



Mini-Map for SCI.EE.HS.LS1-2

Subject: Science

Life

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
<p>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.</p>	<p>HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.</p>

Linkage Level Descriptions

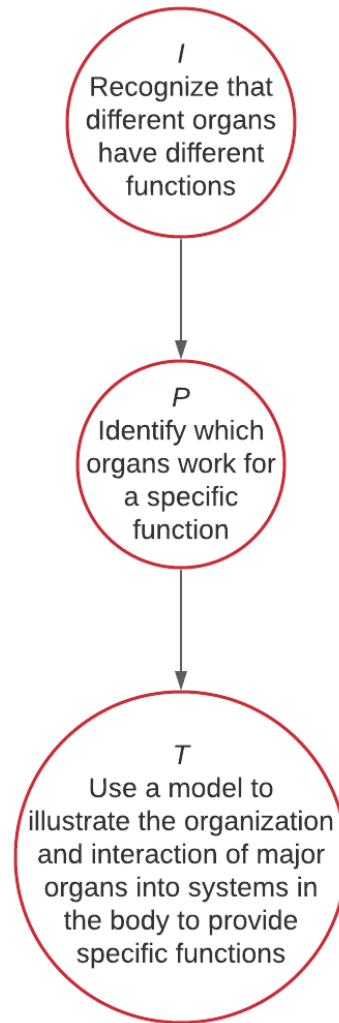
Initial	Precursor	Target
<p>When presented with two different organs, determine if the organs have the same or different functions.</p>	<p>Identify which organs work for a specific function (e.g., controlling the nervous system, helping living things breathe, pumping blood or moving nutrients throughout the body, protecting the body, breaking down food for absorption).</p>	<p>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.</p>

Instructional Resources

Linkage Level	Instructional Activities
Initial/Precursor/Target	Respiratory System
Connections	
Science and Engineering Practices	Developing and Using Models
Crosscutting Concepts	Systems and System Models
ELA Essential Elements	ELA.EE.SL.11-12.5: Use digital media strategically (e.g., textual, graphical, audio,visual, and interactive elements) in presentations to support understanding and add interest.
Released Testlets	
See the Guide to Practice Activities and Released Testlets .	

[Link to Text-Only Map](#)

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.



Map Key	
I	Initial
P	Precursor
T	Target



Mini-Map for SCI.EE.HS.LS2-2

Subject: Science

Life

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
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.	HS-LS2-2 Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.

Linkage Level Descriptions

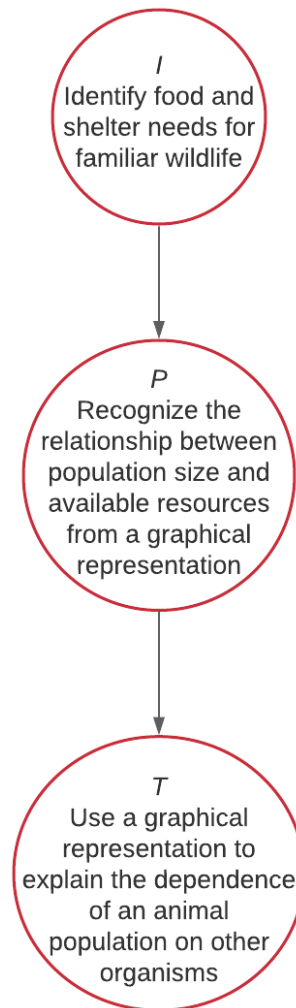
Initial	Precursor	Target
Identify food and shelter needs for familiar wildlife.	Recognize the relationship between population size and available resources for food and shelter from a graphical representation.	Use a graphical representation to explain the dependence of an animal population on other organisms for food and their environment for shelter.

