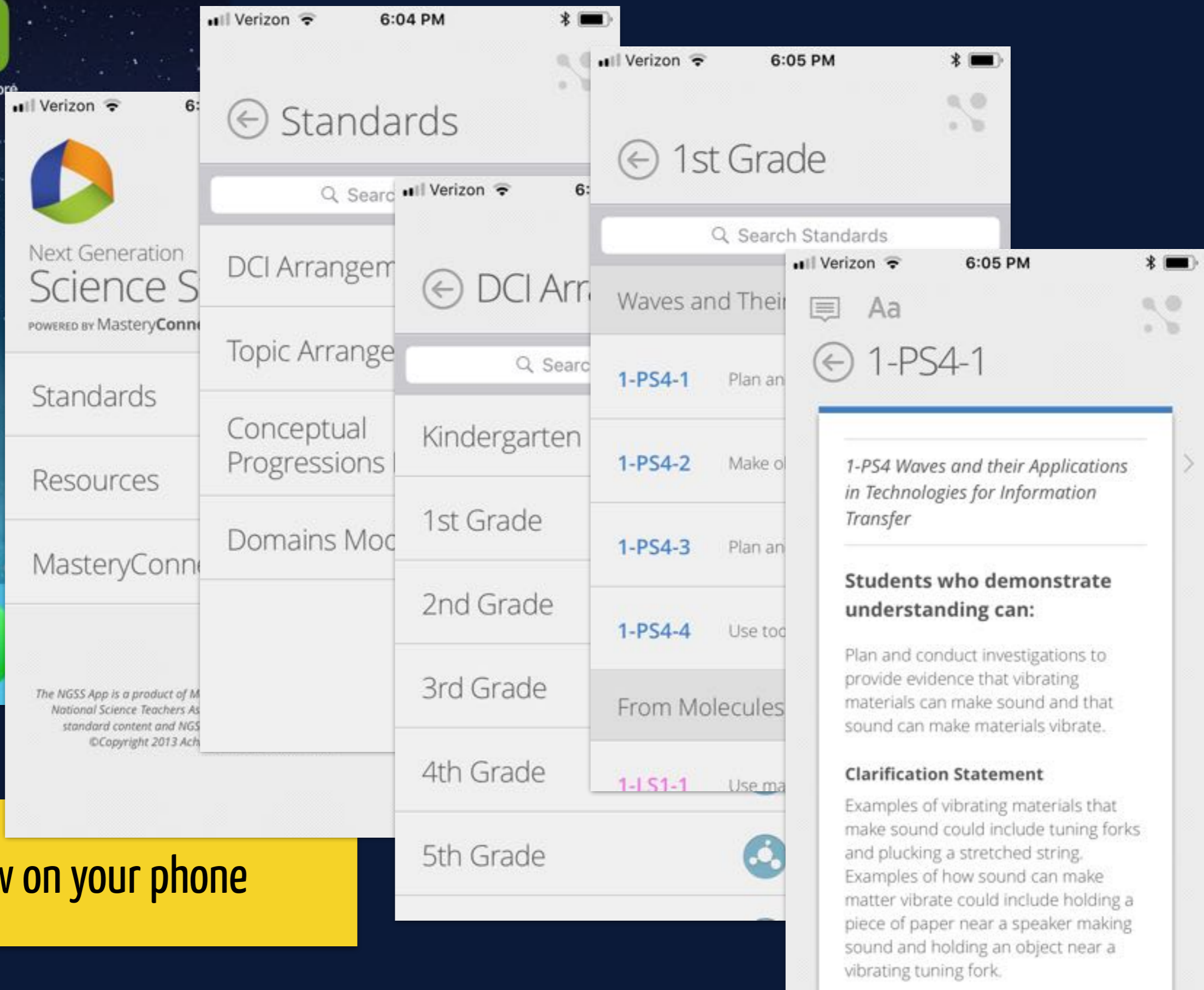


Crosscutting concepts

1. Patterns
2. Cause and effect: mechanism & explanation
3. Scale, proportion, & quantity
4. Systems & system models
5. Energy and matter: flows, cycles, & conservation
6. Structure & function
7. Stability & change



