LOUISIANA DEPARTMENT OF EDUCATION

Office of Assessments, Analytics, and Accountability

LEAP Assessment Guide for Grade 5 Science

Purpose

This document is designed to assist Louisiana educators in understanding the LEAP Grade 5 Science assessment.

Introduction

All students in grades 3-8 and Biology will take the LEAP science assessments, which provide

- questions that have been reviewed by Louisiana educators to ensure their alignment to the Louisiana Student Standards for Science and appropriateness for all Louisiana students;
- measurement of the full range of student performance; and
- information for educators and parents about student readiness in science and whether students are “on track” for college and careers.

Vision for Science Standards and Assessment

The Louisiana Student Standards for Science (LSS for Science) provide appropriate content for all grades or courses, maintain high expectations, create a logical connection of content across and within grades, represent the knowledge and skills students need to successfully transition to postsecondary education and the workplace, and call for students to apply content knowledge; investigate, evaluate, and reason scientifically; and connect ideas across disciplines.

Assessment Design

Supporting Science Instruction

The LEAP tests will assess students' understanding of the LSS for Science, reflecting the multiple dimensions of the standards.

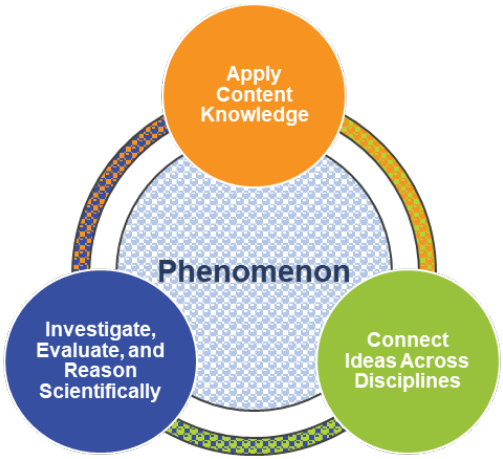
Apply content knowledge and skills (Disciplinary Core Idea, DCI)

In the classroom, students develop skills and content knowledge reflected in the Performance Expectations (PE) and detailed in the Disciplinary Core Ideas (DCI), the key skills and knowledge students are expected to master by the end of the course.

On the LEAP test, students answer questions which require content knowledge and skills aligned to PE bundles (groupings of PEs) and the corresponding DCIs.

Investigate, evaluate, and reason scientifically (Science and Engineering Practice, SEP)

In the classroom, students do more than learn about science; they "do" science. Simply having content knowledge and scientific skills are not enough; students must investigate and apply content knowledge to scientific phenomena. Phenomena are real world observations that can be explained through scientific knowledge and reasoning (e.g., water droplets form on the outside of a water glass, plants tend to grow toward their light source, different layers of rock can be seen on the side of the road). Science instruction must integrate the practices, or behaviors, of scientists and engineers as students investigate real-world phenomena and design solutions to problems.



On the LEAP test, students do more than answer recall questions about science; they apply the practices, or behaviors, of scientists and engineers to investigate each real-world phenomenon and design solutions to problems.

Connect ideas across disciplines (Crosscutting Concept, CCC)

In the classroom, students develop a coherent and scientifically-based view of the world; they must make connections across the domains of science (life science, physical science, earth and space science, environmental science, and engineering, technology, and applications of science). These connections are identified as crosscutting concepts (CCC).

On the LEAP test, sets of questions assess student application of knowledge across the domains of science for a comprehensive picture of student readiness for their next grade or course in science.

Set Based Design

The tests include item sets, task sets, and standalone items. A scientific **phenomenon** provides the anchor for each set or standalone item. Stimulus materials, related to the scientific phenomenon, provide context and focus for sets. A variety of stimulus materials provide context for each described phenomenon. Art is used to help convey information in a simplified form; examples include maps, charts, data tables, bar or line graphs, diagrams, pictures, photographs, or artist's renderings. In addition to the information presented in the stimulus materials, the questions require students to bring in content knowledge from the course to demonstrate their understanding of science. Some item sets culminate with a short constructed-response and the **task** culminates with an extended-response item. Each test includes a few **standalone items** which are not part of an item set or task.

Item Types

- Selected Response (SR): includes traditional multiple-choice (MC) questions with four answer options and only one correct answer, as well as multiple-select (MS) questions with five or six answer options and more than one correct answer. For MS items, the question identifies the number of correct answers. All SR items are worth one point each.
- Technology Enhanced (TE): uses technology to capture student comprehension in authentic ways, previously difficult to score by machine for large-scale assessments. TE items are worth up to two points and may include item types such as, but not limited to, drag and drop, dropdown menus, and hot spots. The Online Tools Training allows students to experience TE items and practice answering them to prepare for the computer-based test.
- **Two-part item**: requires students to answer two related questions, worth two points. Two-part items may combine SR and TE item types.
    - Two-part Dependent (TPD): the first part must be correct in order to earn credit for the second part.
    - Two-part Independent (TPI): each part is scored independently.

- Constructed Response (CR): requires a brief response provided by the student and will be scored using a 2-point rubric. These items may require a brief paragraph, a few sentences, and/or completion of a chart.
- Extended Response (ER): asks students to write a response that expresses the students' ability to apply all three dimensions of the LSS for Science and will be scored using a 6-point rubric.

Test Design

The LEAP grade 5 science assessment contains 5 item sets, 1 task, and 12 standalone items. The test will contain embedded field-test questions (one item set or task set and four standalone items). The field-test questions do not count toward a student's final score on the test and may be placed in any session; they provide information that will be used to develop future test forms. All LEAP tests are timed.

Test Session	Component	Points	Time Allowed
Session 1	3 Item Sets	18	65 minutes
	3 Standalone Items	4	
Session 2	1 Task	12	65 minutes
	1 Item Set	6	
	3 Standalone Items	4	
Session 3	1 Item Set	6	65 minutes
	6 Standalone Items	8	
Total Operational	5 Item Sets, 1 Task, 12 Standalones	58	195 minutes

Reporting Categories

All Louisiana Student Standards for Science are eligible for assessment. The LEAP science assessments examine students' performance of scientific and engineering practices (SEPs) in the context of disciplinary core ideas (DCIs) and crosscutting concepts (CCCs). Although these SEPs are described separately, they generally function in concert. This overlap of SEPs means that assessment items must be designed around a bundle of related performance expectations (PEs) and not tested in isolation from one another. The task set, which contains the extended-response question, may assess any of the LSS for science from year to year. The extended-response question is reported in the overall score, but not as part of any reporting category.

The table below shows the reporting category titles and descriptions as well as the PEs associated with each reporting category.

Reporting Category	Description	Content
Investigate	Ask Questions, Define Problems, and Plan Investigations	5-PS1-3, 5-PS1-4, 5-LS1-1
Evaluate	Analyze and Interpret Data, Use Mathematics and Computational Thinking, and Engage in Argument from Evidence	5-PS1-2, 5-PS2-1, 5-ESS1-1, 5-ESS1-2, 5-ESS2-2
Reason Scientifically	Develop and Use Models, Construct Explanations, and Design Solutions	5-PS1-1, 5-PS3-1, 5-LS2-1, 5-ESS2-1, 5-ESS3-1

Achievement-Level Definitions

Achievement-level definitions briefly describe the expectations for student performance at each of Louisiana's five achievement levels:

- **Advanced:** Students performing at this level have **exceeded** college and career readiness expectations and are well prepared for the next level of study in this content area.
- **Mastery:** Students performing at this level have **met** college and career readiness expectations and are prepared for the next level of study in this content area.
- **Basic:** Students performing at this level have **nearly met** college and career readiness expectations and may need additional support to be fully prepared for the next level of study in this content area.
- **Approaching Basic:** Students performing at this level have **partially met** college and career readiness expectations and will need much support to be prepared for the next level of study in this content area.
- **Unsatisfactory:** Students performing at this level have **not yet met** the college and career readiness expectations and will need extensive support to be prepared for the next level of study in this content area.

