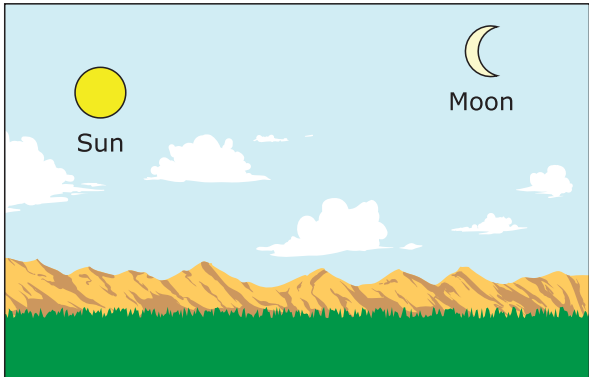


You are about to begin the Science Practice Assessment.

- There are different types of questions throughout the practice assessment. Multiple choice questions do not include any additional instructions after the question. You should mark only one answer for a multiple choice question. Other types of questions include instructions that describe how to answer those questions.
- Some questions are constructed response. These questions require you to type your answer in the space provided. You can earn points for partly correct answers to these questions, so you should try to answer them as best you can. To receive full credit, read the questions carefully to help guide you in writing your complete answers.
- Many of the questions are grouped into sets that include common background information. The background information is repeated if additional questions are part of that set. You do not need to reread the background information each time, but it is there for you if you need it.

Phases of the Moon

Jeremy is walking home from school in the early afternoon. He sees the Sun and the Moon together in the sky. This surprises Jeremy because he thought that the Moon could be seen only at night. He wonders why the Moon is visible during the day.



Jeremy wants to make models to understand how systems interact.

Part A

How do Earth and the Sun interact? Move “Earth” or “Sun” to each box to complete the model.

Orbit

Earth

Sun

Check Answer

Part B

How do Earth and the Moon interact? Move “Earth” or “Moon” to each box to complete the model.

Orbit

Earth

Moon

Check Answer

Part C

Which statement **best** describes the systems modeled in Part A and Part B and how they interact?

- A

The Moon/Sun system orbits Earth.
- B

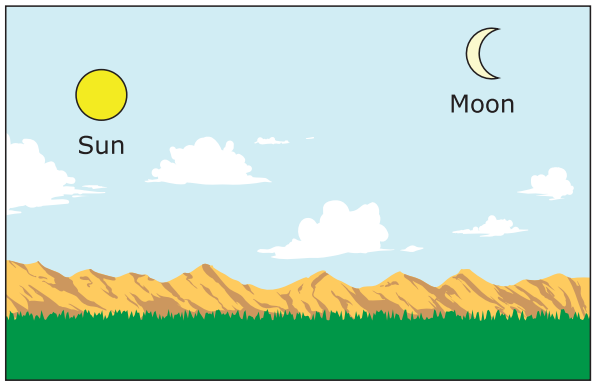
The Earth/Sun system orbits the Moon.
- C

The Earth/Moon system orbits the Sun.

Check Answer

Phases of the Moon

Jeremy is walking home from school in the early afternoon. He sees the Sun and the Moon together in the sky. This surprises Jeremy because he thought that the Moon could be seen only at night. He wonders why the Moon is visible during the day.



Jeremy wonders how the Moon can be so bright as to be visible during the day. He also wonders why the Moon is the brightest object in the night sky.

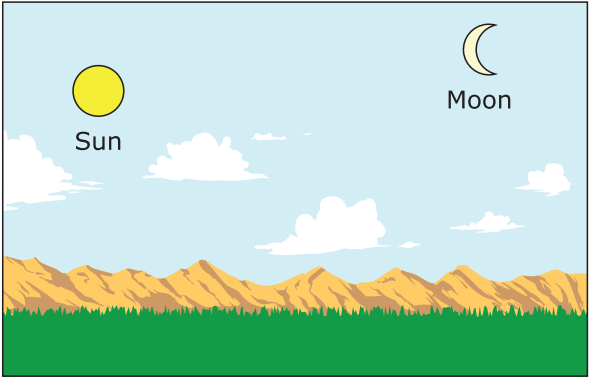
What can Jeremy conclude?

A	The Moon produces its own bright light.
B	The Moon has an orbit that moves it closer to the Sun.
C	The Moon is much larger than other objects visible from Earth.
D	The Moon is closer to Earth than are other visible objects in the sky.

Check Answer

Phases of the Moon

Jeremy is walking home from school in the early afternoon. He sees the Sun and the Moon together in the sky. This surprises Jeremy because he thought that the Moon could be seen only at night. He wonders why the Moon is visible during the day.



How is the Moon visible from Earth during the daytime? Provide an explanation.

