

**Access Integrated Science**

**1**

# (#7920025)

# Access Integrated Science 1

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# Course Standards

##  [SC.912.E.5.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/1881)

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.

**Clarifications:**
Explain evidence to support the formation of the universe, which has been expanding for approximately 15 billion year (e.g. ratio of gases, red-shift from distant galaxies, and cosmic background radiation).

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.E.5.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8201) | Recognize that the Milky Way is part of the expanding universe. |  |  |  |
| [SC.912.E.5.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8202) | Recognize that the universe consists of many galaxies, including the Milky Way.  |  |  |  |
| [SC.912.E.5.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8203) | Recognize that when objects move away from each other, the distance between them expands. |  |  |  |
| Resources:  |  |  |  |  |

## [SC.912.E.5.2:](https://www.cpalms.org/Public/PreviewStandard/Preview/1882)

Identify patterns in the organization and distribution of matter in the universe and the forces that determine them.

**Clarifications:**

Identify patterns that influence the formation, hierarchy, and motions of the various kinds of objects in the solar system and the role of gravity and inertia on these motions (include the Sun, Earth, and Moon, planets, satellites, comets, asteroids, star clusters, galaxies, galaxy clusters). Recognize that the universe contains many billions of galaxies, and each galaxy contains many billions of stars. Recognize that constellations are contrived associations of stars that do not reflect functional relationships in space.
Florida Standards Connections: MAFS.K12.MP.7: Look for and make use of structure.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.E.5.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8201) | Recognize that the Milky Way is part of the expanding universe. |  |  |  |
| [SC.912.E.5.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8202) | Recognize that the universe consists of many galaxies, including the Milky Way.  |  |  |  |
| [SC.912.E.5.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8203) | Recognize that when objects move away from each other, the distance between them expands. |  |  |  |
| Resources: |  |  |  |  |

[SC.912.E.5.4:](https://www.cpalms.org/Public/PreviewStandard/Preview/1883)

Explain the physical properties of the Sun and its dynamic nature and connect them to conditions and events on Earth.

**Clarifications:**
Describe the physical properties of the Sun (sunspot cycles, solar flares, prominences, layers of the Sun, coronal mass ejections, and nuclear reactions) and the impact of the Sun as the main source of external energy for the Earth.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.E.5.In.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8207) | Describe the Sun as a medium-sized star with sunspots and storms that can affect weather and radio transmissions on Earth.  |  |  |  |
| [SC.912.E.5.Su.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8208) | Describe observable effects of the Sun on Earth, such as changes in light and temperature.  |  |  |  |
| [SC.912.E.5.Pa.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8209) | Observe and recognize effects of the Sun on Earth, such as temperature changes.  |  |  |  |
| Resources: |  |  |  |  |

## [SC.912.E.5.7:](https://www.cpalms.org/Public/PreviewStandard/Preview/1886)

 Relate the history of and explain the justification for future space exploration and continuing technology development.

## **Clarifications:**Identify examples of historical space exploration (e.g. telescopes, high altitude balloons, lunar landers, deep-space probes, space station) that had significant impact on current space exploration and recognize the importance of continued exploration in space.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.E.5.In.6:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8215) | Identify major contributions and research from space exploration that affected Florida’s economy and culture.  |  |  |  |
| [SC.912.E.5.Su.6:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8216) | Identify major contributions related to space exploration that affected Florida.  |  |  |  |
| [SC.912.E.5.Pa.5:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8217) | Recognize items, such as freeze-dried food and space blankets, developed because of space exploration.  |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.E.5.8:](https://www.cpalms.org/Public/PreviewStandard/Preview/1887)

Connect the concepts of radiation and the electromagnetic spectrum to the use of historical and newly-developed observational tools.

**Clarifications:**
Describe how frequency is related to the characteristics of electromagnetic radiation and recognize how spectroscopy is used to detect and interpret information from electromagnetic radiation sources.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.E.5.In.5:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8218) | Identify tools that use different types of radiation, such as radio waves, ultraviolet radiation, and infrared waves.  |  |  |  |
| [SC.912.E.5.Su.7:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8219) | Recognize examples of tools that use radiation for observation purposes, such as x-rays and infrared night goggles.  |  |  |  |
| [SC.912.E.5.Pa.6:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8220) | Recognize a tool that uses radiation for personal reasons, such as x-rays. |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.E.6.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/1863)

Describe and differentiate the layers of Earth and the interactions among them.

**Clarifications:**
Recognize the importance of the study of seismic wave data and how it can be used to determine the internal structure, density variations, and dynamic processes between Earth's layers.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.E.6.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8223) | Describe the three layers of Earth (core, mantle, and crust).  |  |  |  |
| [SC.912.E.6.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8224) | Recognize the three layers of Earth (core, mantle, and crust). |  |  |  |
| [SC.912.E.6.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8225) | Identify a surface feature of Earth, such as a hill.  |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.E.6.2:](https://www.cpalms.org/Public/PreviewStandard/Preview/1864)

Connect surface features to surface processes that are responsible for their formation.

**Clarifications:**
Identify various landforms (e.g. dunes, lakes, sinkholes, aquifers) and describe how they form (erosion, physical/chemical weathering, and deposition). Explain how sea level changes over time have exposed and inundated continental shelves, created and destroyed inland seas, and shaped the surface of the Earth.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.E.6.In.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8226) | Describe examples of surface features, such as glaciers, valleys, canyons, and dried riverbeds, which are caused by wind and erosion (surface processes). |  |  |  |
| [SC.912.E.6.Su.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8227) | Identify types of surface features, such as hills and valleys.  |  |  |  |
| [SC.912.E.6.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8225) | Identify a surface feature of Earth, such as a hill.  |  |  |  |
| Resources: |  |  |  |  |

[SC.912.E.6.3:](https://www.cpalms.org/Public/PreviewStandard/Preview/1889)

Analyze the scientific theory of plate tectonics and identify related major processes and features as a result of moving plates.

**Clarifications:**
Discuss the development of plate tectonic theory, which is derived from the combination of two theories: continental drift and seafloor spreading. Compare and contrast the three primary types of plate boundaries (convergent, divergent, and transform). Explain the origin of geologic features and processes that result from plate tectonics (e.g. earthquakes, volcanoes, trenches, mid-ocean ridges, island arcs and chains, hot spots, earthquake distribution, tsunamis, mountain ranges).

