Choose one answer for each question.

1. Which of the following statements best explains why stars appear to move across Earth's sky each night?
   A. Earth rotates on its axis.
   B. The stars orbit each other.
   C. Earth revolves around the Sun.
   D. The stars rotate with the Moon.

2. Baby chicks peck their way out of their shells when they hatch. This activity is an example of which of the following types of behavior?
   A. instinctive
   B. learned
   C. planned
   D. social

3. Which of the following is most likely to make a rock crack and crumble?
   A. dew evaporating on the rock
   B. leaves decaying on the rock
   C. snow melting in a crack in the rock
   D. water freezing in a crack in the rock

4. The pictures below show four different bells made of the same material.

   Bell 1  Bell 2  Bell 3  Bell 4

   Which of the following bells should have the lowest pitch?
   A. bell 1
   B. bell 2
   C. bell 3
   D. bell 4

5. Which of the following best represents one particular stage in a life cycle?
   A. a fish swimming
   B. a seed sprouting
   C. a leaf growing
   D. a dog eating
The pictures below show the same area before and after an event occurred.

**Before Event**

**After Event**

Which of the following events most likely caused the change in this area?

A. a flood
B. a hurricane
C. a volcanic eruption
D. a strong earthquake

A student observed the shape of the Moon once every 7 days during the month of June. Which of the following sets of drawings shows how the Moon's shape could have changed during the month of June?

- **A.** June 1 June 8 June 15 June 22 June 29
  - ○ ○ ● ● ○

- **B.** June 1 June 8 June 15 June 22 June 29
  - ○ ● ● ● ○

- **C.** June 1 June 8 June 15 June 22 June 29
  - ○ ● ● ● ○

- **D.** June 1 June 8 June 15 June 22 June 29
  - ○ ● ● ● ○
Which of the following drawings best shows the life cycle of berry bushes growing naturally in a forest?

A. 
```
  seed
  ↓
  flower
  → growth
  ↓
  fruit
```

B. 
```
  seed
  ↓
  flower
  → growth
  ↓
  fruit
```

C. 
```
  seed
  ↓
  flower
  → growth
  ↓
  fruit
```

D. 
```
  seed
  ↓
  growth
  → fruit
  ↓
  flower
```

Which of the following best describes how plants use the energy they receive from sunlight?

A. They change water into heat.
B. They produce their own food.
C. They make minerals for their roots.
D. They break down nutrients into rocks.

Students want to plant a lemon tree at their school, but the cold winter temperatures in Massachusetts would kill the tree. Which of the following is the best solution to this problem?

A. planting several lemon trees together in a row
B. building a greenhouse to shelter the lemon tree
C. giving the lemon tree extra fertilizer in the winter
D. tying a stake to the lemon tree for support during the winter
Some birds, such as the vulture shown below, can soar in the air for a long time without having to flap their wings.

Which of the following objects can soar in the air in a way that is most similar to that of the vulture?

A. 

B. 

C. 

D.
Rayna is collecting seeds from a sunflower. She notices that most of the leaves on the sunflower plant have patterns of holes made by chewing insects, as shown in the picture below.

Next year, she will plant the sunflower seeds that she has collected. How many of the sunflower plants that grow are expected to inherit the chewed leaf pattern?

A. all of the plants
B. most of the plants
C. half of the plants
D. none of the plants

Which of the following events involves a consumer and producer in a food chain?

A. A cat eats a mouse.
B. A deer eats a leaf.
C. A hawk eats a mouse.
D. A snake eats a rat.
The pictures below show the change in the fur of an arctic hare from summer to winter.

Fur in summer

Fur in winter

Which of the following statements best describes how this change helps arctic hares?

A. It lowers their body temperature.
B. It protects their eyes from sunlight.
C. It helps them move on slippery ice.
D. It makes them less visible to predators.
Which of the following drawings best represents the motion of a planet and its moon around the Sun?

A. Moon
   Planet
   Sun

B. Planet
   Moon
   Sun

C. Moon
   Planet
   Sun

D. Planet
   Moon
   Sun
The picture below shows Brandon and the shadow he creates while standing on the playground one day.

Which of the following best explains why Brandon creates a shadow?