B

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Cooler

Max is helping to clean up after a picnic. A large cooler filled with ice was used to keep drinks cold. Max tries to move the cooler, but the cooler is too heavy for him to carry.

Max wonders if the cooler will weigh less once the ice inside melts.



Max wants to find out if the cooler will weigh less once the ice melts.

What data must Max collect? Explain, and include information about when he should collect his data.

B	<i>I</i>	<u>U</u>		☰	☷



Cooler

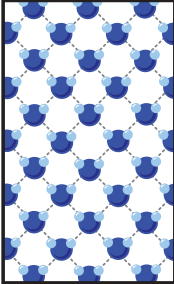
Max is helping to clean up after a picnic. A large cooler filled with ice was used to keep drinks cold. Max tries to move the cooler, but the cooler is too heavy for him to carry.

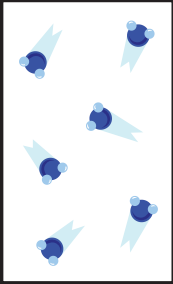
Max wonders if the cooler will weigh less once the ice inside melts.

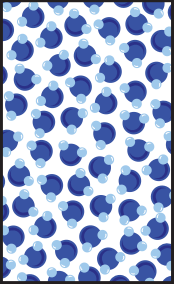


While the ice is melting, Max investigates the three states of matter and finds a diagram of water molecules for each of the three states.

Which diagrams **best** represent the states of the water before and after the ice melts? Move each label to under the correct diagram.







before investigation

after investigation

Check Answer



Cooler

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Max records his observations before and after his investigation by drawing pictures of the cooler in his notebook.

Before Investigation After Investigation



Why does Max observe that the level of the liquid water is lower than the level of the ice? Select **two** choices.

A	Liquid water evaporates more quickly than ice sublimates.
B	Liquid water takes up less space than water in its solid state.
C	Liquid water contains fewer molecules than water in its solid state.
D	Liquid water changes its shape to fill a container, and ice does not.

Check Answer



Cooler

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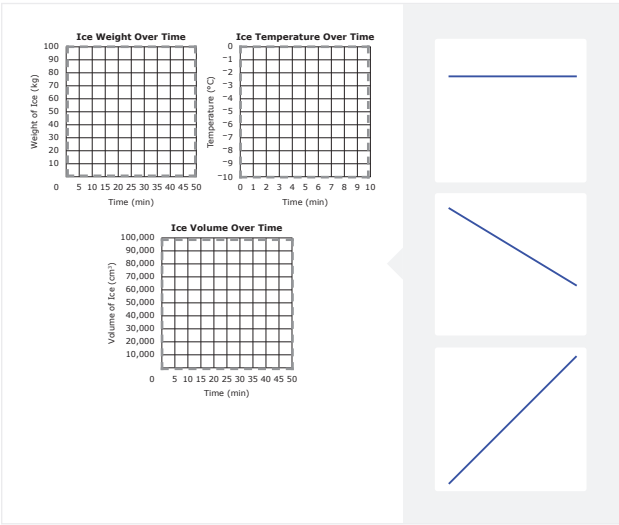
Max wonders if the cooler will weigh less once the ice inside melts.



Max records the weight, temperature, and volume of the ice and cooler before his investigation.

- Weight: 77.1 kg
- Temperature: -10 degrees Celsius
- Volume: $94,700\text{ cm}^3$

What is likely to happen with the weight, temperature, and volume of the cooler over time? Predict the outcome of each by moving a line to each graph.



Check Answer



Cooler

Max is helping to clean up after a picnic. A large cooler filled with ice was used to keep drinks cold. Max tries to move the cooler, but the cooler is too heavy for him to carry.

Max wonders if the cooler will weigh less once the ice inside melts.



Part A

Will the cooler weigh less once the ice has melted?

