

## DLM Assessed Science Essential Elements: Spring 2026 to Spring 2027

The 2027 Essential Elements put a greater emphasis on the connections between science and engineering practices (SEP) and the disciplinary core ideas (DCI). The DCIs were expanded to make the content more accessible. The expansion resulted in 14 DCI families that include conceptually related knowledge, skills, and understandings that increase in complexity across grade bands. For example, the physical science DCI has three families: Matter and Chemical Reactions, Interacting Forces, and Energy.

The comparisons in this document focus on assessed Essential Elements and are organized by grade band and 2027 Essential Element domain. When there are noted differences of the DCIs from 2026 to 2027, it is a result of the new DCI families.

### How to Read an Essential Element

Essential Elements are numbered in a manner similar to Next Generation Science Standards (NGSS) performance expectations, with a numeral indicating the end grade within the grade band (i.e., five for Grades 3–5, eight for Grades 6–8, and 12 for Grades 9–12), followed by the domain abbreviation, then a shortened DCI family name, and the number within the grade band and family. The example below demonstrates how to interpret the Essential Element.

SCI.EE.5.PS.Matter-1					
SCI	EE	.5	.PS	.Matter	-1
Science	Essential Element	End Grade within the Grade Band	Science Domain	DCI Family	Number within the grade band and family



## Grades 3–5

For Grades 3–5, there are a total of 22 Essential Elements, with eight designated for assessment. There are no new assessed Essential Elements. All assessed Essential Elements from 2026 and 2027 align; however, there are adjustments to the performance indicators to reduce depth, breadth, and complexity relative to general education standards.

### Grades 3–5 Physical Science

Spring 2026 Essential Elements	Spring 2027 Essential Elements
<b>SCI.EE.5.PS1-3</b> Make observations and measurements to identify materials based on their properties (e.g., weight, shape, texture, buoyancy, color, or magnetism).	<b>SCI.EE.5.PS.Matter-1</b> Make observations and measurements to describe changes in the physical properties of substances when heated, cooled, or mixed.
<b>SCI.EE.5.PS2-1</b> Demonstrate that the gravitational force exerted by Earth on objects is directed down.	<b>SCI.EE.PS.Forces-2</b> Provide evidence that some objects (e.g., magnets, metals, pith balls, objects falling toward Earth) exert forces on each other even when the objects are not in contact.

### Grades 3–5 Life Science

Spring 2026 Essential Elements	Spring 2027 Essential Elements
<b>SCI.EE.5.LS1-1</b> Provide evidence that plants need air and water to grow.	<b>SCI.EE.5.LS.Plant-1</b> Use data to show that plants use energy (i.e., sunlight) and matter (i.e., air and water) for growth.
<b>SCI.EE.5.PS3-1</b> Create a model to describe that energy in animals' food was once energy from the Sun.	<b>SCI.EE.5.LS.Ecosys-1</b> Use data to support that food provides animals with the materials and energy they need for body repair, growth, warmth, and motion.
<b>SCI.EE.5.ESS3-1</b> Use information to describe how people can help protect the Earth's resources and how that affects the environment.	<b>SCI.EE.5.LS.EcoHlth-2</b> Ask questions to determine how living things (both plants and animals) impact the habitat in which they live.



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## Grades 3–5 Earth and Space Science

Spring 2026 Essential Elements	Spring 2027 Essential Elements
SCI.EE.5.ESS1-2 Represent and interpret data on a picture, line, or bar graph to show seasonal patterns in the length of daylight hours.	<b>SCI.EE.5.ESS.SolSys-3</b> Use data from different times of the year to determine seasonal patterns in the number of daylight hours.
SCI.EE.5.PS2-1 Demonstrate that the gravitational force exerted by Earth on objects is directed down. <i>Relates to concepts in Physical Science</i>	<b>SCI.EE.5.ESS.SolSys-4</b> Make observations to support that Earth's gravity exerts a downward force on all objects on its surface.
SCI.EE.5.ESS2-1 Develop a model showing how water (hydrosphere) affects the living things (biosphere) found in a region.	<b>SCI.EE.5.ESS.Earth-2</b> Use information to describe that water is found in different forms almost everywhere on Earth.

## Grades 6–8

For Grades 6–8, there are a total of 24 Essential Elements, with nine designated for assessment. One new Essential Element was added for assessment. Eight Essential Elements from 2026 align with the 2027 Essential Elements. There are adjustments to the performance indicators to reduce depth, breadth, and complexity relative to general education standards.