Achievement Level Descriptors

Achievement Level Descriptors (ALDs) indicate what a typical student at each level should be able to demonstrate based on his or her command of grade-level standards. ALDs are written for the three assessment reporting categories. Access the ALDs on the Assessment Resources Webpage library for a breakdown of the knowledge, skills, and practices associated with each achievement level.

Test Administration

Administration Information

The testing window opens April 1, 2026, and runs through May 15, 2026 for all computer-based tests. The school or district test coordinator will communicate each school's testing schedule. For updates to the testing schedule, refer to the 2025-2026 Louisiana Assessment Calendar. All LEAP assessments are timed. No additional time is permitted, except for students who have a documented extended time accommodation (e.g., an IEP).

Scheduling Requirements for Computer-Based Testing

Computer-based testing allows school systems some flexibility in scheduling. However, to reduce incidences of testing irregularities, school systems **must** adhere to the following scheduling and administration practices:

- Testing students in the same grade level across the school at or very close to the same time
- Completing makeup testing for students immediately upon their return
- Limiting student interaction during breaks between test sessions
- Isolating students who have not completed testing for the day (e.g., students with extended time accommodation)
- Preventing interaction between groups of students taking the same tests at different times within a testing day
- Requiring the completion of a session once it is opened (i.e., limiting the reopening of test sessions)
- Taking the sessions within a content area in the correct order (e.g., Math Session 1 taken before Math Session 2)

The following is also recommended:

- Limiting sessions to no more than three in one day for a student; and
- Administering no more than one session that includes an extended-response task or writing prompt (e.g., grades 4-8 Social Studies Session 2, ELA Session 1, ELA Session 2, English I and 2 Sessions 1 and 2, and U.S. History Session 2) in a day to an individual student.

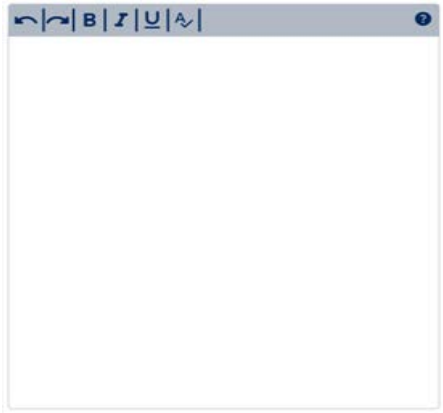
For more information about scheduling and administration policies, refer to the Online Assessment Scheduling Guidance, found on the LDOE Assessment Resources Webpage.

Testing Materials

All students should receive scratch paper and two pencils from their test administrator.

Testing Platform

Students will enter their answers into the online testing system. When composing their written responses, students will type their responses into an answer box, like the one shown. The toolbar at the top of the response box allows students to undo or redo an action, and add boldface, italics, or underlining to their response. There is a limit to the amount of characters that can be typed into the response box; however, it is set well beyond what a student might produce given the LEAP expectations for written responses and timing. The character count is not included on the response box so students focus on the quality of their responses rather than the amount of writing.



The computer-based tests include the following online tools, which allow a student to select answer choices, "mark" items, eliminate answer options, highlight text, take notes, enlarge the item, apply a mask to cover a part of the screen, and guide the reading of a text or an item line by line. A help tool is also featured to assist students as they use the online system.

- Pointer 
- Sticky note 
- Cross-off 
- Line guide 
- Highlighter 
- Masking 
- Magnifier 
- Help 

All students taking the computer-based test should work through the Online Tools Training, using the online tools so students are well prepared to navigate the online testing system.

Sample Test Items

This section includes sample test items. With each item, item set, and task, is a table containing alignment information and the answer key, where possible. Additionally, analyses of the multi-dimensional alignment for the item set and the task set are included. Rubrics for CRs and ERs are included with the items.

Standalone Items

Item Type	PE	DCI	SEP	CCC	Points
TEI	5-PS1-4	UE.PS1B.a		C/E	2
TEI	5-PS3-1	UE.PS3D.b; UE.LS1C.a	2. MOD	E/M	2
TPD	5-ESS1-2	UE.ESS1B.a	4. DATA	PAT	2
MC	5-ESS2-2	UE.ESS2C.a	5. MCT		1

SEP = blue; DCI = orange; CCC = green An asterisk (*) denotes correct answer(s).

Technology-Enhanced Item

Performance Expectation: **5-PS1-4** Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

A student conducted two trials with glasses of milk during an experiment. In Trial 1, the student added water to a glass of milk. In Trial 2, the student added vinegar to the other glass of milk. The student's observations are shown in the table.

Student's Observations of Milk

Trial	Liquid Mixed with Milk	Observation of Milk Before Mixing	Observation of Milk After Mixing
1	water	smooth white liquid	Smooth white liquid. Milk is thinner than it was before.
2	vinegar	smooth white liquid	White liquid with white solid parts. Milk is thicker than it was before.

Multi-Dimensional Alignment: The item requires the student to apply knowledge that **when two or more different substances are mixed, a new substance with different properties may be formed** to demonstrate an understanding of **cause and effect relationships**.

Scoring Information

In Trial 1, adding water to milk causes [a physical change] . The best evidence for this is that [the milk is thinner than it was before] .

In Trial 2, adding vinegar to milk causes [a chemical change] . The best evidence for this is that [the milk has solid parts in it] .

Select the correct answer from each drop-down menu to complete each sentence.

In Trial 1, adding water to milk causes

- no change
- a physical change
- a chemical change

The best evidence for this is that

- the glass weighs more than it did before
- the milk is thinner than it was before
- two liquids have been mixed together
- the milk is a different color than it was before

In Trial 2, adding vinegar to milk causes

- no change
- a physical change
- a chemical change

The best evidence for this is that

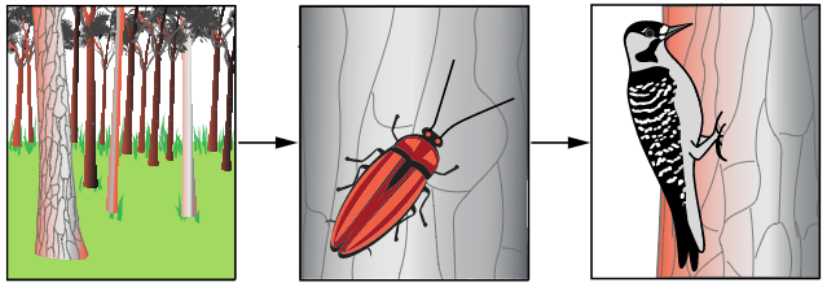
- the milk is still white
- the milk has solid parts in it
- the milk was mixed with a different liquid
- there is a greater volume of liquid in the glass than there was before