A closer look at those standards



Follow on your phone

Let's look at a standard



=

PS1: Matter and Its Interactions

PS1.A: Structure and Properties of Matter

PS1.B: Chemical Reactions

PS1.C: Nuclear Processes

PS2: Motion and Stability: Forces and Interactions

PS2.A: Forces and Motion

PS2.B: Types of Interactions

PS2.C: Stability and Instability in Physical Systems

PS3: Energy

PS3.A: Definitions of Energy

PS3.B: Conservation of Energy and Energy Transfer

PS3.C: Relationship Between Energy and Forces

PS3.D: Energy in Chemical Processes and Everyday Life

PS4: Waves and Their Applications in Technologies for Information Transfer

PS4.A: Wave Properties

PS4.B: Electromagnetic Radiation

PS4.C: Information Technologies and Instrumentation

What Are Performance Expectations?

Performance Expectations state what students should be able to do in order to demonstrate that they have met the standard, thus providing clear and specific targets for curriculum, instruction, and classroom assessment.

Anatomy of a standard

1-PS4-1 Plan and conduct an investigation to provide evidence that vibrating materials can make sound and that sound can make materials vibrate



Grade Level/Band

Grade level or band:

Standards are divided into

K, 1, 2
3, 4, 5 } grade specific

MS – Middle school

HS – High school

Anatomy of a standard

1-PS4-1 Plan and conduct an investigation to provide evidence that vibrating materials can make sound and that sound can make materials vibrate

Disciplinary core idea



Anatomy of a standard

1-PS4-1 Plan and conduct an investigation to provide evidence that vibrating materials can make sound and that sound can make materials vibrate

Performance Expectation

Performance expectation: tells what the student should be able to do as a result of understandings.

importante!

Not knowledge!

Not content!

Not curriculum!

Anatomy of a standard

1-PS4-1 Plan and conduct an investigation to provide evidence that vibrating materials can make sound and that sound can make materials vibrate

Performance Expectation

Performance expectation: tells what the student should be able to do as a result of understandings.

Plan and conduct an investigation to provide evidence that vibrating materials can make sound and that sound can make materials vibrate

Practice

DCI

CCC

Anatomy of a standard

1-PS4-1 Plan and conduct an investigation to provide evidence that vibrating materials can make sound and that sound can make materials vibrate

Clarifications
and
assessment
boundaries

[Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.]

[Assessment Boundary: none for this standard]

Architecture of a complete standard

Title and Code

Performance Expectations

What students should know and be able to do at the end of instruction

Science and
Engineering
Practices

Disciplinary Core
Ideas

Crosscutting
Concepts

Connections Boxes

Guidance for connecting the standard to others in NGSS or CCSS

Put it all together

Students who demonstrate understanding can:

1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. [Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.]

The performance expectation above was developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in K-2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none">Plan and conduct investigations collaboratively to produce evidence to answer a question. <p>-----</p> <p>Connections to Nature of Science</p> <p>Scientific Investigations Use a Variety of Methods</p> <ul style="list-style-type: none">Science investigations begin with a question.Scientists use different ways to study the world.	<p>PS4.A: Wave Properties</p> <ul style="list-style-type: none">Sound can make matter vibrate, and vibrating matter can make sound.	<p>Cause and Effect</p> <ul style="list-style-type: none">Simple tests can be designed to gather evidence to support or refute student ideas about causes.

Connections to other DCIs in first grade: N/A

Articulation of DCIs across grade-levels:

4.ETS1.A

Common Core State Standards Connections:

ELA/Literacy –

W.1.7 Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). (1-PS4-1)

W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-PS4-1)

SL.1.1 Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. (1-PS4-1)

NM 6 standards

1-SS-1 NM. Obtain information about how men and women of all ethnic and social backgrounds in New Mexico have worked together to advance science and technology.

5-SS-1 NM. Communicate information gathered from books, reliable media, or outside sources, that describes how a variety of scientists and engineers across New Mexico have improved existing technologies, developed new ones, or improved society through applications of science.

MS-ESS3-3 NM. Describe the advantages and disadvantages associated with technologies related to local industries and energy production.

