


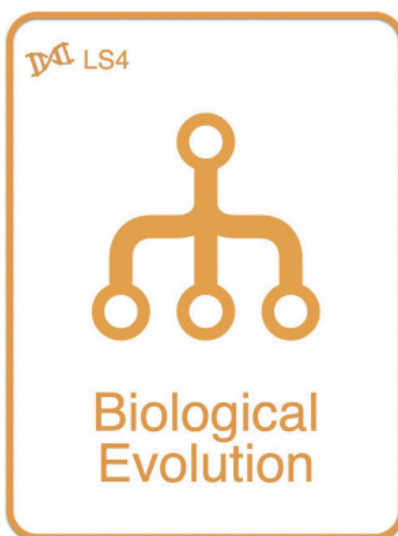
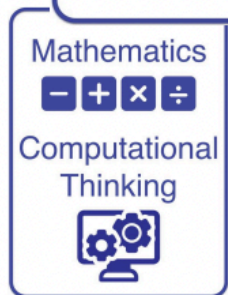
Storyline Unit Design

Understanding by Design (UbD) Template*

Unit		Course(s)	
Designed by		Time Frame	
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Anchor Model

Natural Selection & Adaptations



*UbD Unit Planner is from Wiggins, Grant and McTighe, Jay. Understanding by Design Guide to Creating High-Quality Units. Alexandria, VA: Association for Supervision and Curriculum Development. 2011.

Stage 1: Desired Results

Performance Expectations

MS-LS4-4: Natural Selection

Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment. (Cause and Effect)

MS-LS4-5: Artificial Selection

Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms. (Cause and Effect)

MS-LS4-6: Adaptation of Populations over Time

Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time. (Cause and Effect)

Anchoring Phenomenon

[Anchoring Phenomenon Worksheet](#)

Enduring Understandings

Type Here

Essential Questions

Type Here



Stage 2: Assessments

MS-LS4-4	Old Gecko Toes	Assessment	Key	Evidence Statement
MS-LS4-5	The Story of the Rainbow Papaya	Assessment	Key	Evidence Statement
MS-LS4-6	Nebraska Deer Mouse	Assessment	Key	Evidence Statement

[Assessment Screening Tools](#)

Backward Design Elements





What new skills (practices) will students need to learn?	What thinking concepts will students need to learn?	What science concepts will students need to learn?
<i>Type Here</i>	<i>Type Here</i>	<i>Type Here</i>



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Stage 3: Learning Plan

 Phenomenon or Problem	 Learning Performance - What will they do? The three dimensions woven together into a single learning performance.	 Why is this important? How does this activity help build understanding of the anchoring phenomenon.	 Learning Experience - How will they do it? Graphic organizers, protocols, scaffolds, labs, mini-lesson, student discourse, etc.
<i>Type Here</i>	<i>Type Here</i>	<i>Type Here</i>	<i>Type Here</i>
Formative Assessment - What information are you collecting to know that they met the target?			
Formative Assessment - What information are you collecting to know that they met the target?			
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Formative Assessment - What information are you collecting to know that they met the target?			
Summative Assessment What information are you collecting to know that they met the target?			
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Summative Assessment What information are you collecting to know that they met the target?			



Materials / Resources

Vocabulary

MS-LS4-4

Natural selection
Traits
Organism
Population
Genetic variation
Survival
Reproduction
Environment
Cause and Effect

MS-LS4-5

Artificial selection (e.g. genetic modification, animal husbandry, gene therapy)
Organisms (plants and animals)
Inheritance
Desired traits
Technology
Cause and Effect

MS-LS4-6

Natural selection
Traits
Adaptation
Populations
Environmental conditions (e.g. climate, resource availability)
Cause and Effect

Mini Lessons

[Causation Level 5 - Probability and Prediction Mini-Lesson](#)

[Causation Level 5 - Probability and Prediction Thinking Slides](#)

Graphic Organizers

[Phenomena Observation Graphic Organizer](#)

[Questioning Graphic Organizer](#)

[Modeling Graphic Organizer](#)