Technology-Enhanced Item

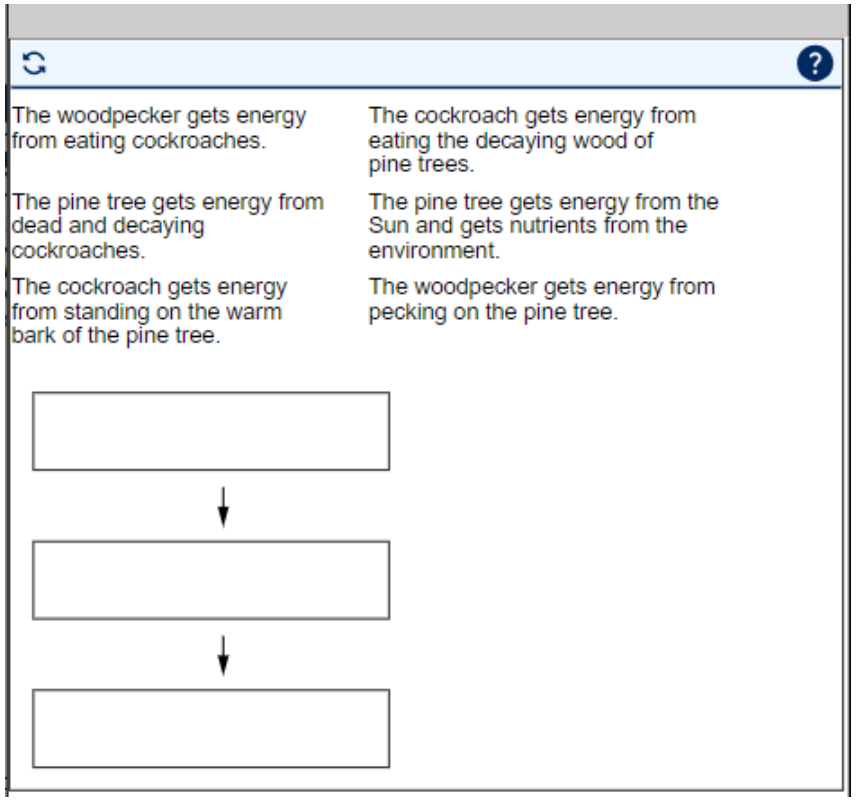
Performance Expectation: **5-PS3-1** Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

The figure shows a food chain for a forest ecosystem.

Food Chain for a Forest Ecosystem

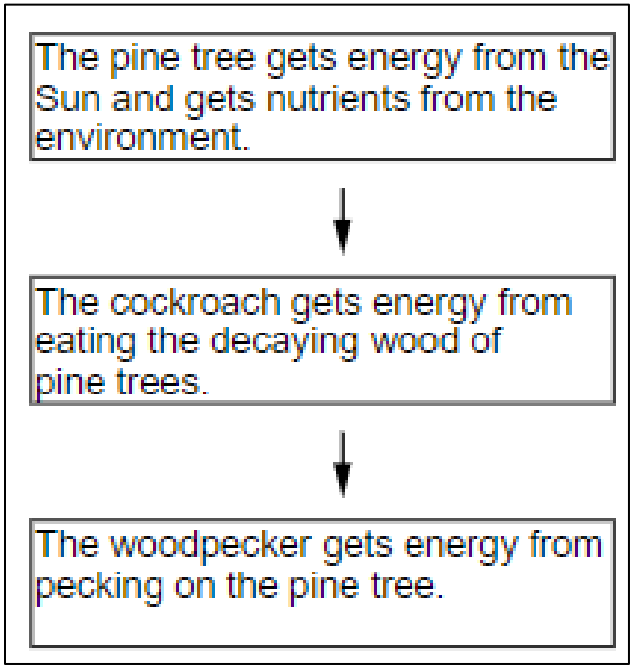


Drag the correct statement into each box to show how energy is transferred from the pine trees to the woodpecker. Not all statements will be used.



Multi-Dimensional Alignment: The item requires the student to apply the science practice of **developing and using models** and knowledge that **energy released from food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water)** to demonstrate an understanding that **energy can be transferred in various ways**.

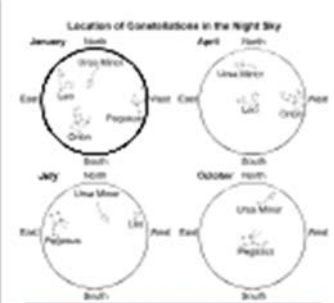
Scoring Information

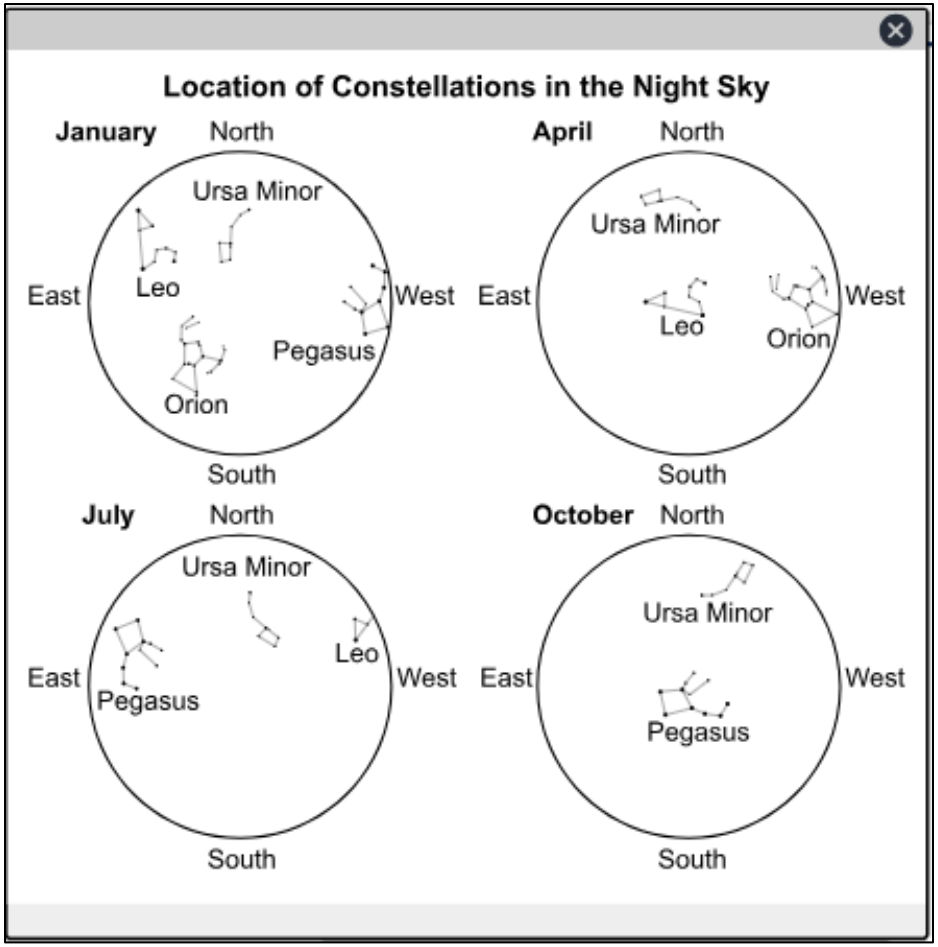


Two-Part Dependent Item (Part A: Technology Enhanced, Part B: Multiple Choice)

Performance Expectation: **5-ESS1-2** Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

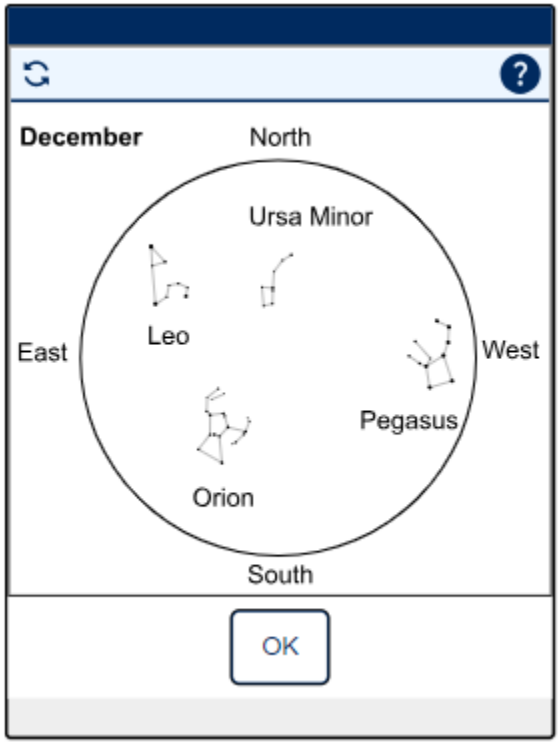
While looking at the sky at around 9 P.M. one night in January, a group of friends identified four constellations: Leo, Ursa Minor, Pegasus, and Orion. They researched the locations of each constellation in the night sky in April, July, and October. The figure shows their findings.