HS-LS2-7 NM. Using a local issue in your solution design, describe and analyze the advantages and disadvantages of human activities that support the local population such as reclamation projects, building dams, and habitat restoration.

HS-SS-1 NM. Obtain and communicate information about the role of New Mexico in nuclear science and 21st century innovations including how the national laboratories have contributed to theoretical, experimental, and applied science; have illustrated the interdependence of science, engineering, and technology; and have used systems involving hardware, software, production, simulation, and information flow.

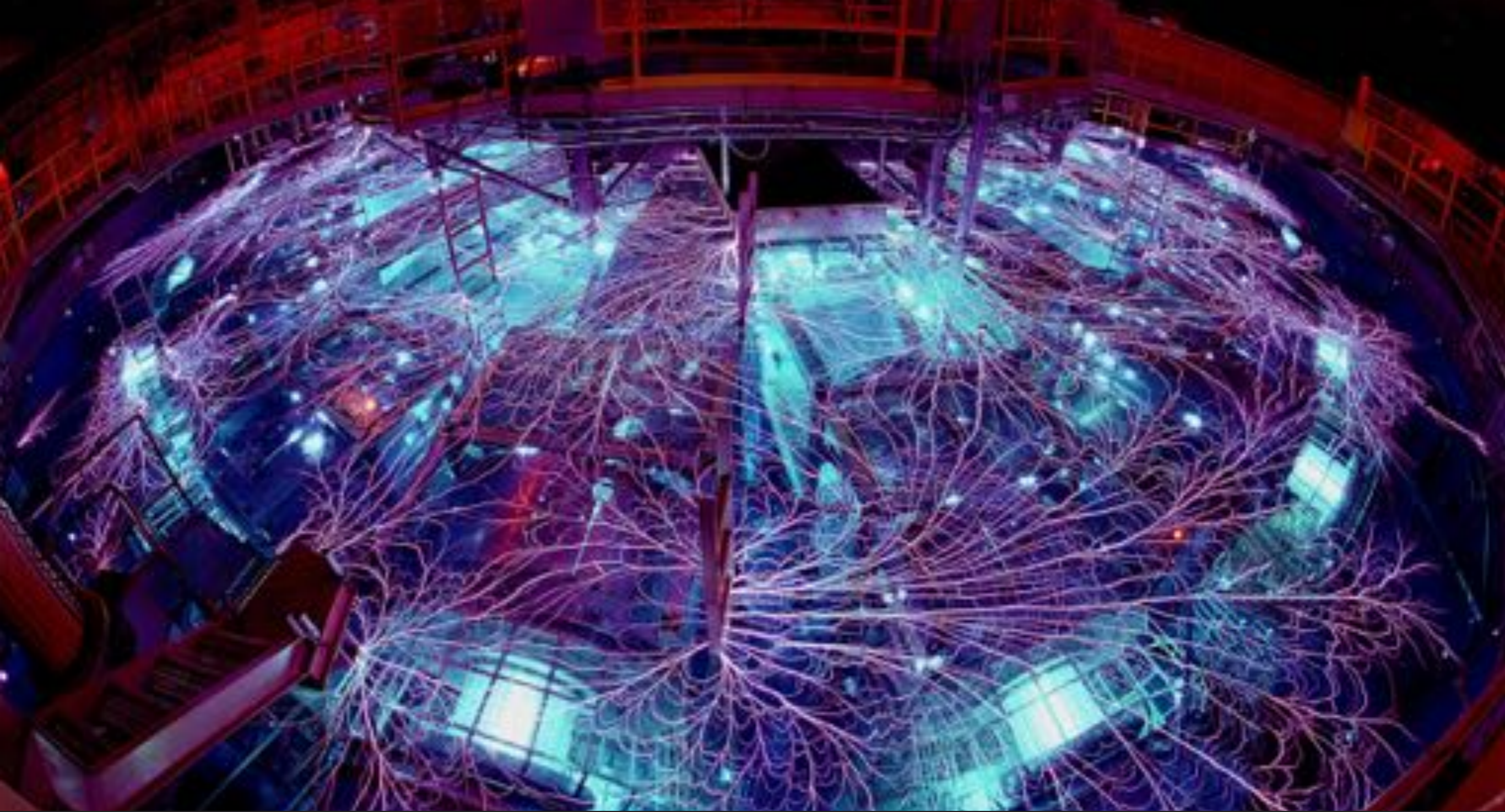
HS-SS-2 NM. Construct an argument using claims, scientific evidence, and reasoning that helps decision makers with a New Mexico challenge or opportunity as it relates to science.