## Grades 6–8 Physical Science

Spring 2026 Essential Elements	Spring 2027 Essential Elements
SCI.EE.MS-PS1-2 Interpret and analyze data on the properties (e.g., color, texture, odor, and state of matter) of substances before and after chemical changes have occurred (e.g., burning sugar or burning steel wool, rust, effervescent tablets).	<b>SCI.EE.8.PS.Matter-1</b> Use a particle model of matter to describe the relationships between the states of matter, their characteristics and properties, and temperature.
SCI.EE.MS-PS2-2 Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.	<b>SCI.EE.8.PS.Forces-1</b> Use observations and measurements to determine how an object's mass affects the force needed to change its motion.

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<b>SCI.EE.MS-PS3-3</b> Test and refine a device (e.g., foam cup, insulated box, or thermos) to either minimize or maximize thermal energy transfer (e.g., keeping liquids hot or cold, preventing liquids from freezing, keeping hands warm in cold temperatures).	<b>SCI.EE.8.PS.Energy-2</b> Provide evidence that kinetic energy is transferred between two objects when they collide with each other.
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## Grades 6–8 Life Science

Spring 2026 Essential Elements	Spring 2027 Essential Elements
<b>SCI.EE.MS-LS2-2</b> Use models of food chains/webs to identify producers and consumers in aquatic and terrestrial ecosystems.	<b>SCI.EE.8.LS.Plant-1</b> Use data to explain that plants use energy (i.e., sunlight) and matter (i.e., air and water) to produce food (i.e., plant matter) for growth.
<b>SCI.EE.MS-LS2-2</b> Use models of food chains/webs to identify producers and consumers in aquatic and terrestrial ecosystems.	<b>SCI.EE.8.LS.Ecosys-1</b> Use a model to describe the transfer of food (i.e., matter and energy) between plants, animals, and decomposers.

Spring 2026 Essential Elements	Spring 2027 Essential Elements
<b>SCI.EE.MS-LS1-5</b> Interpret data to show that environmental resources (e.g., food, light, space, water) influence growth of organisms (e.g., drought decreasing plant growth, fertilizer increasing plant growth, different varieties of plant seeds growing at different rates in different conditions, fish growing larger in large ponds than small ponds).	<b>SCI.EE.8.LS.EcoHlth-1</b> Use data to explain the relationship between organisms' survival and growth and their interactions with both living and nonliving factors in their ecosystem.

## Grades 6–8 Earth and Space Science

Spring 2026 Essential Elements	Spring 2027 Essential Elements
<b>SCI.EE.MS-ESS1-1</b> Develop and use a model of the Earth-Sun-Moon system to describe the cyclic patterns of lunar phases, eclipses of the Sun and Moon, and seasons.	<b>SCI.EE.8.ESS.SolSys-3</b> Use a model to explain the relationships between the orientation of Earth's axis in relation to the Sun, Earth's motion, and the seasonal patterns in the number of daylight hours.



<p><b>SCI.EE.MS-ESS2-2</b> Explain how geoscience processes that occur daily (e.g., wind, rain, runoff) slowly change the surface of Earth, while catastrophic events (e.g., earthquakes, tornadoes, floods) can quickly change the surface of Earth.</p> <p><b>SCI.EE.MS-ESS3-1</b> Interpret, based on evidence, how the geoscience processes (e.g., weathering, erosion) create resources.</p>	<p><b>SCI.EE.8.ESS.Earth-2</b> Use information to evaluate a claim about how the hydrosphere affects the shape of land (i.e., the geosphere) over time.</p>
<p><b>SCI.EE.MS-ESS2-6</b> Interpret basic weather information (e.g., radar, map) to make predictions about future conditions (e.g., precipitation, temperature, wind).</p>	<p><b>SCI.EE.8.ESS.Weath-2</b> Use information to describe the relationships between regional climates, location on Earth, geographic features, and weather.</p>

## Grades 9–12

For Grades 9–12, there are a total of 24 Essential Elements, with nine designated for assessment. One assessed Essential Element addresses biology concepts. There are two new Essential Elements. Seven assessed 2026 Essential Elements align with 2027 Essential Elements. There are adjustments to the performance indicators to reduce depth, breadth, and complexity relative to general education standards.

