



Mini-Map for SCI.EE.HS.LS1-1

Subject: Science

Life

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
SCI.EE.HS.LS1-1 Explain how different organs of the body carry out essential functions of life.	HS-LS1-1 Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

Linkage Level Descriptions

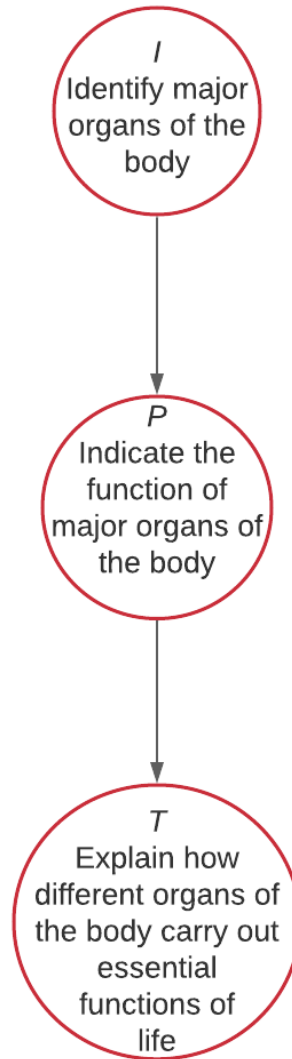
Initial	Precursor	Target
Identify major organs of the body (e.g., heart, brain, kidneys, liver, lungs).	Indicate the biological functions of major organs of the body.	Explain how different organs of the body carry out essential functions of life.

Instructional Resources

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

[Link to Text-Only Map](#)

SCI.EE.HS.LS1-1 Explain how different organs of the body carry out essential functions of life.



Map Key	
I	Initial
P	Precursor
T	Target



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

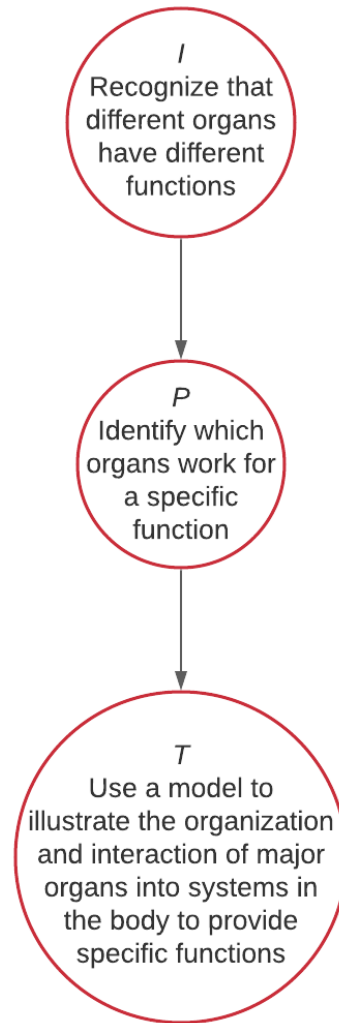
Initial	Precursor	Target
<p>When presented with two different organs, determine if the organs have the same or different functions.</p>	<p>Identify which organs work for a specific function (e.g., controlling the nervous system, helping living things breathe, pumping blood or moving nutrients throughout 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.LS1-3

Subject: Science

Life

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
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).	HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

Linkage Level Descriptions

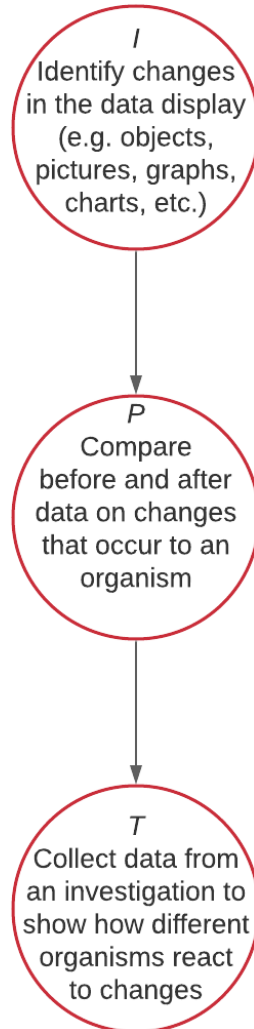
Initial	Precursor	Target
Identify changes in a data display (e.g., objects, pictures, graphs, charts).	Compare before and after data on changes that occur to an organism.	Collect data from an investigation to show how different organisms react to changes (e.g., heart rate increases with exercise, pupils react to light).