Check

Identify the DCI, SEP and CCC for this standard

HS-LS4-1 Biological Evolution: Unity and Diversity

Communicate scientific information that **common ancestry and biological evolution** are supported by **multiple lines of empirical evidence**



Implementation



SCIENCE STANDARDS IMPLEMENTATION TIMELINE

“Our STEM Community working together for kids”



Standards

Current New Mexico state science standards taught in all grades

Professional Learning

Teacher/administrator professional learning on new science standards should include:

- Classroom instructional shifts
- 3-Dimensional structure
- Content knowledge
- Exemplar units

Curriculum & Instruction

- New instructional materials identified, developed, and reviewed
- **Educator** working groups recommend secondary course maps
- Exemplar grade level units are made available in Spring 2018



Standards

New Mexico STEM Ready! science standards take effect for all grades

Professional Learning

Continued **teacher/administrator** professional learning on new science standards should include:

- Classroom instructional shifts
- 3-Dimensional structure
- Content knowledge
- Exemplar units
- Formative assessments

Curriculum & Instruction

- State approved instructional materials available



Standards

New Mexico STEM Ready! science standards taught in all grades

Professional Development

On-going **teacher/administrator** professional learning on new science standards should include:

- Classroom instructional shifts
- 3-Dimensional structure
- Content knowledge
- Exemplar units
- Formative assessments

Curriculum & Instruction

- NM STEM Ready! science aligned instruction occurring in all classrooms
- NM summative assessment in Spring 2020



There will be changes in **what** you teach

2003 standards - 4th grade

- Every benchmark, every year
- Heavy on physical science

NGSS standards - 4th grade

- Energy
- Waves
- Structure & properties (life science)
- Rock structures, cycles & fossils

California model curricula

- Car Crashes
- Renewable Energy
- Sculpting Landscapes
- Earthquake Engineering
- Animal Senses

Amplify Science

- Energy Conversions
- Vision and Light
- Earth's Features
- Waves, Energy, and Information

There will be changes in **how** you teach



Appendix D - "All Standards, All Students": Making the Next Generation Science Standards Accessible to All Students

The Next Generation Science Standards when major changes in education are occurring and demographics across the nation are changing. Yet, a student diversity in the classrooms. Yet, a indicators among demographic subgroups are emerging for a new wave of standards. Standards (CCSS) for English language standards are cognitively demanding, teach students to be college and career ready.

The NGSS are building on the National years, including *Taking Science to Schools Ready, Set, Science!* (2008), *Learning Science notably A Framework for K-12 Science Education* that, when provided with equitable learning capable of engaging in scientific practices and informal settings.

This chapter, accompanied by several what classroom teachers can do to ensure title: "All Standards, All Students." Success (e.g., constructing explanations, engaging crosscutting concepts (e.g., patterns, structure disciplinary core ideas (e.g., structure and demand increased cognitive expectations, been expected only of "advanced," "gifted" provide a foundation for all students, including performance expectations. At the same time expectations apply to those students who even in the previous generation of less cost and the case studies is to demonstrate that

Throughout the chapter and case studies groups are used with reference to student group(s) does not refer to numerical majority privilege. This is particularly the case as classrooms. Even where the dominant group academic backgrounds persists. In contrast underserved by the education system. That the education system meets the learning population.

The chapter highlights practicality grounded in theoretical or conceptual framework both learning opportunities and challenges traditionally been underserved in science

June 2013



Teaching Tools for Science, Technology, Engineering and Mathematics

HOME TOOLS PD MODULES NEWS

Practice Briefs

These very short pieces highlight ways of working on specific issues that come up due to browse or download the entire collection of tools as eye-catching PDFs, check out <http://STEMteachingtools.org/link/PDFcollection/>

We're translating our collection of tools for science education into Spanish. Click here that have been translated.

