

Sunshine State Science Standards, Current as of June 2009

Benchmark	Descriptor	Dawn of the Space Age	Sky Quest	Cosmic Journey	Two Small Pieces of Glass	Black Holes	IBEX	Einstein's Universe
SC.K.E.5.1	Explore the Law of Gravity by investigating how objects are pulled toward the ground unless something holds them up.	✓				✓		
SC.K.E.5.2	Recognize the repeating pattern of day and night.		✓					
SC.K.E.5.3	Recognize that the Sun can only be seen in the daytime.							
SC.K.E.5.4	Observe that sometimes the Moon can be seen at night and sometimes during the day.		✓					
SC.K.E.5.5	Observe that things can be big and things can be small as seen from Earth.		✓	✓	✓			
SC.K.E.5.6	Observe that some objects are far away and some are nearby as seen from Earth.	✓	✓		✓			
SC.K.N.1.5	Recognize that learning can come from careful observation.	✓	✓	✓	✓	✓		✓
SC.1.E.5.1	Observe and discuss that there are more stars in the sky than anyone can easily count and that they are not scattered evenly in the sky.		✓	✓	✓			
SC.1.E.5.2	Explore the Law of Gravity by demonstrating that Earth's gravity pulls any object on or near Earth toward it even though nothing is touching the object.	✓				✓		✓
SC.1.E.5.3	Investigate how magnifiers make things appear bigger and help people see things they could not see without them.		✓	✓	✓			
SC.1.E.5.4	Identify the beneficial and harmful properties of the Sun.							
SC.1.N.1.1	Raise questions about the natural world, investigate them in teams through free exploration, and generate appropriate explanations based on those explorations.							✓

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SC.2.E.7.2	Investigate by observing and measuring, that the Sun's energy directly and indirectly warms the water, land, and air.							
SC.2.P.13.3	Recognize that objects are pulled toward the ground unless something holds them up.	✓				✓		✓
SC.2.P.13.4	Demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object.	✓						✓
SC.3.E.5.1	Explain that stars can be different; some are smaller, some are larger, and some appear brighter than others; all except the Sun are so far away that they look like points of light.		✓	✓	✓	✓		✓
SC.3.E.5.2	Identify the Sun as a star that emits energy; some of it in the form of light.		✓	✓	✓	✓		✓
SC.3.E.5.3	Recognize that the Sun appears large and bright because it is the closest star to Earth.							
SC.3.E.5.4	Explore the Law of Gravity by demonstrating that gravity is a force that can be overcome.	✓						✓
SC.3.E.5.5	Investigate that the number of stars that can be seen through telescopes is dramatically greater than those seen by the unaided eye.		✓	✓	✓			
SC.3.E.6.1	Demonstrate that radiant energy from the Sun can heat objects and when the Sun is not present, heat may be lost.							✓
SC.3.N.1.1	Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.			✓	✓			✓
SC.3.N.1.5	Recognize that scientists question, discuss, and check each others' evidence and explanations.			✓	✓			✓
SC.3.N.1.6	Infer based on observation.	✓	✓	✓	✓	✓		✓

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SC.3.N.1.7	Explain that empirical evidence is information, such as observations or measurements, that is used to help validate explanations of natural phenomena.	✓	✓	✓	✓	✓		✓
SC.3.N.3.1	Recognize that words in science can have different or more specific meanings than their use in everyday language; for example, energy, cell, heat/cold, and evidence.							✓
SC.3.N.3.2	Recognize that scientists use models to help understand and explain how things work.		✓	✓	✓			
SC.3.N.3.3	Recognize that all models are approximations of natural phenomena; as such, they do not perfectly account for all observations.							
SC.3.P.10.3	Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another.			✓	✓	✓		✓
SC.3.P.10.4	Demonstrate that light can be reflected, refracted, and absorbed.		✓		✓			✓
SC.4.E.5.1	Observe that the patterns of stars in the sky stay the same although they appear to shift across the sky nightly, and different stars can be seen in different seasons.		✓	✓	✓			
SC.4.E.5.2	Describe the changes in the observable shape of the moon over the course of about a month.		✓					
SC.4.E.5.3	Recognize that Earth revolves around the Sun in a year and rotates on its axis in a 24-hour day.		✓		✓			
SC.4.E.5.4	Relate that the rotation of Earth (day and night) and apparent movements of the Sun, Moon, and stars are connected.		✓		✓			
SC.4.E.5.5	Investigate and report the effects of space research and exploration on the economy and culture of Florida.	✓						
SC.4.L.17.3	Trace the flow of energy from the Sun as it is transferred along the food chain through the producers to the consumers.							