### Grades 9–12 Physical Science

Spring 2026 Essential Elements	Spring 2027 Essential Elements
<p><b>SCI.EE.HS-PS3-4</b> Investigate and predict the temperatures of two liquids before and after combining to show uniform energy distribution.</p>	<p><b>SCI.EE.12.PS.Energy-1</b> Gather data to describe the thermal energy transfer between two objects or substances in contact with each other.</p>
<p><b>SCI.EE.HS-PS2-3</b> Evaluate the effectiveness of safety devices and design a solution that could minimize the force of a collision.</p>	<p><b>SCI.EE.12.PS.Forces-1</b> Conduct an investigation to describe the relationships between force, mass, and acceleration.</p>



<b>SCI.EE.HS-PS1-2</b> Make a claim supported by evidence to explain patterns of chemical properties that occur in a substance during a common chemical reaction (e.g., baking soda and vinegar).	<b>SCI.EE.12.PS.Matter-4</b> Use a model to support the law of the conservation of matter during chemical reactions.
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## Grades 9–12 Life Science and Biology

Spring 2026 Essential Elements	Spring 2027 Essential Elements
<b>SCI.EE.HS.LS2-2</b> Use a graphical representation to explain the dependence of an animal population on other organisms for food and their environment for shelter.	<b>SCI.EE.12.LS.Ecosys-1</b> Develop a model that describes how matter (plant or animal matter) and energy (i.e., sunlight and food energy) are cycled within an ecosystem.
<b>SCI.EE.HS.LS1-2</b> Use a model to illustrate the organization and interaction of major organs into systems (e.g., circulatory, respiratory, digestive, sensory) in the body to provide specific functions.	<b>SCI.EE.12.LS.Org-1</b> Use a model to construct an explanation of how systems of specialized cells within organisms work together to perform essential functions of life.
<b>SCI.EE.HS.LS4-2</b> Explain how the traits of particular species allow them to survive in their specific environments.	<b>SCI.EE.12.LS.Trait-2</b> Use mathematical reasoning to support relationships between changing environmental conditions, adaptation by natural selection, and changes in the distribution of traits within a population.
	<b>SCI.EE.12.LS.EcoHlth-1</b> Use data to make an argument about the effects of unstable environments on the health of ecosystems.

## Grades 9–12 Earth and Space Science

Spring 2026 Essential Elements	Spring 2027 Essential Elements
	<b>SCI.EE.12.ESS.Earth-2</b> Ask questions to determine how a change in one of Earth's systems (i.e., spheres) affects humans.



SCI.EE.HS.ESS1-4 Use a model of Earth and the Sun to show how Earth's tilt and orbit around the Sun cause changes in seasons.	<b>SCI.EE.12.ESS.SolSys-2</b> Gather data to determine the relationship between the intensity and directness of sunlight reaching Earth's surface and seasonal temperature patterns.
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## Grades 9–12 Biology-Specific Blueprint

Spring 2026 Essential Elements	Spring 2027 Essential Elements
SCI.EE.HS.LS1-1 Explain how different organs of the body carry out essential functions of life. SCI.EE.HS.LS1-2 Use a model to illustrate the organization and interaction of major organs into systems (e.g., circulatory, respiratory, digestive, sensory) in the body to provide specific functions. SCI.EE.HS.LS1-4 Use a model to illustrate how growth occurs when cells multiply. SCI.EE.HS.LS1-3 Collect data from an investigation to show how different organisms react to changes (e.g., heart rate increases with exercise, pupils react to light).	<b>SCI.EE.12.LS.Org-1</b> Use a model to construct an explanation of how systems of specialized cells within organisms work together to perform essential functions of life.
SCI.EE.HS.LS2-2 Use a graphical representation to explain the dependence of an animal population on other organisms for food and their environment for shelter.	<b>SCI.EE.12.LS.Ecosys-1</b> Develop a model that describes how matter (plant or animal matter) and energy (i.e., sunlight and food energy) are cycled within an ecosystem.
SCI.EE.HS.LS2-1 Use a graphical representation to explain changes over time in the population size of an animal species (e.g., currently on the endangered list).	<b>SCI.EE.12.LS.EcoHlth-1</b> Use data to make an argument about the effects of unstable environments on the health of ecosystems.

Spring 2026 Essential Elements	Spring 2027 Essential Elements
SCI.EE.HS.LS4-3 Interpret data sets to identify an advantageous heritable trait.	<b>SCI.EE.12.LS.Trait-2</b> Use mathematical reasoning to support relationships between changing environmental conditions, adaptation by natural selection, and changes in the distribution of traits within a population.