Part A
Which constellations would **most likely** be visible in December?

Select the **two** correct answers.



Part B
Which evidence from the figure best supports the answer to Part A?

A. The constellations appear to move south to north.

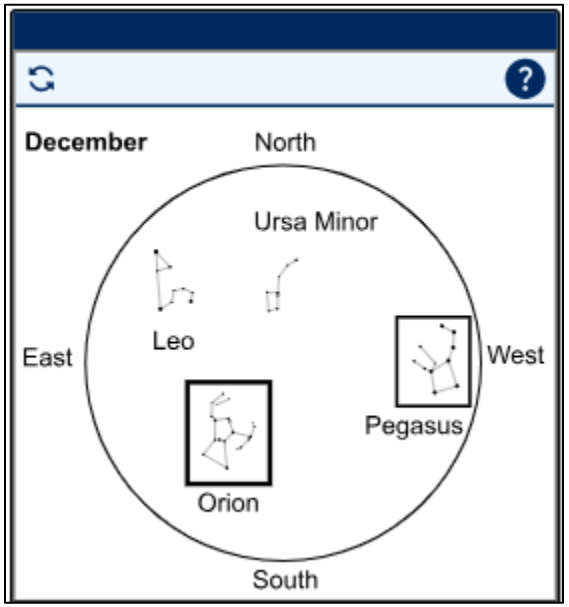
B. The stars appear to rotate around a fixed point in the northern sky.*

C. The constellations appear to move from west to east across the sky.

D. Some stars appear to stay in the south, while others stay in the north.

Multi-Dimensional Alignment: The item requires the student to apply the science practice of **analyzing and interpreting data** and knowledge of how **the orbit of Earth around the Sun and the rotation of Earth about the axis between its North and South poles cause observable changes** to demonstrate an understanding of **patterns**.

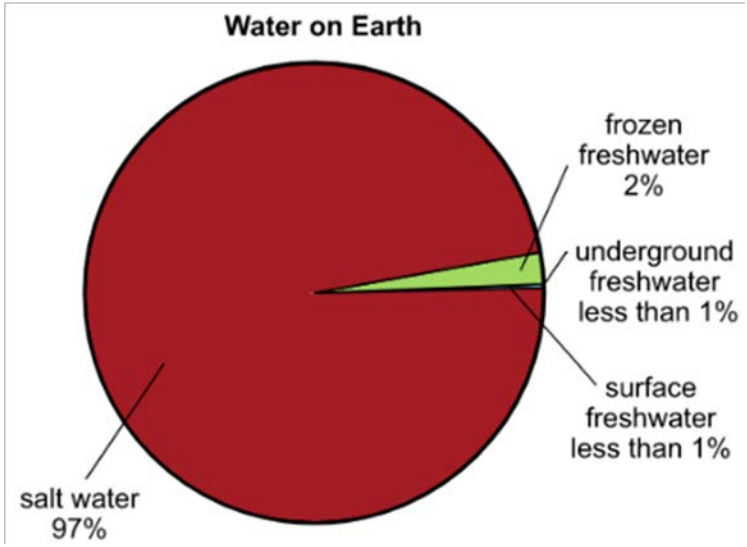
Scoring Information for Part A



Multiple-Choice Item

Performance Expectation: **5-ESS2-2** Describe and graph the amounts and percentages of water and freshwater in various reservoirs to provide evidence about the distribution of water on Earth.

A group of students created a circle graph that shows the distribution of water on Earth.



Which statement **best** describes the distribution of water on Earth?

A. Most of Earth's water is stored in the oceans.*

B. Most of Earth's water is frozen in the polar ice caps.

C. Most of Earth's water is flowing in streams and rivers.

D. Most of Earth's water is trapped in underground aquifers.

Multi-Dimensional Alignment: While effectively applying the science practice of **using mathematics and computational thinking** by **describing the graph quantities to address water distribution**, the student demonstrates knowledge that **nearly all of Earth's available water is in the oceans**.

Item Set: Cordgrass Ecosystem

Performance Expectations:

5-LS1-1 Ask questions about how air and water affect the growth of plants.

5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

Item Type	PE	DCI	SEP	CCC	Points
TEI	5-LS2-1	UE.LS2B.a	2. MOD		1
TPD	5-LS2-1	UE.LS2A.d	2. MOD		2
TPD	5-LS1-1	UE.LS1C.b	1. Q/P		2
CR	5-LS2-1	UE.LS2B.a	2. MOD	SYS	2

SEP = blue; DCI = orange; CCC = green An asterisk (*) denotes correct answer(s).

Stimulus Materials

Use the information about cordgrass and your knowledge of science to answer the questions.

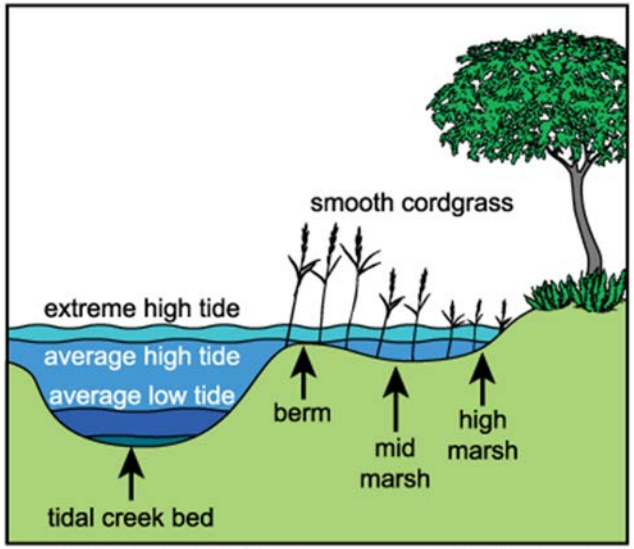
Cordgrass

A student reads the following information about smooth cordgrass in a science magazine.

- It is one of the few plants that grow in the tidal zone of saltwater marshes.
- It can grow to heights ranging from 6 inches to 7 feet tall.

Figure 1 shows a cross section that compares cordgrass heights in the tidal zone of a saltwater marsh. The tidal zone moves water around. This removes some of the dangerous substances that can keep plants from growing.