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.E.6.In.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8228) | Relate a cause and effect of movements in Earth’s crust (plate tectonics), such as fault lines in the plates causing earthquakes.  |  |  |  |
| [SC.912.E.6.Su.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8229) | Recognize that Earth’s crust is broken into parts (plates) that move and cause mountains and volcanoes.  |  |  |  |
| [SC.912.E.6.Pa.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8230) | Recognize that the surface of Earth can change.  |  |  |  |
| Resources: |  |  |  |  |

[SC.912.E.7.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/1893)

Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon.

**Clarifications:**
Describe that the Earth system contains fixed amounts of each stable chemical element and that each element moves among reservoirs in the solid earth, oceans, atmosphere and living organisms as part of biogeochemical cycles (i.e., nitrogen, water, carbon, oxygen and phosphorus), which are driven by energy from within the Earth and from the Sun.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.E.7.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8233) | Identify cycles that occur on Earth, such as the water and carbon cycles, and the role energy plays in them. |  |  |  |
| [SC.912.E.7.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8234) | Recognize the phases of the water cycle that occur on Earth and the role energy plays in the water cycle.  |  |  |  |
| [SC.912.E.7.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8235) | Recognize that clouds release rain (part of the water cycle).  |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.E.7.3:](https://www.cpalms.org/Public/PreviewStandard/Preview/1895)

Differentiate and describe the various interactions among Earth systems, including: atmosphere, hydrosphere, cryosphere, geosphere, and biosphere.

**Clarifications:**
Interactions include transfer of energy (biogeochemical cycles, water cycle, ground and surface waters, photosynthesis, radiation, plate tectonics, conduction, and convection), storms, winds, waves, erosion, currents, deforestation and wildfires, hurricanes, tsunamis, volcanoes.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.E.7.In.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8239) | Describe the interactions among the atmosphere, hydrosphere, and biosphere, including how air, water, and land support living things and how air temperature affects water and land temperatures.  |  |  |  |
| [SC.912.E.7.Su.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8240) | Recognize components of the atmosphere, the hydrosphere, and the biosphere.  |  |  |  |
| [SC.912.E.7.Pa.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8241) | Recognize that humans, plants, and animals live on the Earth (biosphere).  |  |  |  |
| Resources: |  |  |  |  |

[SC.912.L.14.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/1944)

Describe the scientific theory of cells (cell theory) and relate the history of its discovery to the process of science.

**Clarifications:**
Describe how continuous investigations and/or new scientific information influenced the development of the cell theory. Recognize the contributions of scientists in the development of the cell theory.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.14.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8326) | Identify that all living things are made of cells and cells function in similar ways (cell theory). |  |  |  |
| [SC.912.L.14.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8327) | Identify that the cell is the smallest basic unit of life and that all living things are made of cells. |  |  |  |
| [SC.912.L.14.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8328) | Match parts of common living things to their functions. |  |  |  |
| Resources:  |  |  |  |  |

[SC.912.L.14.2:](https://www.cpalms.org/Public/PreviewStandard/Preview/1945)

Relate structure to function for the components of plant and animal cells. Explain the role of cell membranes as a highly selective barrier (passive and active transport).

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.14.In.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8329) | Identify the major parts of plant and animal cells, including the cell membrane, nucleus, and cytoplasm, and their basic functions. |  |  |  |
| [SC.912.L.14.Su.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8330) | Recognize that cells have different parts and each has a function. |  |  |  |
| [SC.912.L.14.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8328) | Match parts of common living things to their functions. |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.L.14.3:](https://www.cpalms.org/Public/PreviewStandard/Preview/1946)

Compare and contrast the general structures of plant and animal cells. Compare and contrast the general structures of prokaryotic and eukaryotic cells.

**Clarifications:**

Annually Assessed on Biology EOC. Also assesses SC.912.L.14.2.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.14.In.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8329) | Identify the major parts of plant and animal cells, including the cell membrane, nucleus, and cytoplasm, and their basic functions. |  |  |  |
| [SC.912.L.14.Su.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8330) | Recognize that cells have different parts and each has a function. |  |  |  |
| [SC.912.L.14.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8328) | Match parts of common living things to their functions. |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.L.14.4:](https://www.cpalms.org/Public/PreviewStandard/Preview/1941)

Compare and contrast structure and function of various types of microscopes.

[SC.912.L.14.7:](https://www.cpalms.org/Public/PreviewStandard/Preview/1949)

Relate the structure of each of the major plant organs and tissues to physiological processes.

**Clarifications:**

Annually Assessed on Biology EOC.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.14.In.5:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8336)+ | Describe the general processes of food production, support, water transport, and reproduction in the major parts of plants. |  |  |  |
| [SC.912.L.14.Su.4:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8337) | Relate parts of plants, such as leaf, stem, root, seed, and flower, to the functions of food production, support, water transport, and reproduction. |  |  |  |
| [SC.912.L.14.Pa.4:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8338) | Recognize major plant parts, such as root, stem, leaf, and flower. |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.L.15.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/1992)

Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change.

**Clarifications:**

Annually Assessed on Biology EOC. Also assesses SC.912.L.15.10; SC.912.N.1.3; SC.912.N.1.4; SC.912.N.1.6; SC.912.N.2.1; SC.912.N.3.1; and SC.912.N.3.4.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.15.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8339) | Identify that prehistoric plants and animals changed over time (evolved) or became extinct. |  |  |  |
| [SC.912.L.15.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8340) | Match fossils to related species. |  |  |  |
| [SC.912.L.15.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8341) | Recognize that plants and animals change as they age. |  |  |  |
| Resources: |  |  |  |  |

[SC.912.L.15.4:](https://www.cpalms.org/Public/PreviewStandard/Preview/1998)

Describe how and why organisms are hierarchically classified and based on evolutionary relationships.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.15.In.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8342) | Classify living organisms into their kingdoms. |  |  |  |
| [SC.912.L.15.Su.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8343) | Match organisms to the animal, plant, and fungus kingdoms. |  |  |  |
| [SC.912.L.15.Pa.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8344) | Sort common living things into plant and animal kingdoms. |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.L.15.5:](https://www.cpalms.org/Public/PreviewStandard/Preview/1999)

Explain the reasons for changes in how organisms are classified.