Instructional Resources

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

[Link to Text-Only Map](#)

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).



Map Key	
I	Initial
P	Precursor
T	Target



Mini-Map for SCI.EE.HS.LS1-4

Subject: Science

Life

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
SCI.EE.HS.LS1-4 Use a model to illustrate how growth occurs when cells multiply.	HS-LS1-4 Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.

Linkage Level Descriptions

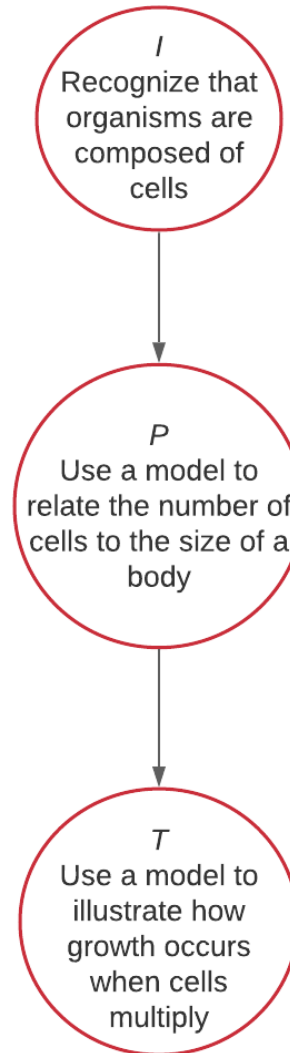
Initial	Precursor	Target
Recognize that organisms are composed of cells, and distinguish things made of cells from things not made of cells.	Use a model to relate the number of cells to the size of a body.	Use a model to illustrate how growth occurs when cells multiply.

Instructional Resources

Linkage Level	Instructional Activities
Initial/Precursor/Target	N/A
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.
Mathematics Essential Elements	M.EE.F.BF.1: Select the appropriate graphical representation (first quadrant) given a situation involving constant rate of change.
Released Testlets	
See the Guide to Practice Activities and Released Testlets .	

[Link to Text-Only Map](#)

SCI.EE.HS.LS1-4 Use a model to illustrate how growth occurs when cells multiply.



Map Key	
I	Initial
P	Precursor
T	Target



Mini-Map for SCI.EE.HS.LS2-1

Subject: Science

Life

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
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).	HS-LS2-1 Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.

Linkage Level Descriptions

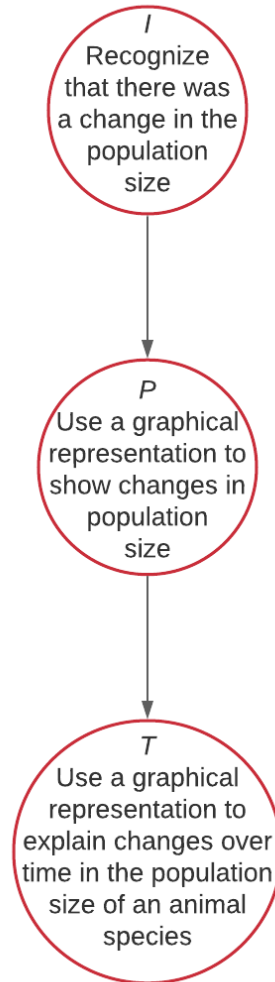
Initial	Precursor	Target
Recognize that there was a change in the size of a population.	Use a graphical representation to show changes in population size (e.g., number of organisms at two different times).	Use a graphical representation to explain changes over time in the population size of an animal species (e.g., currently on the endangered list).

