

DLM Science 2014-16 Phase I Blueprint

In this document, the "blueprint" refers to the range of Essential Elements (EEs) that will be assessed during Phase I of the DLM Science project which includes the 2015 and 2016 testing windows. The Science EEs are arranged into the three domains, ten core ideas, and fourteen topics shown in the table below.

Domains, Core Ideas, and Topics in Science

Domain	Core Idea	Торіс		
Physical	PS1: Matter and Its Interactions	PS1.A: Structure and Properties of Matter		
	PS2: Motion and Stability:	PS2.A: Forces and Motion		
	Forces and Interactions	PS2.B: Types of Interactions		
	DS2: Enorgy	PS3.B: Conservation of Energy and Energy Transfer		
	PSS. Ellergy	PS3.D: Energy in Chemical Processes and Everyday Life		
	LS1: From Molecules to	LS1.A: Structure and Function		
	Organisms: Structure and	LS1.B: Growth and Development of Organisms		
	Processes	LS1.C: Organization for Matter and Energy Flow in Organisms		
	LS2: Ecosystems:			
Lifo	Interactions, Energy, and	LS2.A: Interdependent Relationships in Ecosystems		
LITE	Dynamics			
	LS3: Heredity: Inheritance and Variation of Traits	LS3.B: Variation of Traits		
	LS4: Biological Evolution: Unity and Diversity	LS4.C: Adaptation		
Earth and Space	ESS1: Earth's Place in the Universe	ESS1.B: Earth and the Solar System		
	ESS2: Earth's Sustame	ESS2.A: Earth Materials and Systems		
	ESSZ. Earth & Systems	ESS2.D: Weather and Climate		
	ESS3: Earth and Human	ESS3.A: Natural Resources		
	Activity	ESS3.C: Human Impacts on Earth Systems		

Coverage of the conceptual areas is summarized for each grade span in the table below.¹

¹ The blueprint provides coverage options for a general science high school assessment and an end of course biology assessment to support the various requirements in different states in the consortium. Each state sets its own policy for which DLM assessment is appropriate for high school.

Crada		Total					
Grade	PS1.A	PS2.A	PS2.B	PS3.B	PS3.D	Total	
Elementary	2		1		1	4	
Middle School	1	1		1		3	
High School	1	1		1		3	
Biology							

Number of Essential Elements per topic assessed in each grade span by domain

Grado	Life Science Topics							
Grade	LS1.A	LS1.B	LS1.C	LS2.A	LS3.B	LS4.C	TOLAT	
Elementary			1	1			2	
Middle School	1	1		1			3	
High School	1			1		1	3	
Biology	3	1		2	1	3	10	

Crada		Total					
Grade	ESS1.B	ESS2.A	ESS2.D	ESS3.A	ESS3.C	rotar	
Elementary	1	1			1	3	
Middle School		1	1		1	3	
High School	1			1	1	3	
Biology							

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

Elementary: Essential Elements Assessed

Торіс	EE	Description
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

Торіс	EE	Description
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 Biology: Essential Elements Assessed

Торіс	EE	Description
LS1.A		
	EE.HS-LS1-1	Explain how different organs of the body carry out essential functions of life.
	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.
	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).
LS1.B		
	EE.HS-LS1-4	Use a model to illustrate how growth occurs when cells multiply.
LS2.A		
	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).
	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.
LS3.B		
	EE.HS-LS3-2	Defend why reproduction may or may not result in offspring with different traits.
LS4.C		
	EE.HS-LS4-2	Explain how the traits of particular species that allow them to survive in their specific environments.
	EE.HS-LS4-3	Interpret data sets to identify an advantageous heritable trait.
	EE.HS-LS4-6	Evaluate a strategy to protect a species.