[SC.912.L.15.6:](https://www.cpalms.org/Public/PreviewStandard/Preview/2000)

Discuss distinguishing characteristics of the domains and kingdoms of living organisms.

**Clarifications:**

Annually Assessed on Biology EOC. Also assesses SC.912.L.15.4; SC.912.L.15.5; SC.912.N.1.3; and SC.912.N.1.6.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.15.In.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8342) | Classify living organisms into their kingdoms. |  |  |  |
| [SC.912.L.15.Su.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8343) | Match organisms to the animal, plant, and fungus kingdoms. |  |  |  |
| [SC.912.L.15.Pa.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8344) | Sort common living things into plant and animal kingdoms. |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.L.15.8:](https://www.cpalms.org/Public/PreviewStandard/Preview/2002)

Describe the scientific explanations of the origin of life on Earth.

**Clarifications:**

Annually assessed on Biology EOC. Also assesses SC.912.N.1.3, SC.912.N.1.4, and SC.912.N.2.1.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.15.In.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8345) | Identify that there are scientific explanations of the origin of life on Earth. |  |  |  |
| [SC.912.L.15.Su.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8346) | Recognize that there are scientific explanations of how life began. |  |  |  |
| [SC.912.L.15.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8341) | Recognize that plants and animals change as they age. |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.L.16.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/2010)

Use Mendel's laws of segregation and independent assortment to analyze patterns of inheritance.

**Clarifications:**

Annually assessed on Biology EOC. Also assesses SC.912.L.16.2.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.16.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8356) | Identify that genes are sets of instructions that determine which characteristics are passed from parent to offspring. |  |  |  |
| [SC.912.L.16.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8357) | Recognize characteristics (traits) that offspring inherit from parents. |  |  |  |
| [SC.912.L.16.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8358) | Recognize similar characteristics (traits) between a child and parents, such as hair, eye, and skin color, or height. |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.L.16.14:](https://www.cpalms.org/Public/PreviewStandard/Preview/2025)

Describe the cell cycle, including the process of mitosis. Explain the role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.16.In.7:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8372) | Recognize that cells reproduce by dividing to produce new cells that are identical (mitosis) or new cells that are different (meiosis). |  |  |  |
| [SC.912.L.16.Su.6:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8373) | Recognize that cells reproduce by dividing.  |  |  |  |
| [SC.912.L.16.Pa.6:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8374) | Recognize that living things produce offspring (reproduce). |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.L.16.16:](https://www.cpalms.org/Public/PreviewStandard/Preview/2026)

Describe the process of meiosis, including independent assortment and crossing over. Explain how reduction division results in the formation of haploid gametes or spores.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.16.In.7:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8372) | Recognize that cells reproduce by dividing to produce new cells that are identical (mitosis) or new cells that are different (meiosis). |  |  |  |
| [SC.912.L.16.Su.6:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8373) | Recognize that cells reproduce by dividing.  |  |  |  |
| [SC.912.L.16.Pa.6:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8374) | Recognize that living things produce offspring (reproduce). |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.L.16.17:](https://www.cpalms.org/Public/PreviewStandard/Preview/2027)

Compare and contrast mitosis and meiosis and relate to the processes of sexual and asexual reproduction and their consequences for genetic variation.

**Clarifications:**

Annually assessed on Biology EOC. Also assesses SC.912.L.16.8; SC.912.L.16.14; SC.912.L.16.16.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.16.Su.6:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8373) | Recognize that cells reproduce by dividing.  |  |  |  |
| [SC.912.L.16.Pa.6:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8374) | Recognize that living things produce offspring (reproduce). |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.L.17.2:](https://www.cpalms.org/Public/PreviewStandard/Preview/2030)

Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.17.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8375) | Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature. |  |  |  |
| [SC.912.L.17.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8376) | Recognize that living things in bodies of water are affected by the location and depth of the water. |  |  |  |
| [SC.912.L.17.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8377) | Recognize common living things in bodies of water. |  |  |  |
| Resources:  |  |  |  |  |

[SC.912.L.17.3:](https://www.cpalms.org/Public/PreviewStandard/Preview/2031)

Discuss how various oceanic and freshwater processes, such as currents, tides, and waves, affect the abundance of aquatic organisms.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.17.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8375) | Recognize that living things in oceans and fresh water are affected by the location, availability of light, depth of the water, and temperature. |  |  |  |
| [SC.912.L.17.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8376) | Recognize that living things in bodies of water are affected by the location and depth of the water. |  |  |  |
| [SC.912.L.17.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8377) | Recognize common living things in bodies of water. |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.L.17.4:](https://www.cpalms.org/Public/PreviewStandard/Preview/2032)

Describe changes in ecosystems resulting from seasonal variations, climate change and succession.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.17.In.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8378) | Identify that living things in an ecosystem are affected by changes in the environment, such as changes to the food supply, climate change, or the introduction of predators. |  |  |  |
| [SC.912.L.17.Su.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8379) | Recognize how animals and plants in an ecosystem may be affected by changes to the food supply or climate. |  |  |  |
| [SC.912.L.17.Pa.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8380) | Recognize what happens to plants and animals when they don’t get enough food or water. |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.L.17.9:](https://www.cpalms.org/Public/PreviewStandard/Preview/2037)

Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.

**Clarifications:**

Annually assessed on Biology EOC. Also assesses SC.912.E.7.1.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.17.In.5:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8387) | Identify the components of a food web, including sunlight, producers, consumers, and decomposers, and trace the flow of energy from the Sun. |  |  |  |
| [SC.912.L.17.Su.5:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8388) | Identify producers, consumers, and decomposers in a simple food chain. |  |  |  |
| [SC.912.L.17.Pa.5:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8389) | Recognize that animals (consumers) eat animals and plants for food.  |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.L.17.11:](https://www.cpalms.org/Public/PreviewStandard/Preview/2039)

Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.17.In.7:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8393) | Identify types of renewable and nonrenewable natural resources and explain the need for conservation. |  |  |  |
| [SC.912.L.17.Su.7:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8394) | Identify a way to conserve a familiar, nonrenewable, natural resource. |  |  |  |
| [SC.912.L.17.Pa.6:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8392) | Recognize the importance of clean water for living things. |  |  |  |
| Resources:  |  |  |  |  |

[SC.912.L.18.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/2044)

Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules.