Estamos traduciendo al Español nuestra colección de herramientas para la educación leer las STEM Teaching Tools (STT) que han sido traducidas.



Practice Brief 1
Is it important to distinguish between the explanation and argumentation practices in the classroom?



Practice Brief 2
Why should students investigate contemporary science topics—and not just "settled" science?



Practice Brief 3
Practices should not stand alone: How to sequence practices in a cascade to support student investigations



Practice Brief 4
Are there multiple instructional models that fit with the science and engineering practices in NGSS? (Short answer: Yes.)

NEXT GENERATION SCIENCE STORYLINES

HOME STORYLINES TOOLS TALKS & PAPERS ABOUT NEWS

Storylines

WHAT ARE STORYLINES?

ELEMENTARY

MIDDLE SCHOOL

HIGH SCHOOL

K-5 Elementary Storylines



HOW DOES LIGHT HELP ME SEE THINGS AND COMMUNICATE WITH OTHERS?

This first-grade unit on light starts out with students exploring how many shapes they can see on different pieces of paper at various locations around their classroom when the lights are turned off. They are surprised to find that some of the shapes are not visible in these conditions. This leads students to start wondering about other phenomena related to seeing in the dark, which in turn leads to new questions and design problems related to how they can make their room completely dark. (PS4, ETS1)

Nov 21, 2019



WHY IS OUR CORN CHANGING?

This second-grade unit on plant growth starts off with students exploring the mystery of their harvest corn, something they initially saw as decoration, beginning to sprout what look like leaves and roots. Disagreements about how the corn is growing to spark a series of questions and ideas for investigations related to what is causing this growth. (LS1, LS2)

Mar 11, 2019



WHY ARE THERE DIFFERENT PLANTS GROWING IN DIFFERENT PLACES?

[Coming Soon - anticipated release date in Summer 2018] This second-grade unit on plant reproduction and habitats starts out with students exploring the kind of plants they find growing in different places around their school and neighborhood. Their explorations reveal some surprising places where plants are sprouting. This raises a series of questions and ideas for investigations to pursue related to why there are different plants growing in different places. (LS1, LS2, LS4, ETS1)

Jul 1, 2017



WHY DO DEAD THINGS DISAPPEAR OVER TIME?

In this fifth-grade unit on interrelationships in ecosystems, students investigate the apparent disappearance of the body of a dead raccoon over time. Their findings lead them to uncover the role of decomposers in this process, as well as the role of decomposers in the disappearance of plant debris over time. Students ultimately track down where the materials come from that all living things need for repair and growth and where the energy comes from that they use to move and stay warm. (LS1, LS2, PS1, PS3)

Apr 11, 2017



WHERE DOES OUR CLEAN WATER COME FROM AND WHERE DOES IT GO AFTER WE MAKE IT DIRTY?

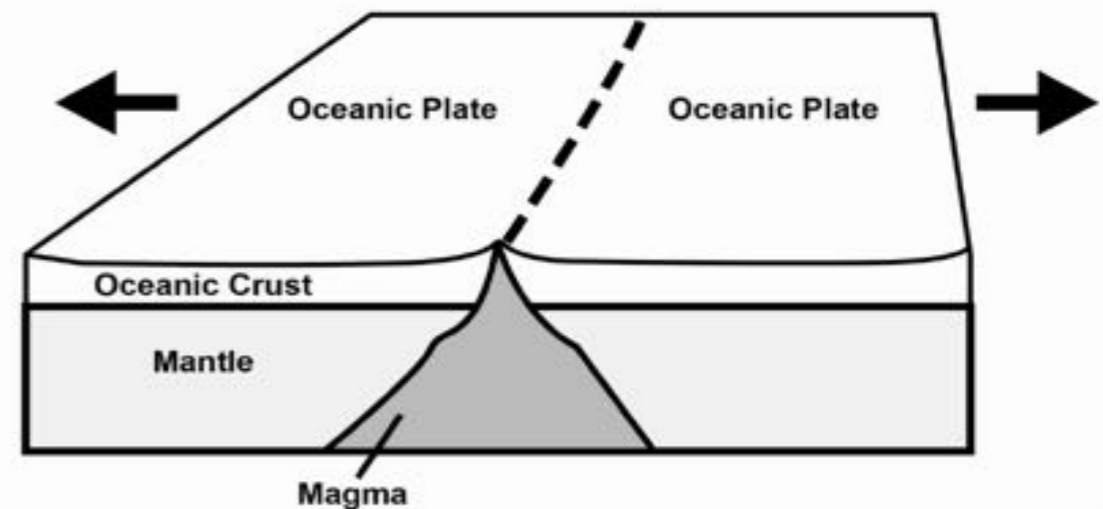
[Coming Soon - anticipated Beta release date in Summer of 2018]. In this fifth-