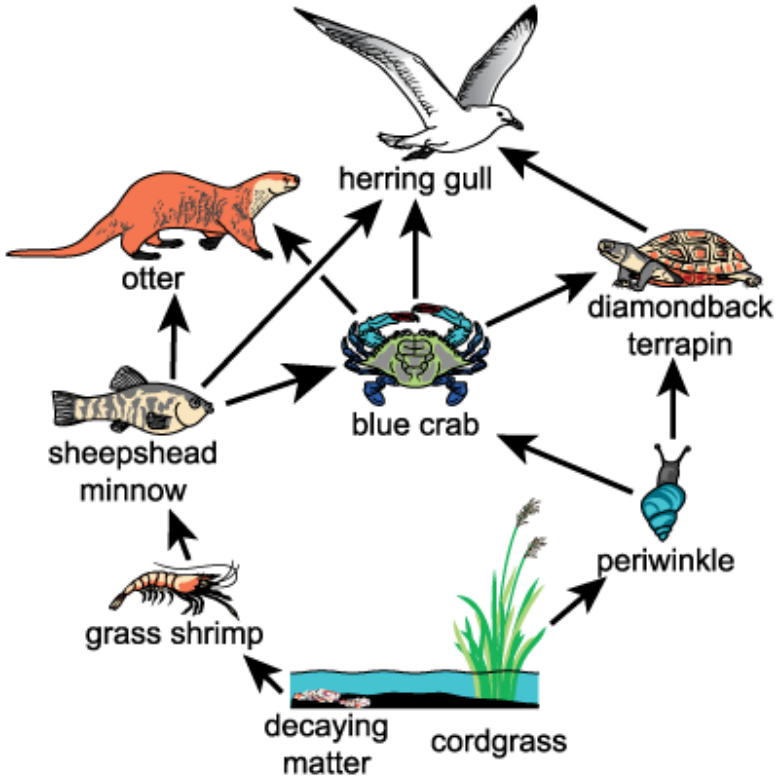
Figure 1. Cross Section of Tidal Zone



Source: SCDNR, 1998 (unpublished data), Marine Resources Research Institute, Charleston, SC.

Many animals depend on cordgrass for survival. Figure 2 shows a food web in a saltwater marsh that contains cordgrass.

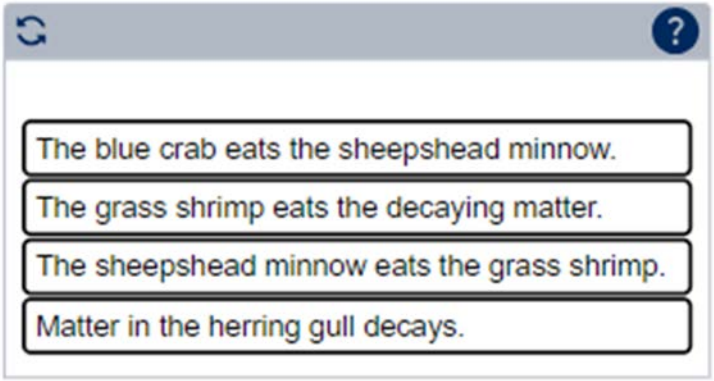
Figure 2. Saltwater Marsh Food Web



Technology-Enhanced Item

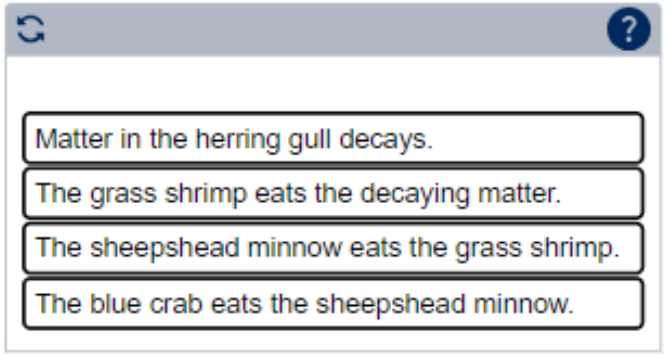
A herring gull dies in the saltwater marsh.

Drag the statements into the correct order to model how the matter from the dead herring gull is moved in a saltwater marsh.



Multi-Dimensional Alignment: While effectively applying the science practice of **developing and using models** by **developing a model to show how matter moves in an ecosystem**, the student demonstrates knowledge that **matter cycles between the air and soil and among plants, animals, decomposers, and microbes as organisms live and die**.

Scoring Information

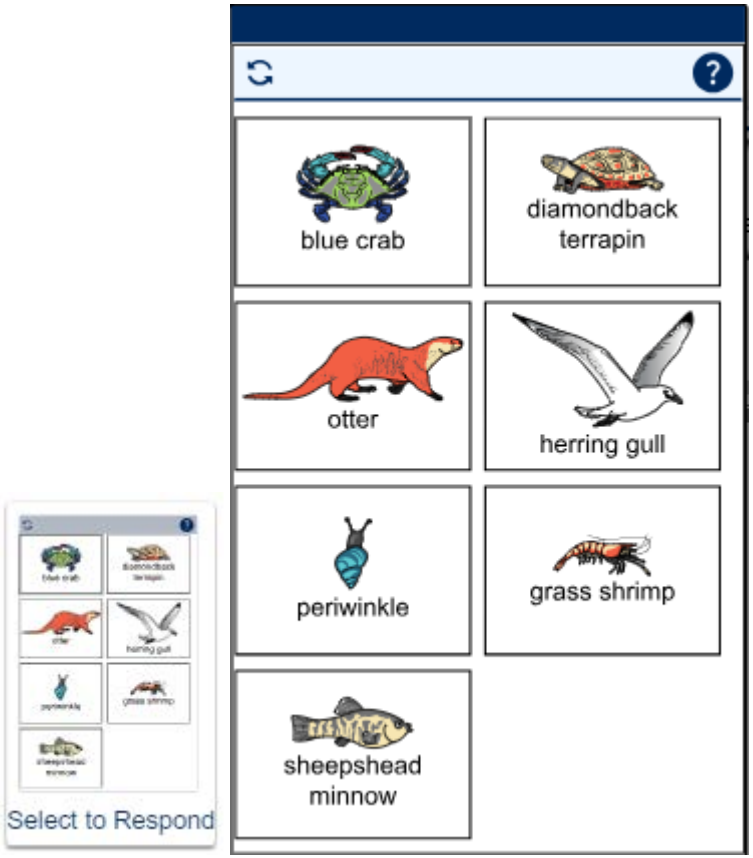


Two-Part Dependent Item (Part A: Technology Enhanced, Part B: Multiple Choice)

Part A

Nutria are non-native aquatic rodents that eat smooth cordgrass. Nutria can quickly disrupt a saltwater marsh ecosystem.

Select the organism whose population would most likely decrease **first** if nutria were to move into the saltwater marsh ecosystem.



Part B

Which statement **best** supports the answer to Part A?

A. Because the nutria eat the cordgrass, the diamondback terrapin has fewer plants to eat.

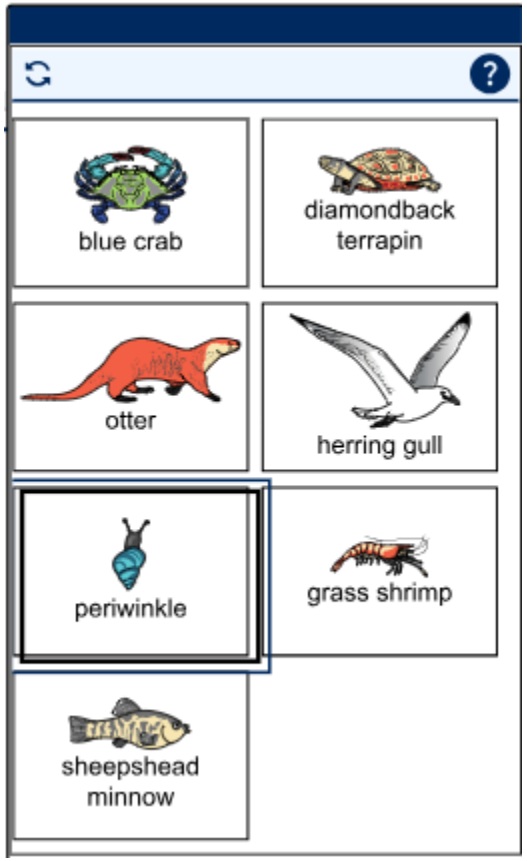
B. Because the nutria eat the cordgrass, the periwinkle has less of its main food source available.*

C. Because the otters lose the ability to hide in the cordgrass, their predators are more likely to prey on them.

D. Because the cordgrass provides less shade, the sheepshead minnows are easier for the herring gulls to see and catch.

Multi-Dimensional Alignment: While effectively applying the science practice of **developing and using models** by **using a model to show ecosystem interactions**, the student demonstrates knowledge of how **newly introduced species can damage the balance of an ecosystem**.