**Clarifications:**

Annually assessed on Biology EOC. Also assesses SC.912.L.18.11.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.18.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8398) | Identify that carbohydrates, fats, proteins, and nucleic acids (macromolecules) are important for human organisms. |  |  |  |
| [SC.912.L.18.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8399) | Recognize that humans use proteins, carbohydrates, and fats. |  |  |  |
| [SC.912.L.18.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8400) | Recognize that humans need different kinds of food. |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.L.18.7:](https://www.cpalms.org/Public/PreviewStandard/Preview/2050)

Identify the reactants, products, and basic functions of photosynthesis.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.18.In.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8401) | Identify the products and function of photosynthesis. |  |  |  |
| [SC.912.L.18.Su.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8402) | Recognize that the function of photosynthesis is to produce food for plants. |  |  |  |
| [SC.912.L.18.Pa.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8403) | Recognize that plants need water, light, and air to grow. |  |  |  |
| [Resources:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8401) |  |  |  |  |

### [SC.912.L.18.8:](https://www.cpalms.org/Public/PreviewStandard/Preview/2051)

Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.18.In.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8404) | Identify that cells release energy from food so the organism can use it (cellular respiration). |  |  |  |
| [SC.912.L.18.Su.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8405) | Recognize that cells get energy from food. |  |  |  |
| [SC.912.L.18.Pa.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8406) | Identify that food is a source of energy. |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.L.18.9:](https://www.cpalms.org/Public/PreviewStandard/Preview/2052)

Explain the interrelated nature of photosynthesis and cellular respiration.

**Clarifications:**

Annually assessed on Biology EOC. Also assesses SC.912.L.18.7; SC.912.L.18.8; SC.912.L.18.10.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.18.In.4:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8407) | Recognize that plants give off oxygen that is used by animals and animals give off carbon dioxide that is used by plants. |  |  |  |
| [SC.912.L.18.Su.4:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8408) | Recognize that people and animals breathe in the oxygen that plants give off. |  |  |  |
| [SC.912.L.18.Pa.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8403) | Recognize that plants need water, light, and air to grow. |  |  |  |
| Resources: |  |  |  |  |

[SC.912.L.18.12:](https://www.cpalms.org/Public/PreviewStandard/Preview/2055)

Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.

**Clarifications:**
Annually assessed on Biology EOC.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.L.18.In.7:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8413) | Identify that special properties of water, such as the ability to moderate temperature and dissolve substances, help to sustain living things on Earth. |  |  |  |
| [SC.912.L.18.Su.6:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8414) | Identify the important role of water in sustaining life of plants and animals. |  |  |  |
| [SC.912.L.18.Pa.5:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8415) | Recognize that plants and animals use water to live. |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.N.1.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/1856)

Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:

1. **Pose questions about the natural world,** (Articulate the purpose of the investigation and identify the relevant scientific concepts).
2. **Conduct systematic observations,** (Write procedures that are clear and replicable. Identify observables and examine relationships between test (independent) variable and outcome (dependent) variable. Employ appropriate methods for accurate and consistent observations; conduct and record measurements at appropriate levels of precision. Follow safety guidelines).
3. **Examine books and other sources of information to see what is already known,**
4. **Review what is known in light of empirical evidence,** (Examine whether available empirical evidence can be interpreted in terms of existing knowledge and models, and if not, modify or develop new models).
5. **Plan investigations,** (Design and evaluate a scientific investigation).
6. **Use tools to gather, analyze, and interpret data (this includes the use of measurement in metric and other systems, and also the generation and interpretation of graphical representations of data, including data tables and graphs),** (Collect data or evidence in an organized way. Properly use instruments, equipment, and materials (e.g., scales, probeware, meter sticks, microscopes, computers) including set-up, calibration, technique, maintenance, and storage).
7. **Pose answers, explanations, or descriptions of events,**
8. **Generate explanations that explicate or describe natural phenomena (inferences),**
9. **Use appropriate evidence and reasoning to justify these explanations to others,**
10. **Communicate results of scientific investigations, and**
11. **Evaluate the merits of the explanations produced by others.**

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.N.1.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8166) | Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already known 3. Develop a possible explanation (hypothesis) 4. Plan and carry out an experiment 5. Gather data based on measurement and observations 6. Evaluate the data 7. Use the data to support reasonable explanations, inferences, and conclusions. |  |  |  |
| [SC.912.N.1.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8167) | Recognize a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Recognize a scientific question 2. Use reliable information and identify what is already known 3. Create possible explanation 4. Carry out a planned experiment 5. Record observations 6. Summarize results 7. Reach a reasonable conclusion. |  |  |  |
| [SC.912.N.1.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8168) | Recognize a problem related to a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Observe objects and activities 2. Follow planned procedures 3. Recognize a solution.  |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.N.1.2:](https://www.cpalms.org/Public/PreviewStandard/Preview/1857)

Describe and explain what characterizes science and its methods.

**Clarifications:**
Science is characterized by empirical observations, testable questions, formation of hypotheses, and experimentation that results in stable and replicable results, logical reasoning, and coherent theoretical constructs.
Florida Standards Connections: MAFS.K12.MP.3: Construct viable arguments and critique the reasoning of others.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.N.1.In.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8169) | Describe the processes used in scientific investigations, including posing a research question, forming a hypothesis, reviewing what is known, collecting evidence, evaluating results, and reaching conclusions.  |  |  |  |
| [SC.912.N.1.Su.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8170) | Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.  |  |  |  |
| [SC.912.N.1.Pa.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8171) | Recognize a process used in science to solve problems, such as observing, following procedures, and recognizing results. |  |  |  |
| Resources:  |  |  |  |  |

### [SC.912.N.1.3:](https://www.cpalms.org/Public/PreviewStandard/Preview/1858)

Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on  critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data presented.