[Planning an Investigation Organizer - Experimental](#)

[Planning an Investigation Organizer - Observational](#)

[Investigation Evidence Organizer](#)

[Engaging in Argumentation Organizer](#)

Differentiation / Modifications



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- < **MS-LS4-4 - Natural Selection**
- < **MS-LS4-5 - Artificial Selection**
- < **MS-LS4-6 - Adaptation of Populations over Time**
- < **Local and Relevant**
- < **Favorite**



MS-LS4-4: Natural Selection

[Evidence Statement](#)Assessment: Old Gecko Toes ([Google Template](#)) ([Key Template](#))Reflections: [Type Here](#)

	No	Partial	Yes
1. The assessment contains a phenomenon (science) or a problem (engineering)			
2. The prompts match the Science and Engineering Practice (SEP) and engage students in sense making.			
3. The stimuli have multiple and sufficient information needed to utilize the SEP . (e.g. multiple data sets to analyze)			
4. The prompts elicit observable understanding of the Disciplinary Core Idea (DCI) .			
5. The prompts explicitly mention the Crosscutting Concept (CCC) .			
6. The prompts include language (i.e. bullets) from grade appropriate progressions. (SEP) (DCI) (CCC)			
7. The graphic organizers provide space for the observable features (e.g. 1, 2, 3...) in the evidence statement. (e.g. claim, evidence and reasoning)			
8. The entire assessment contains information that is scientifically accurate and properly attributed. (e.g. don't make up data and include the source)			
9. The prompts point in the direction of explaining a phenomenon (science) or designing a solution (engineering).			
10. The phenomenon or problem is authentic, interesting, and requires students to figure something out.			
11. The phenomenon or problem is novel to show the transfer of knowledge. (i.e. not in the unit)			



MS-LS4-5: Artificial Selection

[Evidence Statement](#)Assessment: The Story of the Rainbow Papaya ([Google Template](#)) ([Key Template](#))

Reflections: Type Here			
	No	Partial	Yes
1. The assessment contains a phenomenon (science) or a problem (engineering)			
2. The prompts match the Science and Engineering Practice (SEP) and engage students in sense making.			
3. The stimuli have multiple and sufficient information needed to utilize the SEP . (e.g. multiple data sets to analyze)			
4. The prompts elicit observable understanding of the Disciplinary Core Idea (DCI) .			
5. The prompts explicitly mention the Crosscutting Concept (CCC) .			
6. The prompts include language (i.e. bullets) from grade appropriate progressions. (SEP) (DCI) (CCC)			
7. The graphic organizers provide space for the observable features (e.g. 1, 2, 3...) in the evidence statement. (e.g. claim, evidence and reasoning)			
8. The entire assessment contains information that is scientifically accurate and properly attributed. (e.g. don't make up data and include the source)			
9. The prompts point in the direction of explaining a phenomenon (science) or designing a solution (engineering).			
10. The phenomenon or problem is authentic, interesting, and requires students to figure something out.			
11. The phenomenon or problem is novel to show the transfer of knowledge. (i.e. not in the unit)			



MS-LS4-6: Adaptation of Populations over Time

[Evidence Statement](#)Assessment: Nebraska Deer Mouse ([Google Template](#)) ([Key Template](#))Reflections: [Type Here](#)

	No	Partial	Yes
1. The assessment contains a phenomenon (science) or a problem (engineering)			
2. The prompts match the Science and Engineering Practice (SEP) and engage students in sense making.			
3. The stimuli have multiple and sufficient information needed to utilize the SEP . (e.g. multiple data sets to analyze)			
4. The prompts elicit observable understanding of the Disciplinary Core Idea (DCI) .			
5. The prompts explicitly mention the Crosscutting Concept (CCC) .			
6. The prompts include language (i.e. bullets) from grade appropriate progressions. (SEP) (DCI) (CCC)			
7. The graphic organizers provide space for the observable features (e.g. 1, 2, 3...) in the evidence statement. (e.g. claim, evidence and reasoning)			
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