



## DCPS Science Phase I Blueprint 2017-2018 (spring window)

In this document, the “blueprint” refers to the pool of Essential Elements (EEs) that are available during Phase I of the DLM Science project. The Science EEs are arranged into the three domains, ten core ideas, and fourteen topics shown in the table below.

**NOTE:** In Delaware, students are assessed in Grades 5, 8, and 10. In grades 5 and 8 the teacher will select from the listed EEs. In High School (p. 5), the teacher will select a minimum of one Life Science testlet for the end of year assessment. The additional High School EEs are grayed out.

### Domains, Core Ideas, and Topics in Science

Domain	Core Idea	Topic
Physical	PS1: Matter and Its Interactions	PS1.A: Structure and Properties of Matter
	PS2: Motion and Stability: Forces and Interactions	PS2.A: Forces and Motion
		PS2.B: Types of Interactions
	PS3: Energy	PS3.B: Conservation of Energy and Energy Transfer
		PS3.D: Energy in Chemical Processes and Everyday Life
Life	LS1: From Molecules to Organisms: Structure and Processes	LS1.A: Structure and Function
		LS1.B: Growth and Development of Organisms
		LS1.C: Organization for Matter and Energy Flow in Organisms
	LS2: Ecosystems: Interactions, Energy, and Dynamics	LS2.A: Interdependent Relationships in Ecosystems
	LS3: Heredity: Inheritance and Variation of Traits	LS3.B: Variation of Traits
Earth and Space	LS4: Biological Evolution: Unity and Diversity	LS4.C: Adaptation
	ESS1: Earth’s Place in the Universe	ESS1.B: Earth and the Solar System
	ESS2: Earth’s Systems	ESS2.A: Earth Materials and Systems
		ESS2.D: Weather and Climate
	ESS3: Earth and Human Activity	ESS3.A: Natural Resources
		ESS3.C: Human Impacts on Earth Systems

Coverage of the topics is summarized for each grade span in the table below.

**Pool of Essential Elements available in each grade span by domain**

Grade	Physical Science Topics					Total
	PS1.A	PS2.A	PS2.B	PS3.B	PS3.D	
Elementary	2		1		1	4
Middle School	1	1		1		3
High School	1	1		1		3

Grade	Life Science Topics						Total
	LS1.A	LS1.B	LS1.C	LS2.A	LS3.B	LS4.C	
Elementary			1	1			2
Middle School	1	1		1			3
High School	1			1		1	3

Grade	Earth and Space Science Topics					Total
	ESS1.B	ESS2.A	ESS2.D	ESS3.A	ESS3.C	
Elementary	1	1			1	3
Middle School		1	1		1	3
High School	1			1	1	3

In the pages that follow, the specific EEs assessed in each grade span are listed in tables.

**Elementary: Essential Elements Assessed (Gr. 5 will select an EE from below)**

<b>Topic</b>	<b>EE</b>	<b>Description</b>
PS1.A		
	EE.5-PS1-2	Measure and compare weights of substances before and after heating, cooling, or mixing substances to show that weight of matter is conserved.
	EE.5-PS1-3	Make observations and measurements to identify materials based on their properties (e.g., weight, shape, texture, buoyancy, color, or magnetism).
PS2.B		
	EE.5-PS2-1	Demonstrate that the gravitational force exerted by Earth on objects is directed down.
PS3.D		
	EE.5-PS3-1	Create a model to describe that energy in animals' food was once energy from the Sun.
LS1.C		
	EE.5-LS1-1	Provide evidence that plants need air and water to grow.
LS2.A		
	EE.5-LS2-1	Create a model to shows the movement of matter (e.g., plant growth, eating, composting) through living things.
ESS1.B		
	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.
ESS2.A		
	EE.5-ESS2-1	Develop a model showing how water (hydrosphere) affects the living things (biosphere) found in a region.
ESS3.C		
	EE.5-ESS3-1	Use information to describe how people can help protect the Earth's resources and how that affects the environment.

Middle School: Essential Elements Assessed (Gr. 8 will select an EE from below)

<b>Topic</b>	<b>EE</b>	<b>Description</b>
PS1.A		
	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).
PS2.A		
	EE.MS-PS2-2	Investigate and predict the change in motion of objects based on the forces acting on those objects.
PS3.B		
	EE.MS-PS3-3	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).
LS1.A		
	EE.MS-LS1-3	Make a claim about how a structure (e.g., organs and organ systems) and its related function supports survival of animals (circulatory, digestive, and respiratory systems).
LS1.B		
	EE.MS-LS1-5	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).
LS2.A		
	EE.MS-LS2-2	Use models of food chains/webs to identify producers and consumers in aquatic and terrestrial ecosystems.
ESS2.A		
	EE.MS-ESS2-2	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.
ESS2.D		
	EE.MS-ESS2-6	Interpret basic weather information (e.g., radar, map) to make predictions about future conditions (e.g., precipitation, temperature, wind).
ESS3.C		
	EE.MS-ESS3-3	Develop a plan to monitor and minimize a human impact on the local environment (e.g., water, land, pollution).

**High School: Essential Elements Assessed (H.S. will assess L.S. in gr. 10)**

<b>Topic</b>	<b>EE</b>	<b>Description</b>
PS1.A	Do Not Choose This EE for Assessment	
	EE.HS-PS1-2	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).
PS2.A	Do Not Choose This EE for Assessment	
	EE.HS-PS2-3	Evaluate the effectiveness of safety devices and design a solution that could minimize the force of a collision.
PS3.B	Do Not Choose This EE for Assessment	
	EE.HS-PS3-4	Investigate and predict the temperatures of two liquids before and after combining to show uniform energy distribution.
LS1.A		
	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.
LS2.A		
	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.
LS4.C		
	EE.HS-LS4-2	Explain how the traits of particular species that allow them to survive in their specific environments.
ESS1.B	Do Not Choose This EE for Assessment	
	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.
ESS3.A	Do Not Choose This EE for Assessment	
	EE.HS-ESS3-2	Construct an argument for a strategy to conserve, recycle, or reuse resources.
ESS3.C	Do Not Choose This EE for Assessment	
	EE.HS-ESS3-3	Analyze data to determine the effects of a conservation strategy on the level of a natural resource.