**Clarifications:**
Assess the reliability of data and identify reasons for inconsistent results, such as sources of error or uncontrolled conditions.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.N.1.In.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8169) | Describe the processes used in scientific investigations, including posing a research question, forming a hypothesis, reviewing what is known, collecting evidence, evaluating results, and reaching conclusions.  |  |  |  |
| [SC.912.N.1.Su.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8170) | Identify the basic process used in scientific investigations, including questioning, observing, recording, determining, and sharing results.  |  |  |  |
| [SC.912.N.1.Pa.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8171) | Recognize a process used in science to solve problems, such as observing, following procedures, and recognizing results. |  |  |  |
| Resources: |  |  |  |  |

[SC.912.N.1.4:](https://www.cpalms.org/Public/PreviewStandard/Preview/1859)

Identify sources of information and assess their reliability according to the strict standards of scientific investigation.

**Clarifications:**
Read, interpret, and examine the credibility and validity of scientific claims in different sources of information, such as scientific articles, advertisements, or media stories. Strict standards of science include controlled variables, sufficient sample size, replication of results, empirical and measurable evidence, and the concept of falsification.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.N.1.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8166) | Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of informtion to identify what is already known 3. Develop a possible explanation (hypothesis) 4. Plan and carry out an experiment 5. Gather data based on measurement and observations 6. Evaluate the data 7. Use the data to support reasonable explanations, inferences, and conclusions. |  |  |  |
| [SC.912.N.1.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8167) | Recognize a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Recognize a scientific question 2. Use reliable information and identify what is already known 3. Create possible explanation 4. Carry out a planned experiment 5. Record observations 6. Summarize results 7. Reach a reasonable conclusion. |  |  |  |
| [SC.912.N.1.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8168) | Recognize a problem related to a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Observe objects and activities 2. Follow planned procedures 3. Recognize a solution.  |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.N.1.6:](https://www.cpalms.org/Public/PreviewStandard/Preview/1861)

Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.

**Clarifications:**
Collect data/evidence and use tables/graphs to draw conclusions and make inferences based on patterns or trends in the data.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.N.1.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8166) | Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of information to identify what is already known 3. Develop a possible explanation (hypothesis) 4. Plan and carry out an experiment 5. Gather data based on measurement and observations 6. Evaluate the data 7. Use the data to support reasonable explanations, inferences, and conclusions. |  |  |  |
| [SC.912.N.1.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8167) | Recognize a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Recognize a scientific question 2. Use reliable information and identify what is already known 3. Create possible explanation 4. Carry out a planned experiment 5. Record observations 6. Summarize results 7. Reach a reasonable conclusion. |  |  |  |
| [SC.912.N.1.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8168) | Recognize a problem related to a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Observe objects and activities 2. Follow planned procedures 3. Recognize a solution.  |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.N.1.7:](https://www.cpalms.org/Public/PreviewStandard/Preview/1862)

Recognize the role of creativity in constructing scientific questions, methods and explanations.

**Clarifications:**
Work through difficult problems using creativity, and critical and analytical thinking in problem solving (e.g. convergent versus divergent thinking and creativity in problem solving).

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.N.1.In.4:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8175) | Identify that scientists use many different methods in conducting their research. |  |  |  |
| [SC.912.N.1.Su.4:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8176) | Recognize that scientists use a variety of methods to get answers to their research questions.  |  |  |  |
| [SC.912.N.1.Pa.4:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8177) | Recognize that people try different ways to complete a task when the first one does not work.  |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.N.2.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/1866)

Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).

**Clarifications:**
Science is the systematic and organized inquiry that is derived from observations and experimentation that can be verified or tested by further investigation to explain natural phenomena (e.g. Science is testable, pseudo-science is not; science seeks falsifications, pseudo-science seeks confirmations.)

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.N.2.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8178) | Identify examples of investigations that involve science.  |  |  |  |
| [SC.912.N.2.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8179) | Identify questions that can be answered by science.  |  |  |  |
| [SC.912.N.2.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8180) | Recognize an example of work by scientists.  |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.N.3.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/1871)

Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have to offer.

**Clarifications:**
Explain that a scientific theory is a well-tested hypothesis supported by a preponderance of empirical evidence.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.N.3.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8187) | Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.  |  |  |  |
| [SC.912.N.3.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8188) | Recognize that scientific theories are supported by evidence and agreement of many scientists.  |  |  |  |
| [SC.912.N.3.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8189) | Recognize examples of cause-effect descriptions or explanations related to science.  |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.N.3.3:](https://www.cpalms.org/Public/PreviewStandard/Preview/1873)

Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.

**Clarifications:**
Recognize that a scientific theory provides a broad explanation of many observed phenomena while a scientific law describes how something behaves.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.N.3.In.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8190) | Identify examples of scientific laws that describe relationships in the natural world, such as Newton’s laws.  |  |  |  |
| [SC.912.N.3.Su.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8191) | Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.  |  |  |  |
| [SC.912.N.3.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8189) | Recognize examples of cause-effect descriptions or explanations related to science.  |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.N.3.4:](https://www.cpalms.org/Public/PreviewStandard/Preview/1874)

Recognize that theories do not become laws, nor do laws become theories; theories are well supported explanations and laws are well supported descriptions.

**Clarifications:**
Recognize that theories do not become laws, theories explain laws. Recognize that not all scientific laws have accompanying explanatory theories.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.N.3.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8187) | Recognize that a scientific theory is developed by repeated investigations of many scientists and agreement on the likely explanation.  |  |  |  |
| [SC.912.N.3.In.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8190) | Identify examples of scientific laws that describe relationships in the natural world, such as Newton’s laws.  |  |  |  |
| [SC.912.N.3.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8188) | Recognize that scientific theories are supported by evidence and agreement of many scientists.  |  |  |  |
| [SC.912.N.3.Su.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8191) | Recognize examples of scientific laws that describe relationships in nature, such as Newton’s laws.  |  |  |  |
| [SC.912.N.3.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8189) | Recognize examples of cause-effect descriptions or explanations related to science.  |  |  |  |
| Resources: |  |  |  |  |

[SC.912.N.3.5:](https://www.cpalms.org/Public/PreviewStandard/Preview/1875)

Describe the function of models in science, and identify the wide range of models used in science.

**Clarifications:**
Describe how models are used by scientists to explain observations of nature.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.N.3.In.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8192) | Identify ways models are used in the study of science.  |  |  |  |
| [SC.912.N.3.Su.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8193) | Recognize ways models are used in the study of science.  |  |  |  |
| [SC.912.N.3.Pa.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8194) | Recognize a model used in the context of one’s own study of science. |  |  |  |
| Resources: |  |  |  |  |

[SC.912.P.8.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/1902)

Differentiate among the four states of matter.