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SC.4.N.1.7	Recognize and explain that scientists base their explanations on evidence.				✓		✓	✓
SC.5.E.5.1	Recognize that a galaxy consists of gas, dust, and many stars, including any objects orbiting the stars. Identify our home galaxy as the Milky Way.		✓	✓	✓	✓	✓	
SC.5.E.5.2	Recognize the major common characteristics of all planets and compare/contrast the properties of inner and outer planets.		✓					
SC.5.E.5.3	Distinguish among the following objects of the Solar System -- Sun, planets, moons, asteroids, comets -- and identify Earth's position in it.		✓		✓			
SC.5.P.8.4	Explore the scientific theory of atoms (also called atomic theory) by recognizing that all matter is composed of parts that are too small to be seen without magnification.					✓	✓	✓
SC.5.P.9.1	Investigate and describe that many physical and chemical changes are affected by temperature.							✓
SC.5.P.13.1	Identify familiar forces that cause objects to move, such as pushes or pulls, including gravity acting on falling objects.	✓				✓		
SC.7.P.10.1	Illustrate that the sun's energy arrives as radiation with a wide range of wavelengths, including infrared, visible, and ultraviolet, and that white light is made up of a spectrum of many different colors.				✓		✓	✓
SC.7.P.10.2	Observe and explain that light can be reflected, refracted, and/or absorbed.				✓		✓	✓
SC.7.P.10.3	Recognize that light waves, sound waves, and other waves move at different speeds in different materials.				✓			
SC.8.E.5.1	Recognize that there are enormous distances between objects in space and apply our knowledge of light and space travel to understand this distance.		✓	✓	✓	✓	✓	✓
SC.8.E.5.2	Recognize that the universe contains many billions of galaxies and that each galaxy contains many billions of stars.		✓	✓	✓	✓	✓	

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SC.8.E.5.3	Distinguish the hierarchical relationships between planets and other astronomical bodies relative to solar system, galaxy, and universe, including distance, size, and composition.		✓	✓	✓			
SC.8.E.5.4	Explore the Law of Universal Gravitation by explaining the role that gravity plays in the formation of planets, stars, and solar systems and in determining their motions.	✓				✓		
SC.8.E.5.5	Describe and classify specific physical properties of stars: apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness).		✓		✓			✓
SC.8.E.5.6	Create models of solar properties including: rotation, structure of the Sun, convection, sunspots, solar flares, and prominences.				✓			
SC.8.E.5.7	Compare and contrast the properties of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions.							
SC.8.E.5.8	Compare various historical models of the Solar System, including geocentric and heliocentric.				✓			
SC.8.E.5.10	Assess how technology is essential to science for such purposes as access to outer space and other remote locations, sample collection, measurement, data collection and storage, computation, and communication of information.	✓		✓	✓	✓	✓	
SC.8.E.5.11	Identify and compare characteristics of the electromagnetic spectrum such as wavelength, frequency, use, and hazards and recognize its application to an understanding of planetary images and satellite photographs.	✓		✓	✓		✓	
SC.8.E.5.12	Summarize the effects of space exploration on the economy and culture of Florida.	✓						
SC.8.P.8.1	Explore the scientific theory of atoms (also known as atomic theory) by using models to explain the motion of particles in solids, liquids, and gases.						✓	✓

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SC.8.P.8.2	Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object and is distinct from, though proportional to, mass.							
SC.8.P.8.3	Explore and describe the densities of various materials through measurement of their masses and volumes.							
SC.8.P.8.4	Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured; for example, density, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points, and know that these properties are independent of the amount of the sample.							
SC.8.P.8.7	Explore the scientific theory of atoms (also known as atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of sub-atomic particles (electrons surrounding a nucleus containing protons and neutrons).						✓	
SC.912.E.5.1	Cite evidence used to develop and verify the scientific theory of the Big Bang (also known as the Big Bang Theory) of the origin of the universe.			✓	✓			✓
SC.912.E.5.2	Identify patterns in the organization and distribution of matter in the universe and the forces that determine them.							✓
SC.912.E.5.3	Describe and predict how the initial mass of a star determines its evolution.					✓		
SC.912.E.5.4	Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.						✓	✓
SC.912.E.5.5	Explain the formation of planetary systems based on our knowledge of our Solar System and apply this knowledge to newly discovered planetary systems.				✓			
SC.912.E.5.6	Develop logical connections through physical principles, including Kepler's and Newton's Laws about the relationships and the effects of Earth, Moon, and Sun on each other.					✓		

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SC.912.E.5.7	Relate the history of and explain the justification for future space exploration and continuing technology development.	✓						
SC.912.E.5.8	Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.				✓		✓	
SC.912.E.5.9	Analyze the broad effects of space exploration on the economy and culture of Florida.	✓						
SC.912.E.5.10	Describe and apply the coordinate system used to locate objects in the sky.							
SC.912.E.5.11	Distinguish the various methods of measuring astronomical distances and apply each in appropriate situations.							
SC.912.P.8.4	Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within the atom.						✓	✓
SC.912.P.10.11	Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.							✓
SC.912.P.10.12	Differentiate between chemical and nuclear reactions.							✓
SC.912.P.10.18	Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.				✓			✓
SC.912.P.10.19	Explain that all objects emit and absorb electromagnetic radiation and distinguish between objects that are blackbody radiators and those that are not.							
SC.912.P.12.4	Describe how the gravitational force between two objects depends on their masses and the distance between them.	✓				✓		✓

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SC.912.P.12.7	Recognize that nothing travels faster than the speed of light in vacuum which is the same for all observers no matter how they or the light source are moving.					✓		✓