Instructional Resources

Linkage Level	Instructional Activities
Initial/Precursor/Target	N/A
Connections	
Science and Engineering Practices	Using Mathematics and Computational Thinking
Crosscutting Concepts	Scale, Proportion, and Quantity
Mathematics Essential Elements	M.EE.N.Q.1.3: Express quantities to the appropriate precision of measurement.
Released Testlets	
See the Guide to Practice Activities and Released Testlets .	

[Link to Text-Only Map](#)

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.



Map Key	
I	Initial
P	Precursor
T	Target



Mini-Map for SCI.EE.HS.LS4-2

Subject: Science

Life

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
SCI.EE.HS.LS4-2 Explain how the traits of particular species allow them to survive in their specific environments.	HS-LS4-2 Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.

Linkage Level Descriptions

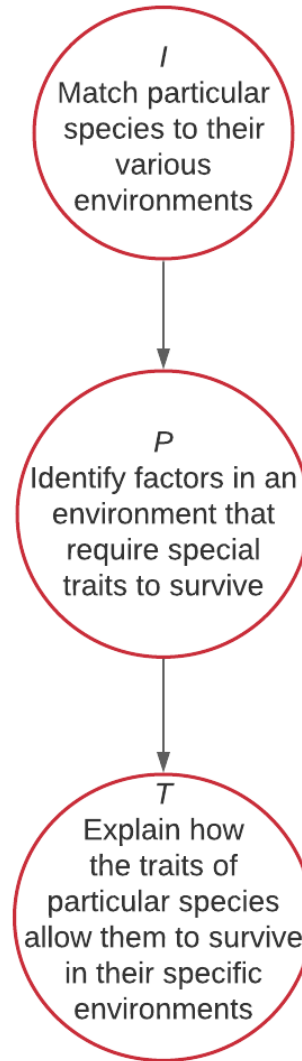
Initial	Precursor	Target
Match particular species to their various environments.	Identify factors in an environment that require special traits to survive.	Explain how the traits of particular species allow them to survive in their specific environments.

Instructional Resources

Linkage Level	Instructional Activities
Initial/Precursor/Target	N/A
Connections	
Science and Engineering Practices	Constructing Explanations and Designing Solutions
Crosscutting Concepts	Cause and Effect
ELA Essential Elements	ELA.EE.SL.11-12.4: Present an argument on a topic using an organization appropriate to the purpose, audience, and task.
Released Testlets	
See the Guide to Practice Activities and Released Testlets .	

[Link to Text-Only Map](#)

SCI.EE.HS.LS4-2 Explain how the traits of particular species allow them to survive in their specific environments.



Map Key	
I	Initial
P	Precursor
T	Target



Mini-Map for SCI.EE.HS.PS1-2

Subject: Science

Physical

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
SCI.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).	HS-PS1-2 Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.

Linkage Level Descriptions

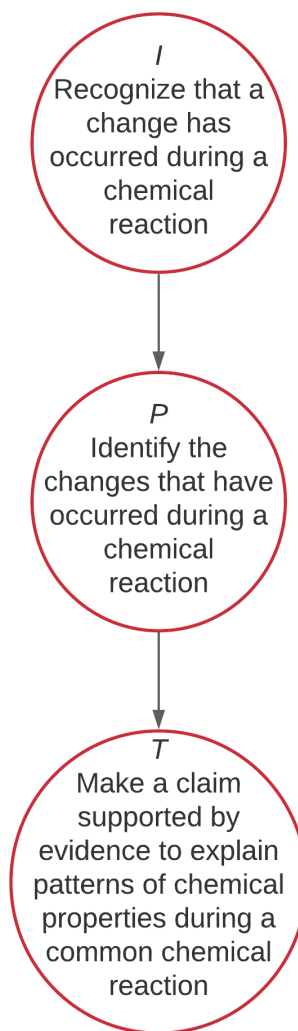
Initial	Precursor	Target
Recognize that a change has occurred during a chemical reaction (e.g., rust, baking soda and vinegar, burning).	Identify the changes that have occurred during a chemical reaction (e.g., metal rusting, paper burning, baking soda and vinegar reacting).	Make a claim supported by evidence to explain patterns of chemical properties (e.g., solubility in water, substances it reacts with, flammability, conductivity, melting point, boiling point) that occur in a substance during a common chemical reaction (e.g., baking soda and vinegar, rusting, burning).