**Clarifications:**
Differentiate among the four states of matter (solid, liquid, gas and plasma) in terms of energy, particle motion, and phase transitions. (Note: Currently five states of matter have been identified.)

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.P.8.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8257) | Classify states of matter as solid, liquid, and gaseous.  |  |  |  |
| [SC.912.P.8.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8258) | Identify examples of states of matter as solid, liquid, and gaseous.  |  |  |  |
| [SC.912.P.8.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8259) | Select an example of a common solid, liquid, and gas.  |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.P.8.2:](https://www.cpalms.org/Public/PreviewStandard/Preview/1903)

Differentiate between physical and chemical properties and physical and chemical changes of matter.

**Clarifications:**
Discuss volume, compressibility, density, conductivity, malleability, reactivity, molecular composition, freezing, melting and boiling points. Describe simple laboratory techniques that can be used to separate homogeneous and heterogeneous mixtures (e.g. filtration, distillation, chromatography, evaporation).

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.P.8.In.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8260) | Compare characteristics of physical and chemical changes of matter.  |  |  |  |
| [SC.912.P.8.Su.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8261) | Identify examples of physical and chemical changes.  |  |  |  |
| [SC.912.P.8.Pa.2:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8262) | Recognize a common chemical change, such as cooking, burning, rusting, or decaying. |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.P.8.3:](https://www.cpalms.org/Public/PreviewStandard/Preview/1904)

Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence.

**Clarifications:**
Describe the development and historical importance of atomic theory from Dalton (atomic theory), Thomson (the electron), Rutherford (the nucleus and "gold foil" experiment), and Bohr (planetary model of atom), and understand how each discovery leads to modern atomic theory.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.P.8.In.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8263) | Identify the nucleus as the center of an atom.  |  |  |  |
| [SC.912.P.8.Su.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8264) | Recognize that atoms are tiny particles in materials, too small to see. |  |  |  |
| [SC.912.P.8.Pa.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8265) | Recognize that the parts of an object can be put together to make a whole. |  |  |  |
| Resources: |  |  |  |  |

[SC.912.P.8.4:](https://www.cpalms.org/Public/PreviewStandard/Preview/1905)

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.

**Clarifications:**
Explain that electrons, protons and neutrons are parts of the atom and that the nuclei of atoms are composed of protons and neutrons, which experience forces of attraction and repulsion consistent with their charges and masses.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.P.8.In.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8263) | Identify the nucleus as the center of an atom.  |  |  |  |
| [SC.912.P.8.Su.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8264) | Recognize that atoms are tiny particles in materials, too small to see. |  |  |  |
| [SC.912.P.8.Pa.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8265) | Recognize that the parts of an object can be put together to make a whole. |  |  |  |
| Resources: |  |  |  |  |

[SC.912.P.8.5:](https://www.cpalms.org/Public/PreviewStandard/Preview/1906)

Relate properties of atoms and their position in the periodic table to the arrangement of their electrons.

**Clarifications:**
Use the periodic table and electron configuration to determine an element's number of valence electrons and its chemical and physical properties. Explain how chemical properties depend almost entirely on the configuration of the outer electron shell.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.P.8.In.4:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8266) | Recognize that the periodic table includes all known elements. |  |  |  |
| [SC.912.P.8.Su.4:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8267) | Recognize examples of common elements, such as oxygen and hydrogen.  |  |  |  |
| [SC.912.P.8.Pa.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8268) | Recognize that the parts of an object can be put together to make a whole. |  |  |  |
| Resources: |  |  |  |  |

[SC.912.P.8.7:](https://www.cpalms.org/Public/PreviewStandard/Preview/1908)

Interpret formula representations of molecules and compounds in terms of composition and structure.

**Clarifications:**
Write chemical formulas for simple covalent (HCl, SO2, CO2, and CH4), ionic (Na+ + Cl- +NaCl) and molecular (O2, H2O) compounds. Predict the formulas of ionic compounds based on the number of valence electrons and the charges on the ions.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.P.8.In.6:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8272) | Identify formulas for common compounds, such as H2O and CO2.  |  |  |  |
| [SC.912.P.8.Su.6:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8273) | Match common chemical formulas to their common name, such as H2O to water.  |  |  |  |
| [SC.912.P.8.Pa.4:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8271) | Match common compounds to their names or communication symbols. |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.P.10.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/1916)

Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.

**Clarifications:**

Differentiate between kinetic and potential energy. Recognize that energy cannot be created or destroyed, only transformed. Identify examples of transformation of energy: Heat to light in incandescent electric light bulbs; Light to heat in laser drills; Electrical to sound in radios; Sound to electrical  in microphones; Electrical to chemical in battery rechargers; Chemical to electrical in dry cells; Mechanical to electrical in generators [power plants]; Nuclear to heat in nuclear reactors; Gravitational potential energy of a falling object is converted to kinetic energy then to heat and sound energy when the object hits the ground.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.P.10.In.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8279) | Identify examples of energy being transformed from one form to another (conserved quantity).  |  |  |  |
| [SC.912.P.10.Su.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8280) | Recognize energy transformations that occur in everyday life, such as solar energy to electricity.  |  |  |  |
| [SC.912.P.10.Pa.1:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8281) | Observe and recognize examples of the transformation of electrical energy to light and heat.  |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.P.10.4:](https://www.cpalms.org/Public/PreviewStandard/Preview/1918)

Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter.

**Clarifications:**

Explain the mechanisms (convection, conduction and radiation) of heat transfer. Explain how heat is transferred (energy in motion) from a region of higher temperature to a region of lower temperature until equilibrium is established. Solve problems involving heat flow and temperature changes by using known values of specific heat and/or phase change constants (latent heat). Explain the phase transitions and temperature changes demonstrated by a heating or cooling curve.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.P.10.In.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8285) | Relate the transfer of heat to the states of matter, including gases result from heating, liquids result from cooling a gas, and solids result from further cooling a liquid.  |  |  |  |
| [SC.912.P.10.Su.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8286) | Observe and recognize ways that heat travels, such as through space (radiation), through solids (conduction), and through liquids and gases (convection).  |  |  |  |
| [SC.912.P.10.Pa.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8287) | Recognize the source and recipient of heat transfer.  |  |  |  |
| Resources: |  |  |  |  |

[SC.912.P.10.7:](https://www.cpalms.org/Public/PreviewStandard/Preview/1665)

Distinguish between endothermic and exothermic chemical processes.

