

Grade 5
Practice Test
Scoring Rubric

Missouri Science Scoring Rubric

Session: 1 Item: 4 Grade: 5

MLS Expectation: 3.LS3.C.1

Item ID: 905285

Score	Description
3	<p>This response demonstrates a thorough understanding of constructing an argument with evidence that in a particular ecosystem, based on structural adaptations or behaviors, some organisms can survive well, some survive less well, and some cannot survive at all by</p> <ul style="list-style-type: none">• describing how the turtles will be positively affected by the zoo enclosure;• describing how the turtles will be negatively affected by the zoo enclosure; and• describing one way in which the zoo enclosure could be changed to help the turtles. <p><i>*The response is clear, complete, and correct.</i></p>
2	<p>This response demonstrates a thorough understanding of two of the three key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
1	<p>This response demonstrates a thorough understanding of one of the three key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
0	<p>The response provides insufficient evidence to demonstrate any understanding of the concept being tested.</p>

Exemplar Responses:

Part A (2 points)

- Positive Effect (1 point):
 - Zoo enclosure provides a land habitat for the turtles.
 - Turtles will have insects as a food source in the zoo enclosure
- Negative Effect (1 point):
 - Zoo enclosure does not have water for the turtle's habitat.
 - Turtles will only have insects to eat.
 - Turtles will not have many food sources.

Part B (1 point)

- The zoo enclosure could include a pond or body of water for the turtles.
- The zoo enclosure could include a wider variety of organisms for the turtle to use as food sources.
- Any other response indicating an improved habitat for the turtles.

Missouri Science Scoring Rubric

Session: 1 Item: 5

Grade: 5

MLS Expectation: 5.ESS2.A

Item ID: 903805

Score	Description
4	<p>This response demonstrates a thorough understanding of developing a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact by</p> <ul style="list-style-type: none">• describing how adding a bag of ice on top of the plastic wrap will affect the water vapor rising from the cup;• describing how the model can be changed to increase the rate of water moving through the water cycle;• identifying an Earth system that is represented by the cup of water in the model; and• identifying an Earth system that is represented by the bag of ice in the model. <p><i>*The response is clear, complete, and correct.</i></p>
3	<p>This response demonstrates a thorough understanding of three of the four key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
2	<p>This response demonstrates a thorough understanding of two of the four key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
1	<p>This response demonstrates a thorough understanding of one of the four key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
0	<p>The response provides insufficient evidence to demonstrate any understanding of the concept being tested.</p>

Exemplar Responses:

Part A (1 point)

- The water vapor will cool.
- The water vapor will condense, or condense more quickly.
- The water vapor will turn into precipitation (fall as rain).

Part B (1 point)

- Increase the temperature of the water in the cup.
- Decrease the temperature near the top (plastic wrap) of the model.
- Any other response indicating a faster rate of water movement through the model.

Part C (2 points)

- Bag of Ice (1 point): atmosphere
- Cup of water (1 point): hydrosphere

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Session: 1 Item: 6

Grade: 5

MLS Expectation: 5.ESS1.B.1

Item ID: 903769

Score	Description
3	<p>This response demonstrates a thorough understanding of making observations during different seasons to relate the amount of daylight to the time of year by</p> <ul style="list-style-type: none">• explaining why collecting data on the same day each month is a good idea;• describing a pattern in the data; and• describing the pattern in the amount of daylight during the year and the different seasons on Earth. <p><i>*The response is clear, complete, and correct.</i></p>
2	<p>This response demonstrates a thorough understanding of two of the three key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
1	<p>This response demonstrates a thorough understanding of one of the three key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
0	<p>The response provides insufficient evidence to demonstrate any understanding of the concept being tested.</p>

Exemplar Responses:

Part A (1 point)

- It provides a more consistent time period between collections.
- It helps to account for months where the amount of daylight stops increasing or stops decreasing.
- Any other response indicating a positive effect of collecting data on the same day each month.

Part B (1 point)

- The amount of daylight increase during part of the year and decreases during part of the year.
- The amount of daylight reaches a peak in June and a low point in December.
- The amount of daylight is either increasing or decreasing from month to month during the year.
- Any other response indicating a pattern in the amount of daylight during a year.

Part C (1 point)

- Seasons are a direct result of changing amounts of daylight on Earth.
- As the amount of daylight increases during the year, seasons change from winter, to spring, to summer.
- As the amount of daylight decreases during the year, seasons change from summer, to fall/autumn, to winter.
- Any other response indicating a relationship between changing amounts of daylight on Earth and the seasons.