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. M.EE.S-ID.1-2: Given data, construct a simple graph (line, pie, bar, or picture) or table, and interpret the data.
Released Testlets	
See the Guide to Practice Activities and Released Testlets .	

[Link to Text-Only Map](#)

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).



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

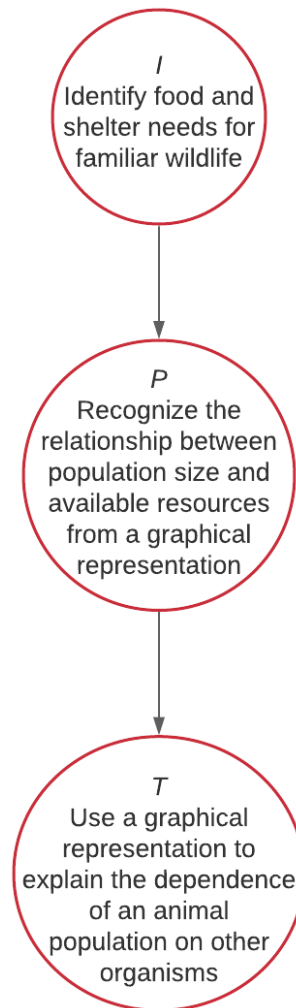
Initial	Precursor	Target
Identify food and shelter needs for familiar wildlife.	Recognize the relationship between population size and available resources for food and shelter from a graphical representation.	Use a graphical representation to explain the dependence of an animal population on other organisms 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.LS3-2

Subject: Science

Life

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
SCI.EE.HS.LS3-2 Defend why reproduction may or may not result in offspring with different traits.	HS-LS3-2 Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.

Linkage Level Descriptions

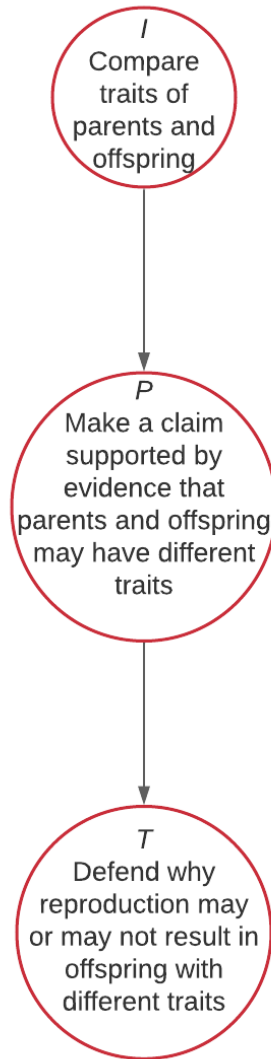
Initial	Precursor	Target
Compare traits of parents and offspring to identify that offspring have some traits similar to the parents and some that are unique.	Make a claim supported by evidence that parents and offspring may have different traits.	Defend why reproduction may or may not result in offspring with different traits.

Instructional Resources

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

[Link to Text-Only Map](#)

SCI.EE.HS.LS3-2 Defend why reproduction may or may not result in offspring with different traits.



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

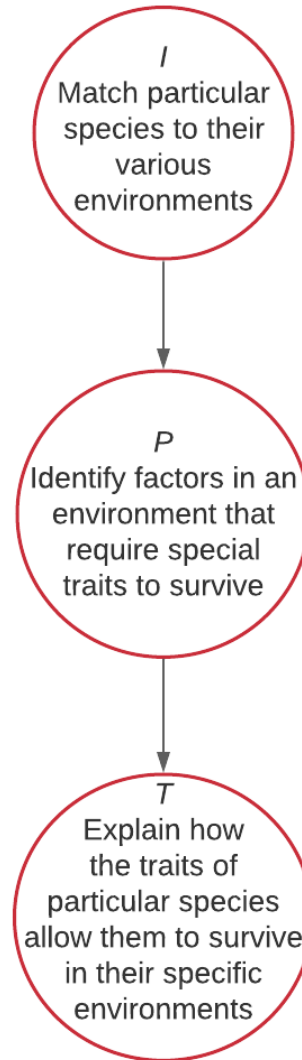
Initial	Precursor	Target
Match particular species to their various environments.	Identify factors in an environment that require special traits to survive.	Explain how the traits of particular species allow them to survive in their specific environments.