Tweets by @STEMTeachTools

There will be changes in curriculum materials

There will be changes in assessment

The picture shows a place on the ocean floor where two plates are moving apart. At this plate boundary (shown at the dotted line), rock material is rising to the surface.



1. Draw on the picture to show what is happening in the mantle that causes the plates to move apart.
2. What is happening in the mantle that helps to explain why the two plates are moving apart?
3. Put an X on the places in the picture above where the oldest rock can be found in the crust.
4. Explain your answer.

Anatomy of a standard

1-PS4-1 Plan and conduct an investigation to provide evidence that vibrating materials can make sound and that sound can make materials vibrate

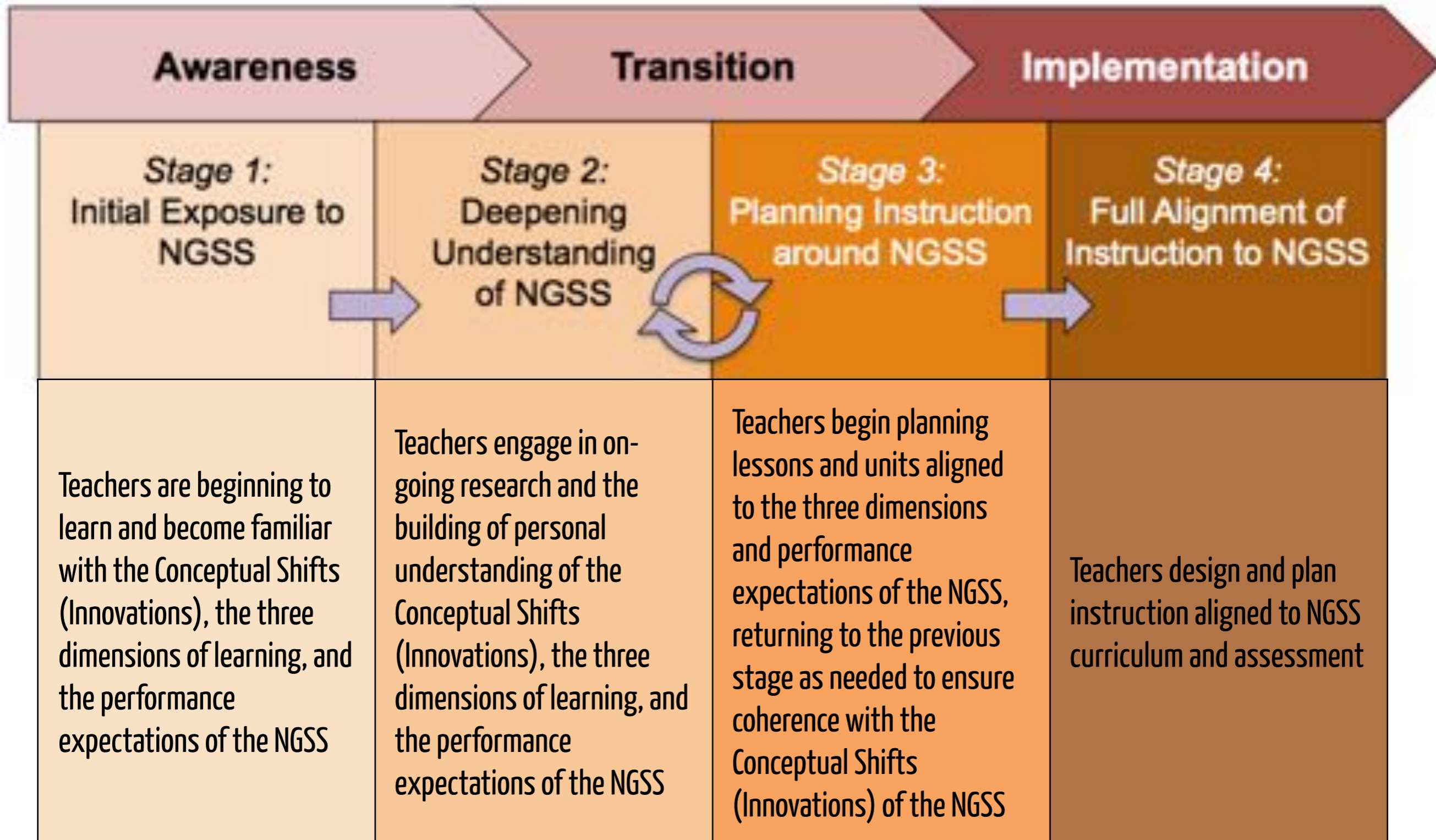
Evidence
statement

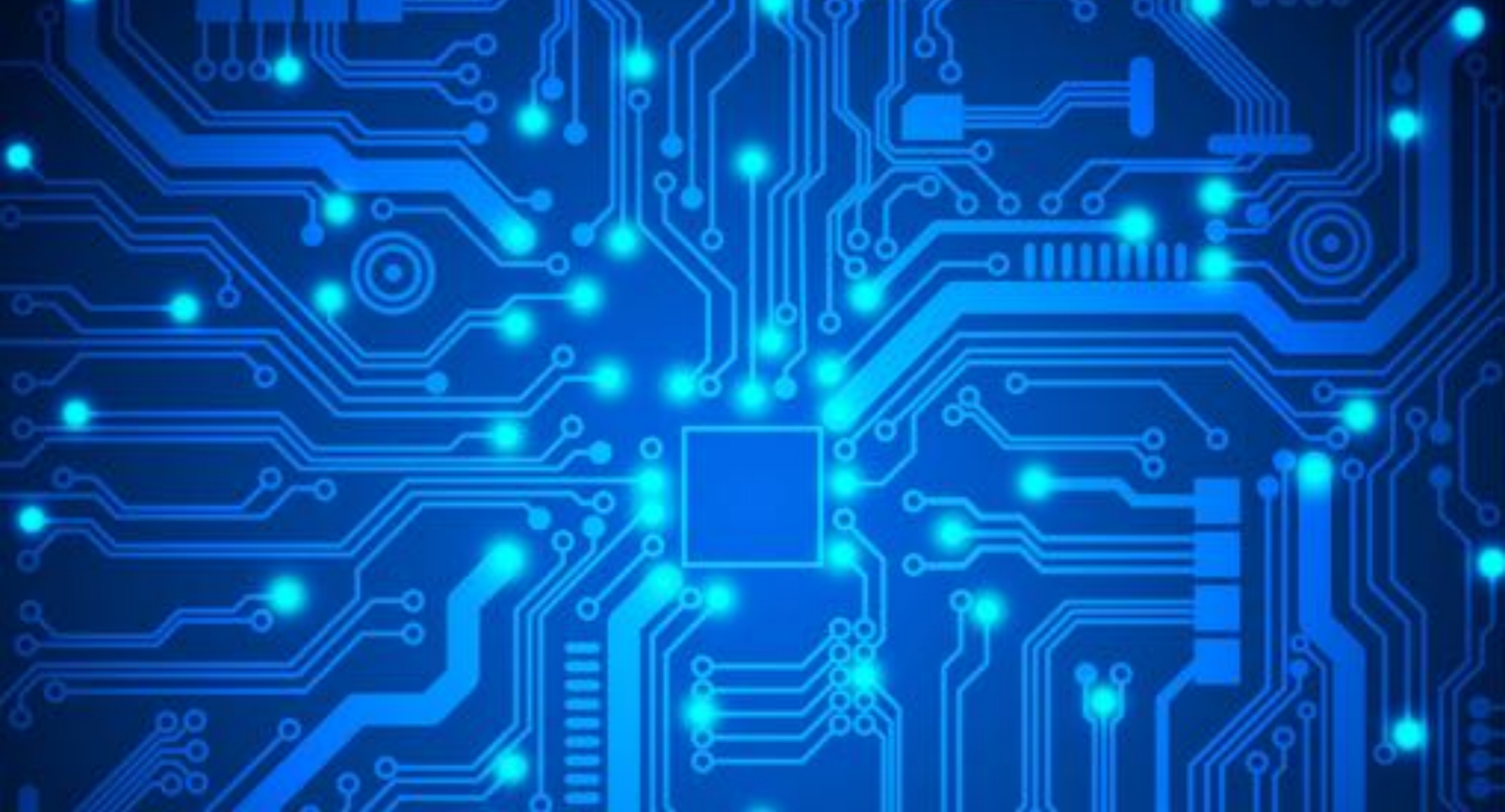
Observable features of the student performance by the end of the grade:	
1	Identifying the phenomenon under investigation
a	Students identify and describe* the phenomenon and purpose of the investigation, which include providing evidence to answer questions about the relationship between vibrating materials and sound.
2	Identifying the evidence to address the purpose of the investigation
a	Students collaboratively develop an investigation plan and describe* the evidence that will result from the investigation, including: <ul style="list-style-type: none">i. Observations that sounds can cause materials to vibrate.ii. Observations that vibrating materials can cause sounds.iii. How the data will provide evidence to support or refute ideas about the relationship between vibrating materials and sound.
b	Students individually describe* (with support) how the evidence will address the purpose of the investigation.
3	Planning the investigation
a	In the collaboratively developed investigation plan, students individually identify and describe*: <ul style="list-style-type: none">i. The materials to be used.ii. How the materials will be made to vibrate to make sound.iii. How resulting sounds will be observed and described*.iv. What sounds will be used to make materials vibrate.v. How it will be determined that a material is vibrating.
4	Collecting the data
a	According to the investigation plan they develop, students collaboratively collect and record observations about: <ul style="list-style-type: none">i. Sounds causing materials to vibrate.ii. Vibrating materials causing sounds.