Scoring Information for Part A



Two-Part Dependent Item (Part A: Multiple Choice, Part B: Technology Enhanced)

Part A

A student wants to know the ideal conditions for smooth cordgrass growth. Based on the information in Figure 1, which question is **best** for the student to investigate?

A. Does cordgrass need a certain type of soil to grow taller?

B. Does cordgrass need to have its seeds spread by a certain animal?

C. Does cordgrass need to have a certain depth of water to grow leaves?

D. Does cordgrass need a certain amount of salt in the water it grows in?*

Part B

Select the correct answer from each dropdown menu to complete each sentence.

A student predicted that when the smooth cordgrass is planted in the berm, it will be [ ] cordgrass planted in

- taller than
- shorter than
- the same height as

the high marsh. This is because compared to the high marsh, the berm [ ].

- has less soil
- has more salt in the water
- gets the same amount of sun
- has fewer plant-eating species

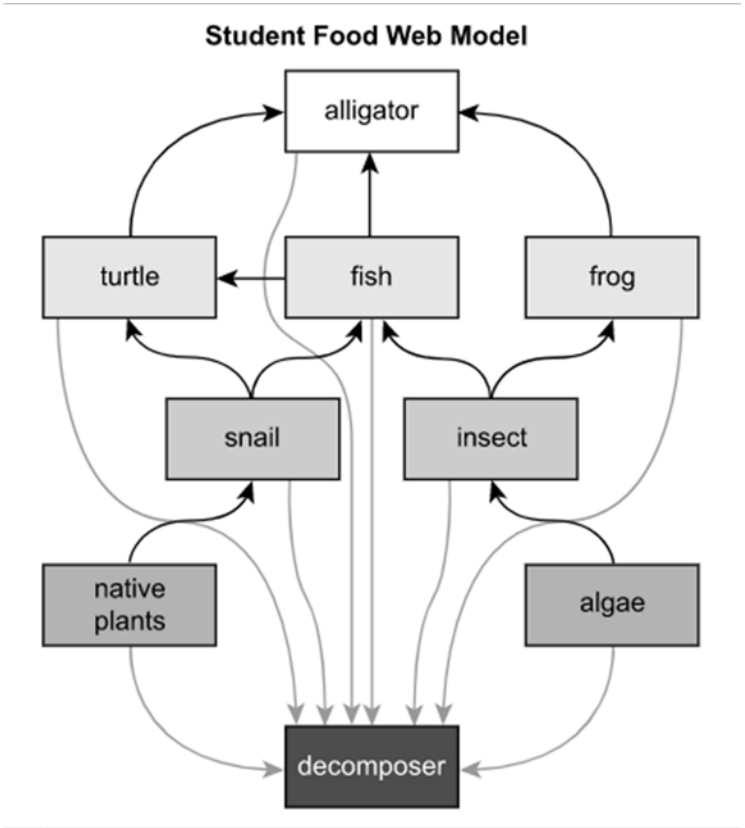
Multi-Dimensional Alignment: While effectively applying the science practice of **asking questions and defining questions that can be investigated and predicting outcomes based on cause and effect relationships**, the student demonstrates knowledge of how **plants acquire their material for growth chiefly from air and water**.

Scoring Information for Part B

A student predicted that when the smooth cordgrass is planted in the berm, it will be [taller than] cordgrass planted in the high marsh. This is because compared to the high marsh, the berm [has more salt in the water].

Constructed-Response Item

A student developed the food web model shown.



Describe how the movement of matter in this food web would change if insects disappeared. Be sure to include the various consumer levels in your description.

Multi-Dimensional Alignment: The item requires the student to apply the science practice of **developing and using models** and knowledge of how **matter cycles between the air and soil and among plants, animals, decomposers, and microbes as organisms live and die** to demonstrate an understanding of **systems and system models**.

Scoring Guide

Scoring Information	
Score	**Description**
2	Student correctly describes how the movement of matter in the ecosystem would change AND how the populations of different consumer organisms would change as a result.
1	Student correctly describes how the movement of matter in the ecosystem would change, but does not describe how the populations of different consumer organisms would change as a result.
0	Student does not correctly describe how the movement of matter in the ecosystem would change or how the populations of different consumer organisms would change as a result.

Scoring Notes:

- Description of how the movement of matter in the ecosystem would change (1 point)
- Description of how the populations of different consumer organisms would change as a result (1 point)

Examples include:

- Consumer organisms eat other organisms to get matter. If there were no insects, matter from algae could not move to other organisms in the ecosystem. This means that some of the consumer organisms would not be able to get enough matter to survive. There would be no frogs, fewer fish, fewer turtles, and fewer alligators in the ecosystem.
- If the insects disappear, matter will not move from algae to insects, then to fish and frogs. Frogs will not be able to survive because they cannot get matter from insects. There will also be fewer fish because they cannot get matter from insects. Because there are fewer fish, there will be fewer turtles. Because there are no frogs and fewer fish and turtles, there will be fewer alligators.

Accept other reasonable answers.

Task Set: Landslides

*Although the ER in the Task Set is reduced to 6 points beginning in 2025-2026, this set will remain as a 9-point ER.

Performance Expectations:

5-PS2-1 Support an argument that the gravitational force exerted by Earth is directed down.

5-ESS2-1 Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

Item Type	PE	DCI	SEP	CCC	Points
MS	5-PS2-1	UE.PS2B.c	7. ARG		1
MC	5-PS2-1	UE.PS2B.c		C/E	1
TE	5-ESS2-1	UE.ESS2A.b		SYS	2
TE	5-ESS2-1	UE.ESS2A.b	2. MOD		2
ER	5-ESS2-1; 5-PS2-1	UE.ESS2A.b; UE.PS2B.c	7. ARG	SYS	9

SEP = blue; DCI = orange; CCC = green An asterisk (*) denotes correct answer(s).

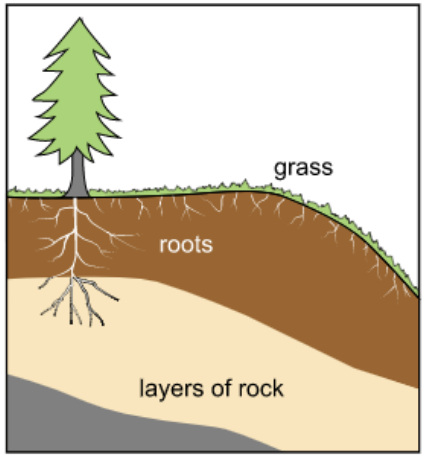
Stimulus Materials

Use the information about landslides and your knowledge of science to answer the questions.