### Clarifications:Classify chemical reactions and phase changes as exothermic (release thermal energy) or endothermic (absorb thermal energy).

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.P.10.In.4:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8289) | Describe a process that gives off heat (exothermic), such as burning, and a process that absorbs heat (endothermic), such as water coming to a boil.  |  |  |  |
| [SC.912.P.10.Su.4:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8290) | Recognize common processes that give off heat (exothermic), such as burning, and processes that absorb heat (endothermic), such as water coming to a boil.  |  |  |  |
| [SC.912.P.10.Pa.4:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8288) | Identify materials that provide protection (insulation) from heat. |  |  |  |
| Resources: |  |  |  |  |

[SC.912.P.10.20:](https://www.cpalms.org/Public/PreviewStandard/Preview/1928)

Describe the measurable properties of waves and explain the relationships among them and how these properties change when the wave moves from one medium to another.

**Clarifications:**

Describe the measurable properties of waves (velocity, frequency, wavelength, amplitude, period, reflection and refraction) and explain the relationships among them. Recognize that the source of all waves is a vibration and waves carry energy from one place to another. Distinguish between transverse and longitudinal waves in mechanical media, such as springs and ropes, and on the earth (seismic waves). Describe sound as a longitudinal wave whose speed depends on the properties of the medium in which it propagates.

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.P.10.In.9:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8305) | Identify common applications of electromagnetic waves moving through different media, such as radio waves, microwaves, x-rays, or infrared. |  |  |  |
| [SC.912.P.10.Su.10:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8306) | Recognize examples of electromagnetic waves moving through different media, such as microwave ovens, radios, and x-rays. |  |  |  |
| [SC.912.P.10.Pa.10:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8307) | Recognize primary and secondary colors in visible light. |  |  |  |
| Resources: |  |  |  |  |

### [SC.912.P.12.3:](https://www.cpalms.org/Public/PreviewStandard/Preview/1933)

Interpret and apply Newton's three laws of motion.

**Clarifications:**

Explain that when the net force on an object is zero, no acceleration occurs; thus, a moving object continues to move at a constant speed in the same direction, or, if at rest, it remains at rest (Newton's first law). Explain that when a net force is applied to an object its motion will change, or accelerate (according to Newton's second law, F = ma). Predict and explain how when one object exerts a force on a second object, the second object always exerts a force of equal magnitude but of opposite direction and force back on the first: F1 on 2 = -F1 on 1 (Newton's third law).

### Related Access Points

| **Name** | **Description** | **Date(s) Instruction** | **Date(s) Assessment** | **Date Mastery** |
| --- | --- | --- | --- | --- |
| [SC.912.P.12.In.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8314) | Recognize various situations that show Newton’s third law of motion: for every action there is an equal and opposite reaction. |  |  |  |
| [SC.912.P.12.Su.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8315) | Recognize the action and reaction in a situation that show Newton’s third law of motion: for every action there is an equal and opposite reaction. |  |  |  |
| [SC.912.P.12.Pa.3:](file:///C%3A%5CPublic%5CPreviewAccessPoint%5CPreview%5C8316) | Identify the source of the force moving an object. |  |  |  |
| Resources: |  |  |  |  |

[MA.K12.MTR.1.1:](https://www.cpalms.org/PreviewStandard/Preview/15875) Actively participate in effortful learning both individually and collectively.

Mathematicians who participate in effortful learning both individually and with others:

* Analyze the problem in a way that makes sense given the task.
* Ask questions that will help with solving the task.
* Build perseverance by modifying methods as needed while solving a challenging task.
* Stay engaged and maintain a positive mindset when working to solve tasks.
* Help and support each other when attempting a new method or approach.

**Clarifications:**
Teachers who encourage students to participate actively in effortful learning both individually and with others:

* Cultivate a community of growth mindset learners.
* Foster perseverance in students by choosing tasks that are challenging.
* Develop students’ ability to analyze and problem solve.
* Recognize students’ effort when solving challenging problems.

[MA.K12.MTR.2.1:](https://www.cpalms.org/PreviewStandard/Preview/15876) Demonstrate understanding by representing problems in multiple ways.

Mathematicians who demonstrate understanding by representing problems in multiple ways:

* Build understanding through modeling and using manipulatives.
* Represent solutions to problems in multiple ways using objects, drawings, tables, graphs and equations.
* Progress from modeling problems with objects and drawings to using algorithms and equations.
* Express connections between concepts and representations.
* Choose a representation based on the given context or purpose.

**Clarifications:**
Teachers who encourage students to demonstrate understanding by representing problems in multiple ways:

* Help students make connections between concepts and representations.
* Provide opportunities for students to use manipulatives when investigating concepts.
* Guide students from concrete to pictorial to abstract representations as understanding progresses.
* Show students that various representations can have different purposes and can be useful in different situations.

[MA.K12.MTR.3.1:](https://www.cpalms.org/PreviewStandard/Preview/15877) Complete tasks with mathematical fluency.

Mathematicians who complete tasks with mathematical fluency:

* Select efficient and appropriate methods for solving problems within the given context.
* Maintain flexibility and accuracy while performing procedures and mental calculations.
* Complete tasks accurately and with confidence.
* Adapt procedures to apply them to a new context.
* Use feedback to improve efficiency when performing calculations.

**Clarifications:**
Teachers who encourage students to complete tasks with mathematical fluency:

* Provide students with the flexibility to solve problems by selecting a procedure that allows them to solve efficiently and accurately.
* Offer multiple opportunities for students to practice efficient and generalizable methods.
* Provide opportunities for students to reflect on the method they used and determine if a more efficient method could have been used.

[MA.K12.MTR.4.1:](https://www.cpalms.org/PreviewStandard/Preview/15878) Engage in discussions that reflect on the mathematical thinking of self and others.

Mathematicians who engage in discussions that reflect on the mathematical thinking of self and others:

* Communicate mathematical ideas, vocabulary and methods effectively.
* Analyze the mathematical thinking of others.
* Compare the efficiency of a method to those expressed by others.
* Recognize errors and suggest how to correctly solve the task.
* Justify results by explaining methods and processes.
* Construct possible arguments based on evidence.