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.LS4-3

Subject: Science

Life

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
SCI.EE.HS.LS4-3 Interpret data sets to identify an advantageous heritable trait.	HS-LS4-3 Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.

Linkage Level Descriptions

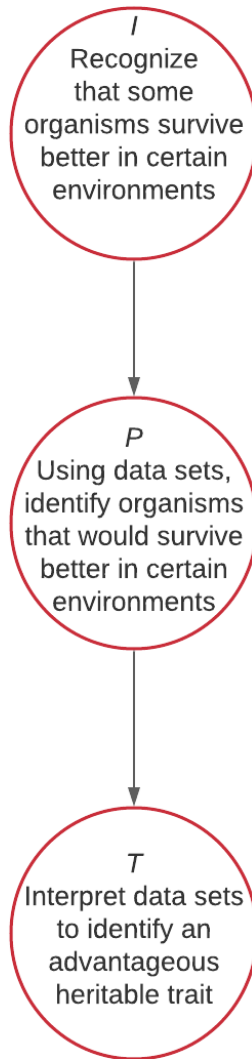
Initial	Precursor	Target
Recognize that some organisms survive better than others in certain environments.	Use data to identify organisms that would survive better than others in a certain environment.	Interpret data sets to identify an advantageous heritable trait.

Instructional Resources

Linkage Level	Instructional Activities
Initial/Precursor/Target	N/A
Connections	
Science and Engineering Practices	Analyzing and Interpreting Data
Crosscutting Concepts	Patterns
Released Testlets	
See the Guide to Practice Activities and Released Testlets .	

[Link to Text-Only Map](#)

SCI.EE.HS.LS4-3 Interpret data sets to identify an advantageous heritable trait.



Map Key	
I	Initial
P	Precursor
T	Target



Mini-Map for SCI.EE.HS.LS4-6

Subject: Science

Life

Grade: 9–12

Learning Outcome

DLM Essential Element	Grade-Level Standard
SCI.EE.HS.LS4-6 Evaluate a strategy to protect a species.	HS-LS4-6 Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.

Linkage Level Descriptions

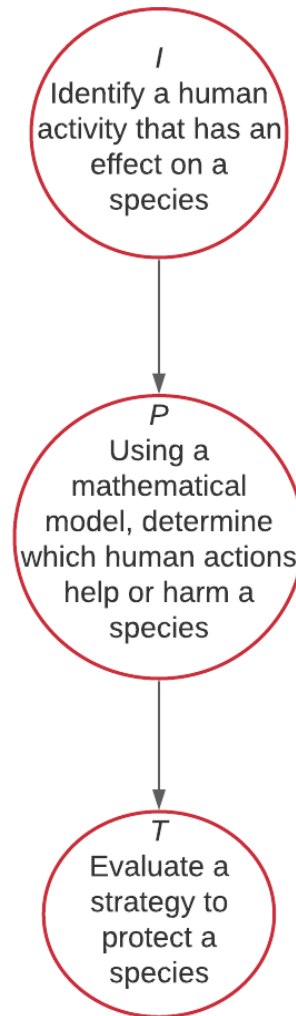
Initial	Precursor	Target
Identify a human activity that has an effect on a species.	Using a mathematical model, determine which human actions help or harm a species.	Evaluate a conservation strategy to protect a species by examining data from the results of tests.

Instructional Resources

Linkage Level	Instructional Activities
Initial/Precursor/Target	N/A
Connections	
Science and Engineering Practices	Using Mathematics and Computational Thinking
Crosscutting Concepts	Cause and Effect
Released Testlets	
See the Guide to Practice Activities and Released Testlets .	

[Link to Text-Only Map](#)

SCI.EE.HS.LS4-6 Evaluate a strategy to protect a species.



Map Key	
I	Initial
P	Precursor
T	Target