Missouri Science Scoring Rubric

Session: 1 Item: 7

Grade: 5

MLS Expectation: 4.ESS1.C

Item ID: 903804

Score	Description
4	<p>This response demonstrates a thorough understanding of identifying evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape by</p> <ul style="list-style-type: none">• identifying the oldest rock layer on the cliff;• using evidence to explain the identification of the oldest rock layer;• explaining one way in which the area observed by the scientist changed over time; and• explaining a second way in which the area observed by the scientist changed over time. <p><i>*The response is clear, complete, and correct.</i></p>
3	<p>This response demonstrates a thorough understanding of three of the four key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
2	<p>This response demonstrates a thorough understanding of two of the four key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
1	<p>This response demonstrates a thorough understanding of one of the four key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
0	<p>The response provides insufficient evidence to demonstrate any understanding of the concept being tested.</p>

Exemplar Responses:

Part A (2 points)

- (1 point) Oldest rock layer: layer Z
- (1 point) Any response indicating that the deepest rock layer formed before the layers on top of it. Also, any response describing the Law of Superposition.

Part B (2 points)

- One point for each of the following up to two points total:
 - A marine environment changed to a terrestrial environment from layer Z to layer Y because shells are shown in layer Z and plant leaves are shown in layer Y.
 - A terrestrial environment changed to a marine environment from layer X to layer W because a bird is shown in layer X and a fish is shown in layer W.
 - The environment became drier from layer Z to layer Y because the fossils change from aquatic to terrestrial species.
 - The environment became wetter from layer Z to layer Y because the fossils change from terrestrial to aquatic species.
 - Any other response indicating a change in the environment, as shown in the diagram.

Missouri Science Scoring Rubric

Session: 1 Item: 12 Grade: 5

MLS Expectation: 3.LS3.C.1

Item ID: 905307

Score	Description
2	<p>This response demonstrates a thorough understanding of constructing an argument with evidence that in a particular ecosystem, based on structural adaptations or behaviors, some organisms can survive well, some survive less well, and some cannot survive at all by</p> <ul style="list-style-type: none">• providing two reasons supporting whether the students should or should not use bluegrass in the lawn in addition to buffalo grass. <p><i>*The response is clear, complete, and correct.</i></p>
1	<p>This response demonstrates a thorough understanding of one of the two key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
0	<p>The response provides insufficient evidence to demonstrate any understanding of the concept being tested.</p>

Exemplar Responses:

(2 points)

Two points for providing responses from the following list:

- The students should not mix bluegrass into the lawn because:
 - Bluegrass needs more water than buffalo grass.
 - Bluegrass is not native.
 - Bluegrass will not support as many local animals.
 - Bluegrass turns brown without enough rainfall.
 - Bluegrass turns brown if too many people walk on it.
 - Any other response supporting the planting of bluegrass in the lawn.

OR

Two points for providing responses from the following list:

- The students should mix bluegrass into the lawn because:
 - Bluegrass stays green during the winter.
 - Bluegrass covers the ground well because of its stolons.
 - Any other response not supporting the planting of bluegrass in the lawn.

Missouri Science Scoring Rubric

Session: 1 Item: 15

Grade: 5

MLS Expectation: 5.PS2.B

Item ID: 913193

Score	Description
2	<p>This response demonstrates a thorough understanding of supporting an argument that the gravitational force exerted by Earth on objects is directed toward the planet's center by</p> <ul style="list-style-type: none">• identifying whether the student's statement that gravity was responsible for both the downward motion and the side-to-side motion of the paperclip was correct or incorrect; and• providing an explanation to support the identification listed above. <p><i>*The response is clear, complete, and correct.</i></p>
1	<p>This response demonstrates a thorough understanding of one of the two key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
0	<p>The response provides insufficient evidence to demonstrate any understanding of the concept being tested.</p>

Exemplar Responses:

(1 point)

- Any response indicating that the student's statement is incorrect.

(1 point)

- Gravitational pull was responsible only for the downward motion of the paperclip.
- Another force, such as air resistance or wind, caused the horizontal motion of the paperclip.
- Any other response indicating that a force, other than gravity, caused the side-to-side or horizontal motion of the paperclip.

Missouri Science Scoring Rubric

Session: 2 Item: 4 Grade: 5

MLS Expectation: 3.LS3.C.1

Item ID: 905289

Score	Description
2	<p>This response demonstrates a thorough understanding of constructing an argument with evidence that in a particular ecosystem, based on structural adaptations or behaviors, some organisms can survive well, some survive less well, and some cannot by</p> <ul style="list-style-type: none">• identifying the type of fish that is able to live in the warmest habitat; and• evaluating the student's claim that the chum salmon and the spotted bass can be found in the same river. <p><i>*The response is clear, complete, and correct.</i></p>
1	<p>This response demonstrates a thorough understanding of one of the two key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
0	<p>The response provides insufficient evidence to demonstrate any understanding of the concept being tested.</p>

Exemplar Responses:

Part A (1 point)

- Any response indicating the spotted bass lives in the warmest habitat.

Part B (1 point)

- Any response indicating that the claim is not supported because chum salmon cannot survive in the warm waters that the spotted bass must live in.