Instructional Resources

Linkage Level	Instructional Activities
Initial/Precursor/Target	N/A
Connections	
Science and Engineering Practices	Constructing Explanations and Designing Solutions
Crosscutting Concepts	Patterns
Released Testlets	
See the Guide to Practice Activities and Released Testlets .	

[Link to Text-Only Map](#)

SCI.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).



Map Key	
I	Initial
P	Precursor
T	Target



Mini-Map for SCI.EE.HS.PS2-3

Subject: Science

Physical

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
SCI.EE.HS.PS2-3 Evaluate the effectiveness of safety devices and design a solution that could minimize the force of a collision.	HS-PS2-3 Apply science and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

Linkage Level Descriptions

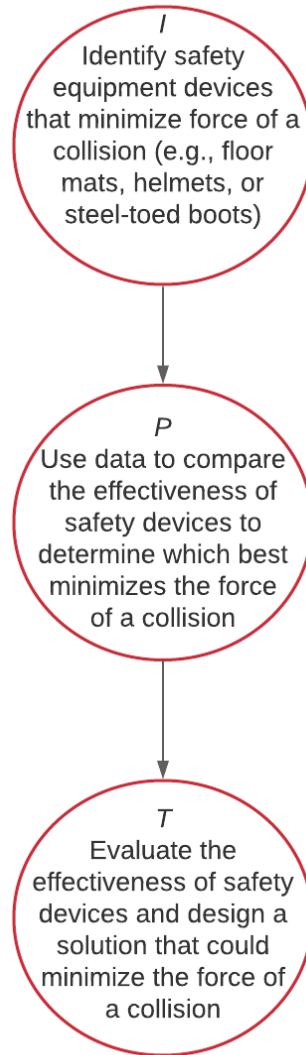
Initial	Precursor	Target
Identify safety devices that minimize force of a collision (e.g., floor mats, helmets, or steel-toed boots).	Use data to compare the effectiveness of safety devices to determine which best minimizes the force of a collision.	Evaluate the effectiveness of safety devices (e.g., egg drop device) and design a solution that could minimize the force of a collision.

Instructional Resources

Linkage Level	Instructional Activities
Initial/Precursor/Target	N/A
Connections	
Science and Engineering Practices	Constructing Explanations and Designing Solutions
Crosscutting Concepts	Cause and Effect
Released Testlets	
See the Guide to Practice Activities and Released Testlets .	

[Link to Text-Only Map](#)

SCI.EE.HS.PS2-3 Evaluate the effectiveness of safety devices and design a solution that could minimize the force of a collision.



Map Key	
I	Initial
P	Precursor
T	Target



Mini-Map for SCI.EE.HS.PS3-4

Subject: Science

Physical

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
SCI.EE.HS.PS3-4 Investigate and predict the temperatures of two liquids before and after combining to show uniform energy distribution.	HS-PS3-4 Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system.

Linkage Level Descriptions

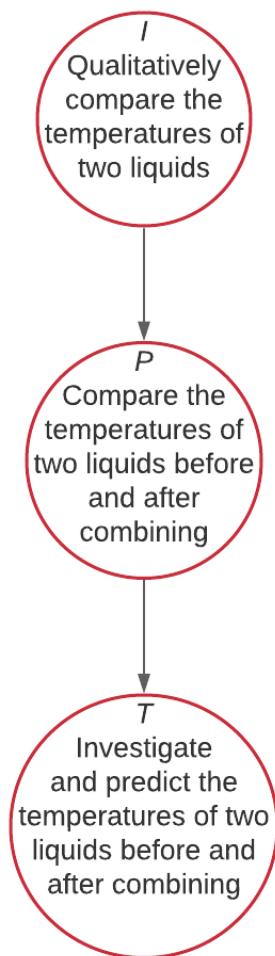
Initial	Precursor	Target
Compare relative difference in temperature (warmth, coldness) of two liquids.	Compare the temperatures of two liquids of different temperatures before and after combining.	Investigate and predict the temperatures of two liquids before and after combining to show uniform energy distribution.