A	Yes
B	No

Check Answer

Part B

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

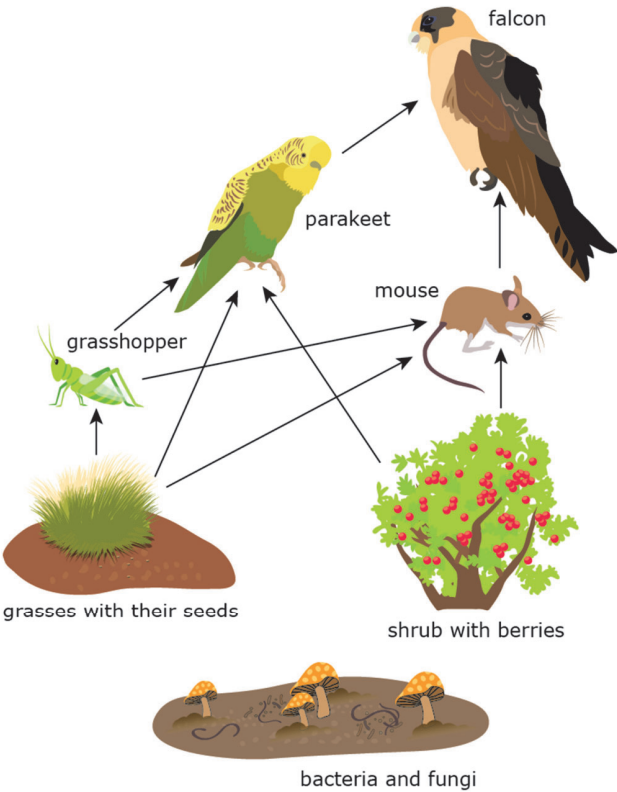
A	The ice inside the cooler has more air dissolved in it now than it will when it melts into water.
B	The water molecules inside the cooler will become more energetic and move more than the ice molecules.
C	The volume of water inside the cooler will change because the amount of thermal energy will increase.
D	The number of molecules before and after the phase change inside the cooler will remain the same.

Check Answer



Parakeet Ecosystem

Nancy works at the zoo and is in charge of the parakeet exhibit. She has been studying the role of the parakeets in their natural environment. She builds an incomplete model of a food web.



Nancy notices a parakeet nest with several eggs inside and wants to increase the food supply to support the growing parakeet population. One idea is to plant more grass inside the parakeet exhibit by increasing the amount of sunlight.

Nancy tests her idea by planting the same amount of grass seeds in two different pots, Pot A and Pot B. Each has the same amount of soil. Nancy places Pot A in the sunlight for 2 hours more per day than Pot B. After two months, she weighs each grass plant to see how much it grew. She records her data in a table.

Results of Grass Plant Growth		
Pot	Starting Mass of Plant (g)	Ending Mass of Plant (g)
A	453	1,247
B	453	907

Which model shows the flow of matter through the food web in the parakeet’s ecosystem?

- A

falcon → parakeet → bacteria and fungi → berries
- B

berries → bacteria and fungi → mouse → parakeet
- C

bacteria and fungi → grasses with seeds → berries → parakeet
- D

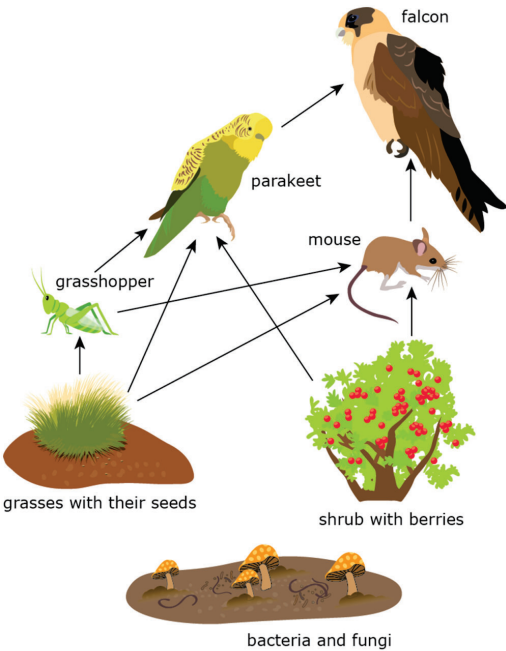
grasses with seeds → grasshopper → parakeet → bacteria and fungi

Check Answer



Parakeet Ecosystem

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What is the role of each organism? Move **each** organism to show if it is a **Producer**, **Consumer**, or **Decomposer**.

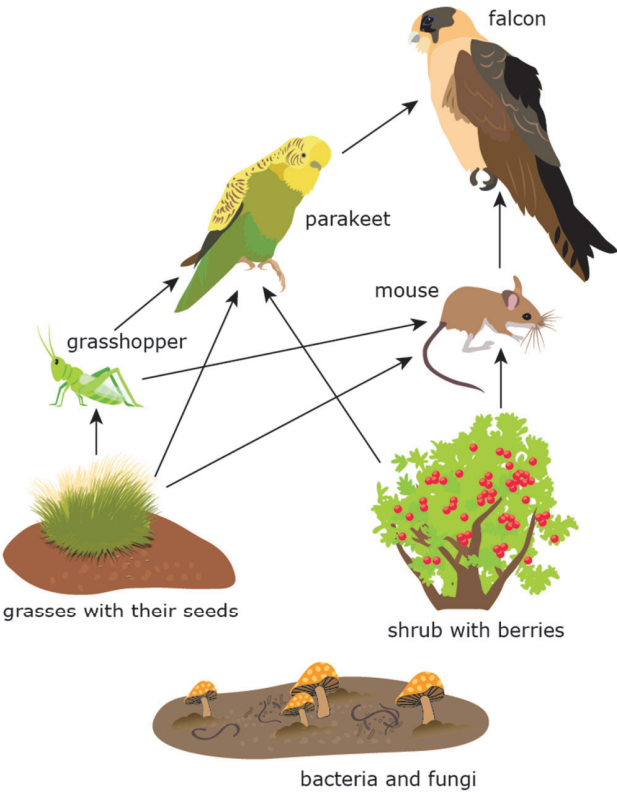
ProducerConsumerDecomposer

Check Answer



Parakeet Ecosystem

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As parakeets eat ripened berries, some of the berries may fall to the ground.