Landslides

Big Sur, California, is located right next to the Pacific Ocean. The area of Big Sur has many steep cliffs and slopes. Major landslides happened there in 1998, 2000, and 2017. Landslides take place when rocks and soil move downward. Roads can be covered with rock, and parts of a road can fall into the ocean. People cannot drive through the area until soil and rocks are removed or the road is replaced. Landslides are less likely to happen on stable slopes. On stable slopes, the upper layers of rock are connected to and supported by the bottom layers of rock, as shown in Figure 1. Slopes become unstable when layers of rock become separated from one another. This can happen when water fills the cracks between rocks.

Figure 1. Stable Slope



Multiple-Select Item

A student claims that landslides are caused by the downward force of gravity. Which statements provide evidence to support the student's claim?

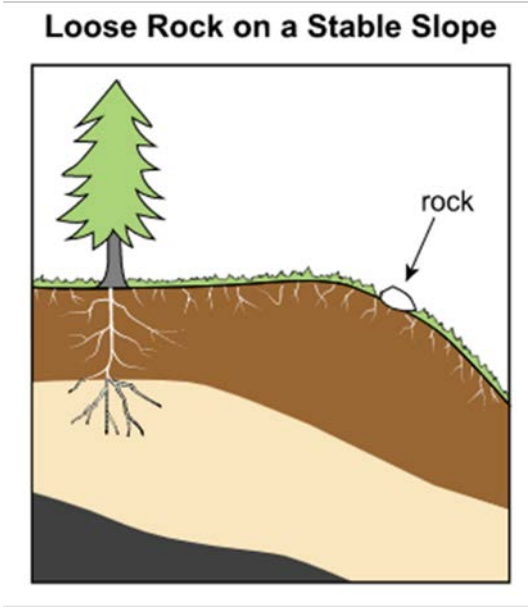
Select the **two** correct answers.

1. Big Sur has very steep cliffs.
2. Falling rocks can cover a road.*
3. Rocks and soil can block traffic.
4. Rock layers push against each other.
5. Parts of a road may fall into the ocean.*

Multi-Dimensional Alignment: While effectively applying the science practice of **engaging in arguments from evidence** by **supporting an argument with evidence of gravity**, the student demonstrates knowledge that **the gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center**.

Multiple-Choice Item

The diagram shows a loose rock on the edge of a stable slope.



A hiker kicks the loose rock and observes that, two minutes later, the rock has rolled to the bottom of the slope. Which statement **best** explains the hiker's observations?

A. Gravity pulled the rock downward only when the rock bounced over objects on the slope.

B. Gravity pulled the rock straight down the entire time, which caused the rock to move downward.*

C. Gravity pulled the rock at an angle along the ground some of the time to cause the rock to move on the slope.

D. Gravity pulled the rock in different directions at certain times, which caused the rock to move downward without getting stuck in the grass.

Multi-Dimensional Alignment: The item requires the student to apply knowledge that **the gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center** to demonstrate an understanding of **cause and effect relationships**.

Technology-Enhanced Item

Select the correct answer from each dropdown menu to complete each sentence.

A landslide can happen when a slope becomes unstable. One way the slope can become unstable is if

- ocean waves in the geosphere
- earthquakes in the atmosphere
- strong winds in the hydrosphere
- burrowing animals in the biosphere

cause the rocks and soil that make up the

- biosphere
- geosphere
- atmosphere
- hydrosphere

to become loose and easy to move. Another way the slope can become unstable is if heavy rainfall or freezing ice pushes rocks and soil apart. This shows an interaction between parts of the

- biosphere and geosphere
- atmosphere and geosphere
- biosphere and hydrosphere
- geosphere and hydrosphere
- atmosphere and hydrosphere

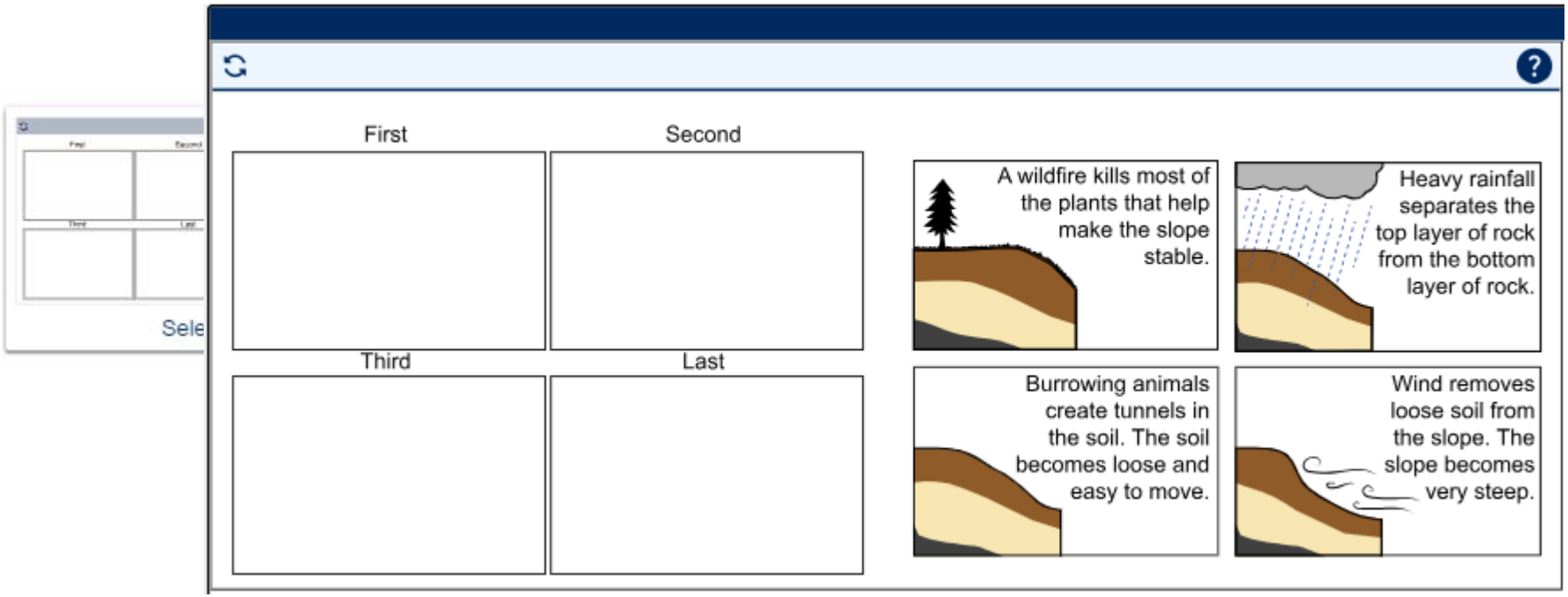
Multi-Dimensional Alignment: The item requires the student to apply knowledge that **Earth's systems (geosphere, hydrosphere, biosphere, atmosphere) interact in multiple ways to affect Earth's surface materials processes** to demonstrate an understanding of **systems and system models**.

Scoring Information

A landslide can happen when a slope becomes unstable. One way the slope can become unstable is if [burrowing animals in the biosphere] cause the rocks and soil that make up the [geosphere] to become loose and easy to move. Another way the slope can become unstable is if heavy rainfall or freezing ice pushes rocks and soil apart. This shows an interaction between parts of the [geosphere and hydrosphere].