Instructional Resources

Linkage Level	Instructional Activities
Initial/Precursor/Target	N/A
Connections	
Science and Engineering Practices	Planning and Carrying Out Investigations
Crosscutting Concepts	Systems and System Models
Released Testlets	
See the Guide to Practice Activities and Released Testlets .	

[Link to Text-Only Map](#)

SCI.EE.HS.PS3-4 Investigate and predict the temperatures of two liquids before and after combining to show uniform energy distribution.



Map Key	
I	Initial
P	Precursor
T	Target



Mini-Map for SCI.EE.HS.ESS1-4

Subject: Science

Earth and Space

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
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.	HS-ESS1-4 Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.

Linkage Level Descriptions

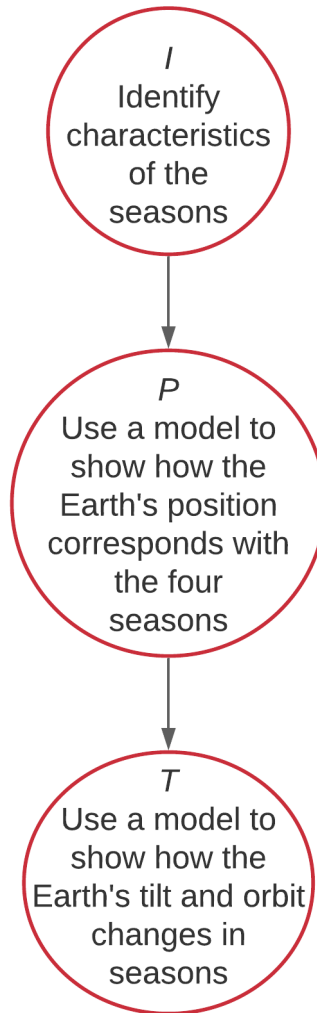
Initial	Precursor	Target
Identify characteristics of the seasons (e.g., warmest or coldest weather, shortest or longest length of day, seasonal appearance of deciduous trees, seasonal activities).	Use a model of the Earth and Sun to show how the Earth's positions in its orbit around the Sun correspond with the four seasons.	Use a model of the Earth and the Sun to show how the Earth's tilt and orbit around the Sun cause changes in seasons.

Instructional Resources

Linkage Level	Instructional Activities
Initial/Precursor/Target	N/A
Connections	
Science and Engineering Practices	Using Mathematical and Computational Thinking
Crosscutting Concepts	Scale, Proportion, and Quantity
ELA Essential Elements	N/A
Mathematics Essential Elements	<p>M.EE.N.Q.1.3: Express quantities to the appropriate precision of measurement.</p> <p>M.EE.A.SSE.1: Identify an algebraic expression involving one arithmetic operation to represent a real-world problem.</p> <p>M.EE.A.CED.2-4: Solve one-step inequalities.</p>
Released Testlets	
See the Guide to Practice Activities and Released Testlets .	

[Link to Text-Only Map](#)

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.



Map Key	
I	Initial
P	Precursor
T	Target



Mini-Map for SCI.EE.HS.ESS3-2

Subject: Science

Earth and Space

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
SCI.EE.HS.ESS3-2 Construct an argument for a strategy to conserve, recycle, or reuse resources.	HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.