**Clarifications:**
Teachers who encourage students to engage in discussions that reflect on the mathematical thinking of self and others:

* Establish a culture in which students ask questions of the teacher and their peers, and error is an opportunity for learning.
* Create opportunities for students to discuss their thinking with peers.
* Select, sequence and present student work to advance and deepen understanding of correct and increasingly efficient methods.
* Develop students’ ability to justify methods and compare their responses to the responses of their peers.

[MA.K12.MTR.5.1:](https://www.cpalms.org/PreviewStandard/Preview/15879) Use patterns and structure to help understand and connect mathematical concepts.

Mathematicians who use patterns and structure to help understand and connect mathematical concepts:

* Focus on relevant details within a problem.
* Create plans and procedures to logically order events, steps or ideas to solve problems.
* Decompose a complex problem into manageable parts.
* Relate previously learned concepts to new concepts.
* Look for similarities among problems.
* Connect solutions of problems to more complicated large-scale situations.

**Clarifications:**
Teachers who encourage students to use patterns and structure to help understand and connect mathematical concepts:

* Help students recognize the patterns in the world around them and connect these patterns to mathematical concepts.
* Support students to develop generalizations based on the similarities found among problems.
* Provide opportunities for students to create plans and procedures to solve problems.
* Develop students’ ability to construct relationships between their current understanding and more sophisticated ways of thinking.

[MA.K12.MTR.6.1:](https://www.cpalms.org/PreviewStandard/Preview/15880) Assess the reasonableness of solutions.

Mathematicians who assess the reasonableness of solutions:

* Estimate to discover possible solutions.
* Use benchmark quantities to determine if a solution makes sense.
* Check calculations when solving problems.
* Verify possible solutions by explaining the methods used.
* Evaluate results based on the given context.

**Clarifications:**
Teachers who encourage students to assess the reasonableness of solutions:

* Have students estimate or predict solutions prior to solving.
* Prompt students to continually ask, “Does this solution make sense? How do you know?”
* Reinforce that students check their work as they progress within and after a task.
* Strengthen students’ ability to verify solutions through justifications.

[MA.K12.MTR.7.1:](https://www.cpalms.org/PreviewStandard/Preview/15881) Apply mathematics to real-world contexts.

Mathematicians who apply mathematics to real-world contexts:

* Connect mathematical concepts to everyday experiences.
* Use models and methods to understand, represent and solve problems.
* Perform investigations to gather data or determine if a method is appropriate. • Redesign models and methods to improve accuracy or efficiency.

**Clarifications:**
Teachers who encourage students to apply mathematics to real-world contexts:

* Provide opportunities for students to create models, both concrete and abstract, and perform investigations.
* Challenge students to question the accuracy of their models and methods.
* Support students as they validate conclusions by comparing them to the given situation.
* Indicate how various concepts can be applied to other disciplines.

[ELA.K12.EE.1.1:](https://www.cpalms.org/PreviewStandard/Preview/15201) Cite evidence to explain and justify reasoning.

**Clarifications:**
K-1 Students include textual evidence in their oral communication with guidance and support from adults. The evidence can consist of details from the text without naming the text. During 1st grade, students learn how to incorporate the evidence in their writing.

2-3 Students include relevant textual evidence in their written and oral communication. Students should name the text when they refer to it. In 3rd grade, students should use a combination of direct and indirect citations.

4-5 Students continue with previous skills and reference comments made by speakers and peers. Students cite texts that they’ve directly quoted, paraphrased, or used for information. When writing, students will use the form of citation dictated by the instructor or the style guide referenced by the instructor.

6-8 Students continue with previous skills and use a style guide to create a proper citation.

9-12 Students continue with previous skills and should be aware of existing style guides and the ways in which they differ.

[ELA.K12.EE.2.1:](https://www.cpalms.org/PreviewStandard/Preview/15202) Read and comprehend grade-level complex texts proficiently.

**Clarifications:**
See [Text Complexity](https://cpalmsmediaprod.blob.core.windows.net/uploads/docs/standards/best/la/appendixb.pdf) for grade-level complexity bands and a text complexity rubric.

[ELA.K12.EE.3.1:](https://www.cpalms.org/PreviewStandard/Preview/15203) Make inferences to support comprehension.

**Clarifications:**
Students will make inferences before the words infer or inference are introduced. Kindergarten students will answer questions like “Why is the girl smiling?” or make predictions about what will happen based on the title page. Students will use the terms and apply them in 2nd grade and beyond.

[ELA.K12.EE.4.1:](https://www.cpalms.org/PreviewStandard/Preview/15204) Use appropriate collaborative techniques and active listening skills when engaging in discussions in a variety of situations.

**Clarifications:**
In kindergarten, students learn to listen to one another respectfully.

In grades 1-2, students build upon these skills by justifying what they are thinking. For example: “I think \_\_\_\_\_\_\_\_ because \_\_\_\_\_\_\_.” The collaborative conversations are becoming academic conversations.

In grades 3-12, students engage in academic conversations discussing claims and justifying their reasoning, refining and applying skills. Students build on ideas, propel the conversation, and support claims and counterclaims with evidence.

[ELA.K12.EE.5.1:](https://www.cpalms.org/PreviewStandard/Preview/15205) Use the accepted rules governing a specific format to create quality work.

**Clarifications:**
Students will incorporate skills learned into work products to produce quality work. For students to incorporate these skills appropriately, they must receive instruction. A 3rd grade student creating a poster board display must have instruction in how to effectively present information to do quality work.

[ELA.K12.EE.6.1:](https://www.cpalms.org/PreviewStandard/Preview/15206) Use appropriate voice and tone when speaking or writing.

**Clarifications:**
In kindergarten and 1st grade, students learn the difference between formal and informal language. For example, the way we talk to our friends differs from the way we speak to adults. In 2nd grade and beyond, students practice appropriate social and academic language to discuss texts.

[ELD.K12.ELL.SC.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/8643)

English language learners communicate information, ideas and concepts necessary for academic success in the content area of Science.

[ELD.K12.ELL.SI.1:](https://www.cpalms.org/Public/PreviewStandard/Preview/8640)

English language learners communicate for social and instructional purposes within the school setting.