A. Brandon changes the color of sunlight hitting the ground.
B. Brandon reflects sunlight onto the ground.
C. Brandon bends light waves from the Sun.
D. Brandon blocks light from the Sun.
Which of the following best explains why many species of birds in New England fly south for the winter months?

A. to find a place to hibernate
B. to move away from strong sunlight
C. to find an environment with more food
D. to move away from crowded environments

Many bacteria are decomposer organisms. Which of the following statements best describes how these bacteria help make soil more fertile?

A. The bacteria break down water into food.
B. The bacteria change sunlight into minerals.
C. The bacteria combine with sand to form rocks.
D. The bacteria break down plant and animal matter.

Which of the following structures does a frog develop as it changes from a tadpole to an adult frog?

A. eyes
B. heart
C. lungs
D. tail

The marsh willow herb is a plant native to the northeastern United States. It grows best in damp habitats. Which of the following environmental changes would most likely cause a decrease in the marsh willow herb population in an area?

A. a rainstorm lasting several weeks
B. a drought lasting twelve months
C. unusually low temperatures during the month of July
D. unusually high temperatures during the month of January
Which of the following objects does not have a wedge?

A. axe

B. doorstop

C. knife

D. ramp

Michael has a pencil case made of pine wood. The surface of the pencil case scratches and dents easily. He wants to make a new pencil case that will not scratch or dent easily.

Which of the following should Michael do to make a new pencil case that will not scratch or dent easily?

A. make the pencil case a different size
B. use a different material to make the pencil case
C. make the pencil case from another piece of pine wood
D. use a thicker piece of pine wood to make the pencil case
23. Observe the food web shown below.
Which of the following belongs in the omnivore portion of the diagram?
A. Eagle
B. Mouse
C. Snake
D. Bug

24. Analyze the food web shown.
Which of the following organisms compete with each other for energy resources?
A. Weasel and owl
B. Weasel and rabbit
C. Weasel and fox
D. Vole and owl
Look at the table about insect metamorphosis.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Nymph</th>
<th>Larva</th>
<th>Pupa</th>
<th>Nymph</th>
<th>Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Incomplete</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Based on the information in the table, all of the following are true about incomplete metamorphosis EXCEPT-

A. It has 3 stages
B. Does NOT include a larva stage
C. Includes a larva stage
D. Has a nymph stage

Observe the model of the carbon dioxide-oxygen cycle.

Plants release oxygen that animals and humans need into the air.

Animals and humans release carbon dioxide that plants depend on.

Which of the following is true?

A. Plants produce carbon dioxide that humans need for survival
B. Animals and plants produce oxygen
C. Plants produce carbon dioxide
D. Plants release oxygen that animals need for survival
Read the statements below.

- Time period: 24 hours
- Causes the day & night cycle
- Affects the length of shadows throughout the day

Which process is described by the characteristics listed above?
A. Earth's rotation around the Sun
B. Earth's rotation on its axis
C. Earth's revolution around the Sun
D. The Moon's revolution around the Earth

Observe the shadow cast by the tree.

Which of the following shows the correct position of the sun at the time the shadow was cast on the tree?
A. [Image of A]
B. [Image of B]
C. [Image of C]
D. [Image of D]
Observe the diagram shown below.

The Sun's apparent movement across the sky is caused by-

A Earth's rotation around the Sun
B Earth's rotation on its axis
C Earth's revolution around the Sun
D The Moon's revolution around the Earth

Read the characteristics below.

- Has water
- Has a surface called a crust
- Has an atmosphere
- Has breathable air

Which characteristics describe the Sun AND Earth?

A The Sun and Earth both have water.
B The Sun and Earth both have a surface called a crust.
C The Sun and Earth both have an atmosphere.
D The Sun and Earth both have breathable air.
A student made a list about the factors that contribute to the formation of sand dunes.

- Wind blowing
- Grains of sand accumulate
- Fast moving water currents
- Weathering, erosion, and deposition

Which of the following does not belong in the formation of sand dunes?

A. Wind blowing
B. Grains of sand accumulate
C. Fast moving water currents
D. Weathering, erosion, and deposition

Observe the model below.

*Model NOT drawn to scale.

Which of the following cycles does the model represent.

A. Day and Night
B. Moon Phases
C. Seasons
D. Water cycle