Linkage Level Descriptions

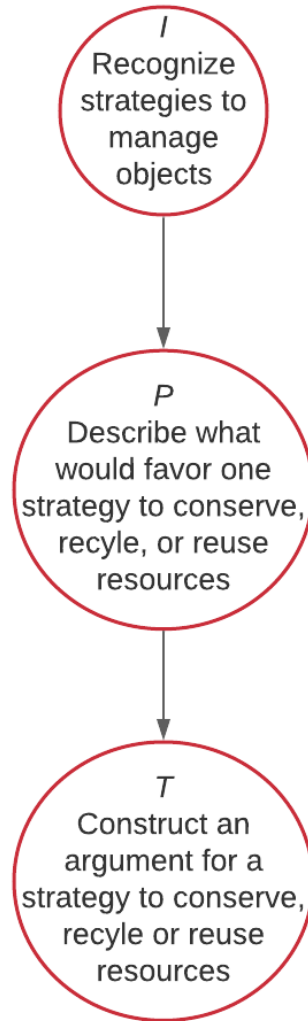
Initial	Precursor	Target
Recognize strategies to manage objects (e.g., dispose, repurpose, or recycle).	Describe the factors (e.g., money savings, effects on resources) that would favor one strategy to conserve, recycle, or reuse resources over another.	Construct an argument for a strategy to conserve, recycle, or reuse resources.

Instructional Resources

Linkage Level	Instructional Activities
Initial/Precursor/Target	N/A
Connections	
Science and Engineering Practices	Engaging in Argument from Evidence
Crosscutting Concepts	N/A
ELA Essential Elements	N/A
Mathematics Essential Elements	N/A
Released Testlets	
See the Guide to Practice Activities and Released Testlets .	

[Link to Text-Only Map](#)

SCI.EE.HS.ESS3-2 Construct an argument for a strategy to conserve, recycle, or reuse resources.



Map Key	
I	Initial
P	Precursor
T	Target



Mini-Map for SCI.EE.HS.ESS3-3

Subject: Science

Earth and Space

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
SCI.EE.HS.ESS3-3 Analyze data to determine the effects of a conservation strategy on the level of a natural resource.	HS-ESS3-3 Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.

Linkage Level Descriptions

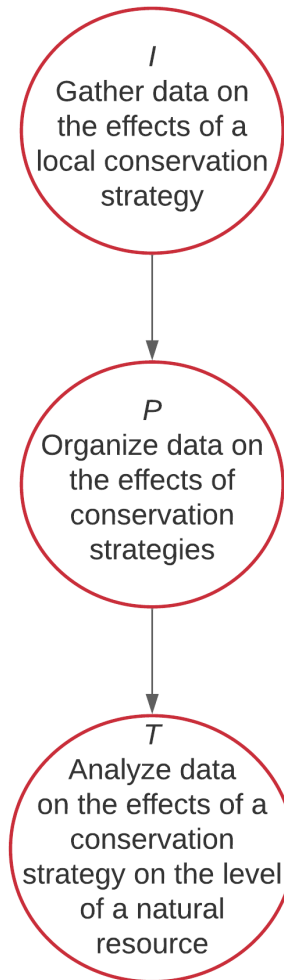
Initial	Precursor	Target
Gather data on the effects of a local (e.g., class or school-wide) conservation strategy.	Organize data on the effects of conservation strategies (e.g., using less energy, using rechargeable batteries, recycling, or repurposing materials).	Analyze data to determine the effects of a conservation strategy on the amount of a natural resource.

Instructional Resources

Linkage Level	Instructional Activities
Initial/Precursor/Target	Conserving Natural Resources
Connections	
Science and Engineering Practices	Using Mathematics and Computational Thinking
Crosscutting Concepts	Stability and Change
Mathematics Essential Elements	M.EE.N.Q.1.3: Express quantities to the appropriate precision of measurement.
Released Testlets	
See the Guide to Practice Activities and Released Testlets .	

[Link to Text-Only Map](#)

SCI.EE.HS.ESS3-3 Analyze data to determine the effects of a conservation strategy on the level of a natural resource.



Map Key	
I	Initial
P	Precursor
T	Target