What will likely happen to the berries that fall to the ground? Select **two** answers.

- A

Mice will eat the fallen berries.
- B

Mice will leave the berries for the falcons to eat.
- C

Decomposers will protect the berries from being eaten.
- D

Decomposers will break down the berries for consumers to eat.
- E

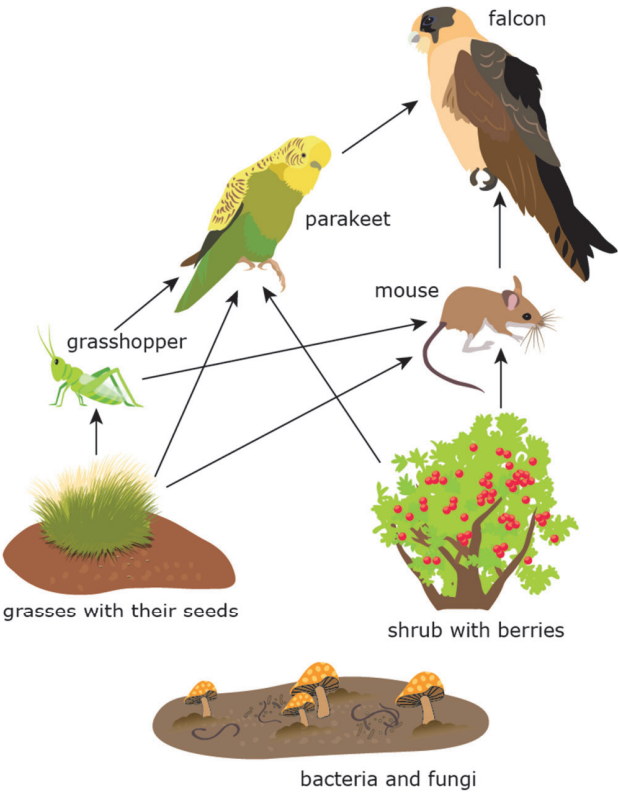
Decomposers will break down the berries and return nutrients to the soil.

Check Answer



Parakeet Ecosystem

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Which observation is **best** shown by Nancy's data?

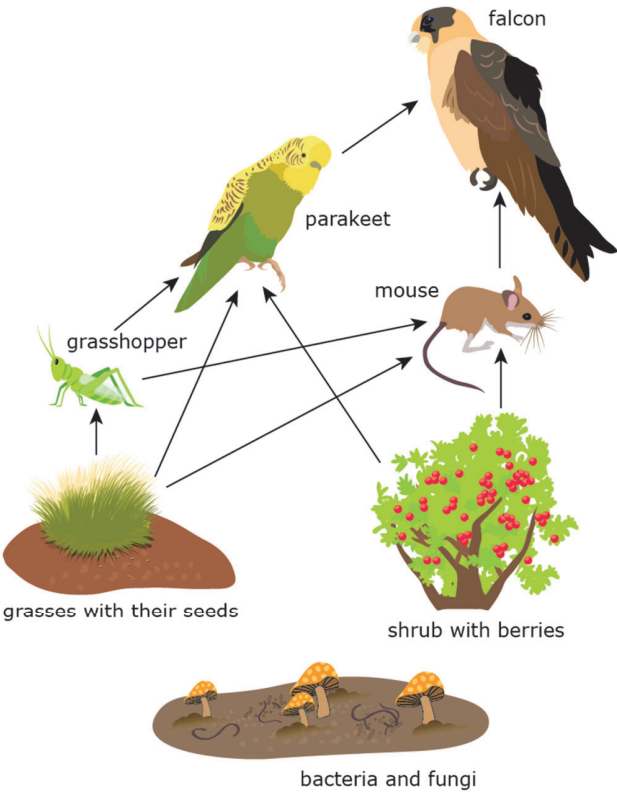
- AThe grass will grow taller as it gets more sunlight.
- BThe grass will increase in mass as it gets more sunlight.
- CThe grass will become healthier as it gets more sunlight.
- DThe grass will spread into a wider area as it gets more sunlight.

Check Answer



Parakeet Ecosystem

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How will planting more grasses support the needs of the growing parakeet population in the exhibit? Explain your reasoning.

B

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