There will be mismatches & misalignments



Next steps





Wrap up

TRUTHS & MYTHS

What do you know about the Next Generation Science Standards?

Statement	Before	After
1. They were created by the federal government.	Myth _____ Truth _____	Myth _____ Truth _____
2. They have been adopted by the state of New Mexico.	Myth _____ Truth _____	Myth _____ Truth _____
3. A national curriculum for K-12 science education is being developed.	Myth _____ Truth _____	Myth _____ Truth _____
4. My district & school will need to purchase new curriculum materials to teach to these standards.	Myth _____ Truth _____	Myth _____ Truth _____
5. They will be included with PARCC testing.	Myth _____ Truth _____	Myth _____ Truth _____
6. The teaching of evolution, climate change and other controversial topics is optional.	Myth _____ Truth _____	Myth _____ Truth _____
7. The same group that created the Common Core State Standards created them.	Myth _____ Truth _____	Myth _____ Truth _____
8. They elevate the importance of engineering in science.	Myth _____ Truth _____	Myth _____ Truth _____
9. They specify grade level standards for grades K-8.	Myth _____ Truth _____	Myth _____ Truth _____
10. They are intended primarily for college-bound students.	Myth _____ Truth _____	Myth _____ Truth _____
11. The standards are performance expectations that tell what facts students should know.	Myth _____ Truth _____	Myth _____ Truth _____
12. There is no more 'scientific method.'	Myth _____ Truth _____	Myth _____ Truth _____
13. They will require a fundamental change to secondary (middle and high school) scope and sequence.	Myth _____ Truth _____	Myth _____ Truth _____
14. Assessment of the standards will be easier than it currently is.	Myth _____ Truth _____	Myth _____ Truth _____

Do this again.

Did we meet our goals?

1. You should be able to explain the structure of NM STEM Ready! Science Standards
2. You should understand the PED science standards roll-out plan



Upcoming NMSTA Workshops...

QUESTIONS?