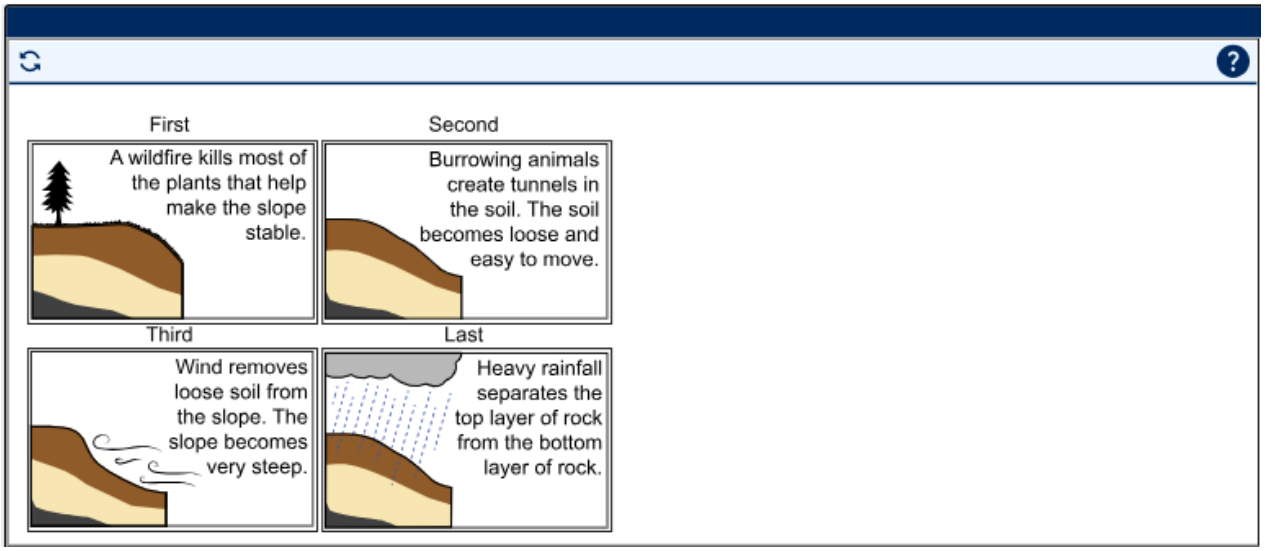
Technology-Enhanced Item

Drag the images into the correct order to model the sequence of events that causes a landslide.



Multi-Dimensional Alignment: While effectively applying the science practice of **developing and using models** by **developing a model to describe how Earth's systems interact**, the student demonstrates knowledge that **Earth's systems (geosphere, hydrosphere, biosphere, and atmosphere) interact in multiple ways to affect Earth's surface materials and processes**.

Scoring Information



Extended-Response Item

A community along Big Sur suggests that planting trees and bushes on steep slopes can help prevent landslides. Use evidence from Figure 1 to construct an argument about whether this method will help prevent landslides. Include a prediction about how planting trees and bushes will change the interactions between the geosphere and the atmosphere, the biosphere, and the hydrosphere.

As you respond to the prompt, be sure to:

- Address all of the instructions.
- Use evidence from the information provided and your own knowledge of science to support your response.

Multi-Dimensional Alignment: The item requires the student to apply the science practice of **engaging in an argument from evidence** and knowledge of how:

- **Earth's systems (geosphere, hydrosphere, biosphere, and atmosphere) interact in multiple ways to affect Earth's surface materials and processes**, and
- **the gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center**

to demonstrate an understanding of **systems and systems models**.

Score Points

The student's score is the total of the points earned across all parts (up to an item maximum of 9 points).

- No response (blank) or a response that does not address the prompt earns 0 points.
- 2 points for each prediction (for a total of THREE predictions):
  - Score 2 points: Correct prediction with a description of the specific system interactions involved.

  OR

  - Score 1 point: Correct prediction, but the specific system interactions are not described.
- 3 points for constructing an argument:
  - Score 3 points: Argument is constructed for the correct claim, includes a description of the interactions of components of the systems, and includes evidence.

  OR

  - Score 2 points: Argument is constructed for the correct claim and includes a description of the interactions of components of the systems.

  OR

  - Score 1 point: Argument is constructed for the correct claim.

Score Information

1. Biosphere and geosphere: The roots of bushes and trees will hold together soil and rock layers. This is an interaction between the biosphere (roots of bushes and trees) and the geosphere (soil and rock layers).
2. Atmosphere and geosphere: Because the soil is held together more tightly, wind will cause less erosion of the soil than before. This is an interaction between the atmosphere (wind) and the geosphere (soil).
3. Hydrosphere and geosphere: Because the soil and rock layers are held together more tightly, rain cannot soak into the soil and separate the rock layers, and running water cannot wash away the soil. These are interactions between the hydrosphere (rain and running water) and the geosphere (soil and rock layers).
4. Argument about proposed solution: Planting trees and bushes will prevent landslides. Landslides occur on slopes that are not stable. Plant roots prevent soil erosion that would be caused by wind and running water. Plant roots also prevent rain from separating the rock layers. Because there is less erosion and the rock layers are held together, the slope will be stable and a landslide will not occur.

Also accept answers explaining that roots prevent rain from separating the rock layers.

Resources

Assessment Guidance Webpage

- Assessment Development Educator Review Committees: describes the item development process and the associated committees, includes information on applying for participation

Practice Test Webpage

- LEAP Science Grade 5 Practice Test Answer Key: helps prepare students for the spring assessment, includes answer keys, scoring rubrics, and alignment information
- LEAP Science Practice Test Guidance: provides guidance on using the practice tests to support instructional goals
- Practice Test Quick Start Guide: provides information regarding the administration and scoring process

Assessment Resources Webpage

- 2025-2026 Louisiana Assessment Calendar: includes information on testing windows for test administrations
- Grade 5 Science Achievement Level Descriptors: contains descriptions of the knowledge, skills, and processes that students demonstrate with relative consistency and accuracy at each level of achievement
- LEAP Accessibility and Accommodations Manual: provides information about accessibility and accommodations
- LEAP Technology Enhanced Item Types: provides a summary of technology enhanced items students may encounter

DRC INSIGHT Portal:

- includes access to tutorials, manuals, and user guides
- LEAP Science Grade 5 Practice Test: helps prepare students for the spring assessment
- Online Tools Training: allows students to become familiar with the online testing platform and its available tools; also available through this link using the Chrome browser

K-12 Science Planning Webpage

- K-12 Louisiana Student Standards for Science (2017): provides the performance expectations and three-dimensional learning for all grades
- Planning Guide for Science Instruction: assists educators in planning with high quality curriculum
- Grade 5 Louisiana Guide to Implementing Amplify: assists teachers with the implementation of high quality curriculum
- Grade 5 Louisiana Guide to Implementing PhD Science: assists teachers with the implementation of high quality curriculum
- Grade 5 Formative Assessment Items: instructional resources that teachers can download and incorporate into their daily instruction; contact school test coordinator for instructions on accessing the files (Password to access the document is Educate2020)
- Grade 5 Louisiana Guide to Piloting OpenSciEd: assists teachers with the implementation of high quality curriculum

Contact the LDOE

- STEM@la.gov for instructional or curriculum implementation support
- assessment@la.gov for assessment questions
- ldoecommunications@la.gov to subscribe to newsletters; include the newsletter(s) you want to subscribe to in your email

Newsroom: archived copies of newsletters including LDOE Weekly School System Newsletters and Teacher Leader Newsletter

Updates Log

The table below lists any updates made to this document after the original post date.

Available	Description of Updates
July 2025	2025-2026 Assessment Guides original posting
October 2025	Changed point value for ERs from 9 points to 6 points

Email assessment@la.gov with any questions or comments about this assessment guide.