Missouri Science Scoring Rubric

Session: 2 Item: 5

Grade: 5

MLS Expectation: 5.LS2.B

Item ID: 905287

Score	Description
4	<p>This response demonstrates a thorough understanding of developing a model to describe the movement of matter among plants, animals, decomposers, and the environment by</p> <ul style="list-style-type: none">• describing a relationship between organisms in level W and organisms in level X in the model;• identifying one thing that is passed from organisms in level Y to organisms in level X in the model;• identifying a second thing that is passed from organisms in level Y to organisms in level X in the model; and• describing a type of organism that should be included in level Z in the model. <p><i>*The response is clear, complete, and correct.</i></p>
3	<p>This response demonstrates a thorough understanding of three of the four key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
2	<p>This response demonstrates a thorough understanding of two of the four key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
1	<p>This response demonstrates a thorough understanding of one of the four key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
0	<p>The response provides insufficient evidence to demonstrate any understanding of the concept being tested.</p>

Exemplar Responses:

Part A (1 point)

- Any response indicating that organisms in level W eat, consume, or prey on organisms in level X.
- Any response indicating that energy and/or matter is passed from organisms in level X to organisms in level W.

Part B (2 points)

1 point for each of the following up to a total of 2 points.

- matter
- energy
- nutrients
- stored chemical energy
- Any other response indicating something that is passed from one trophic level to another when organisms are consumed by other organisms.

Part C (1 point)

- Any response indicating a type of plant, phytoplankton, algae, or producer that can convert sunlight into food energy.

Missouri Science Scoring Rubric

Item ID: 905288

Session: 2 Item: 6

Grade: 5

Scoring Guide: 3.LS3.B

Score	Description
3	<p>This response demonstrates a thorough understanding of using evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving and finding mates by</p> <ul style="list-style-type: none">• explaining why snails with brown shells have an advantage over snails with white shells in a dark forest;• explaining why the number of snails with brown shells has increased over time; and• describing a possible change to the forest that could result in an increase in the number of snails with white shells. <p><i>*The response is clear, complete, and correct.</i></p>
2	<p>This response demonstrates a thorough understanding of two of the three key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
1	<p>This response demonstrates a thorough understanding of one of the two key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
0	<p>The response provides insufficient evidence to demonstrate any understanding of the concept being tested.</p>

Exemplar Responses:

Part A (1 point)

- Any response indicating that brown shells help the snails blend in with their surroundings.
- Any response indicating that brown shells act as camouflage in the dark forest.
- Any response indicating that brown shells are not as easily seen by predators in the dark forest.

Part B (1 point)

- Any response indicating that snails with brown shells were **more likely** to survive, reproduce, and pass on traits for their shell color to their offspring.
- Any response indicating that snails with white shells were **less likely** to survive, reproduce, and pass on traits for their shell color to their offspring.

Part C (1 point)

- Any response indicating a change in the amount of sunlight that reaches the forest floor.
 - reduction in tree coverage,
 - forest fire,
 - deforestation, etc.
- Any response indicating a decrease in the number of predators in the forest that hunt by sight.
- Any other response indicating a change that would provide an advantage to snails with white shells.

Missouri Science Scoring Rubric

Session: 2 Item: 7

Grade: 5

MLS Expectation: 5.PS1.A.2

Item ID: 904196

Score	Description
2	<p>This response demonstrates a thorough understanding of measuring and graphing quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved by</p> <ul style="list-style-type: none">• describing the mistake that the student made in the calculation; and• describing how stirring the solution will affect the total amount of matter in the investigation. <p><i>*The response is clear, complete, and correct.</i></p>
1	<p>This response demonstrates a thorough understanding of one of the two key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
0	<p>The response provides insufficient evidence to demonstrate any understanding of the concept being tested.</p>

Exemplar Responses:

Part A (1 point)

- The mass of the beaker should not have been included in the calculated mass.
- The mass of the beaker should have been subtracted from the calculated mass.

Part B (1 point)

- The total amount of matter in the investigation will be conserved.

Missouri Science Scoring Rubric

Session: 2 Item: 13

Grade: 5

MLS Expectation: 5.PS1.A.2

Item ID: 904738

Score	Description
2	<p>This response demonstrates a thorough understanding of measuring and graphing quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved by</p> <ul style="list-style-type: none">• explaining what happened to the matter that is not part of the finished cookies; and• identifying one possible cause for the lighter weight of the cookies compared to that of the ingredients. <p><i>*The response is clear, complete, and correct.</i></p>
1	<p>This response demonstrates a thorough understanding of one of the two key elements.</p> <p><i>*The response may contain some work that is incomplete or unclear.</i></p>
0	<p>The response provides insufficient evidence to demonstrate any understanding of the concept being tested.</p>

Exemplar Responses:

Part A (1 point)

- Any response indicating that the matter that is not part of the finished cookies was not destroyed, or that it was conserved in some manner.

Part B (1 point)

- The finished cookies are lighter due to matter evaporating during the cooking process.
- Any response indicating that matter was given off to the environment as a byproduct of the cooking process.