



State of Texas Assessments of Academic Readiness

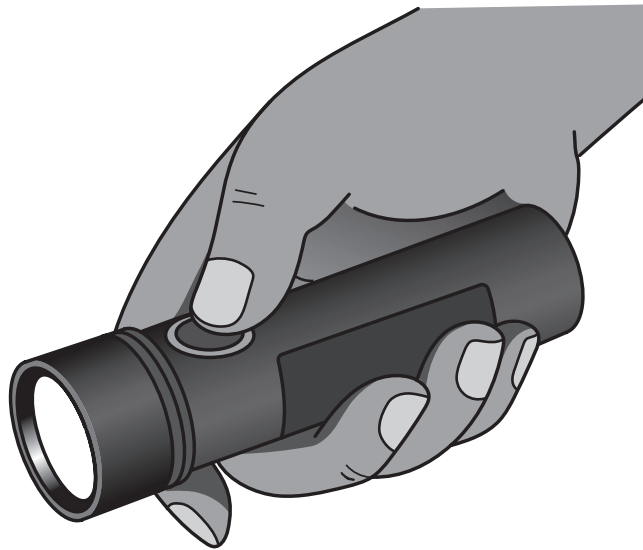
GRADE 8
Science

Paper Item Sampler

- 1** An atom of lead (Pb) having an atomic mass of 207 amu has an atomic number of 82. How many neutrons are present in this atom of lead?

Record your answer in the space provided.

2 A battery-operated flashlight is shown.



Fill in the blanks to describe the energy transformation that occurs in this flashlight.

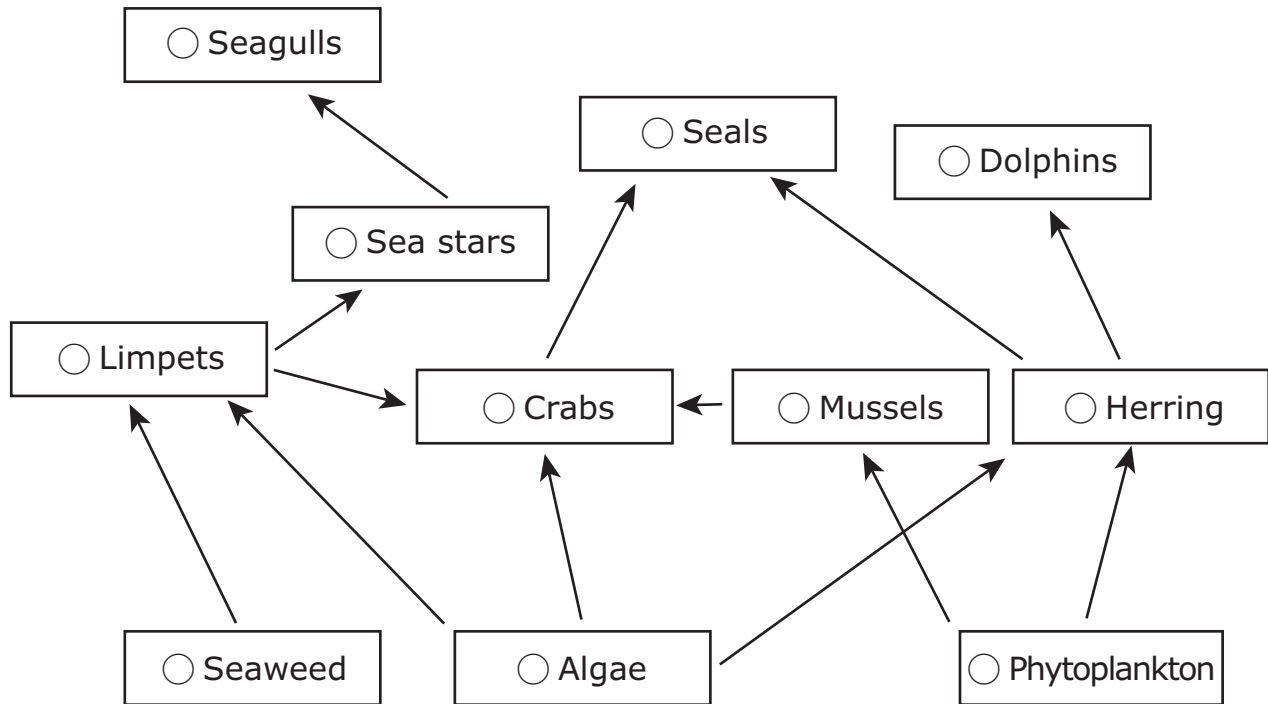
Record your answers in the spaces provided.

When the flashlight is turned on, _____ (1) _____ potential energy stored in the battery is transformed to _____ (2) _____ energy that causes the lightbulb in the flashlight to produce light.

1 _____
2 _____

3 Which three populations compete for the same producer in this food web?

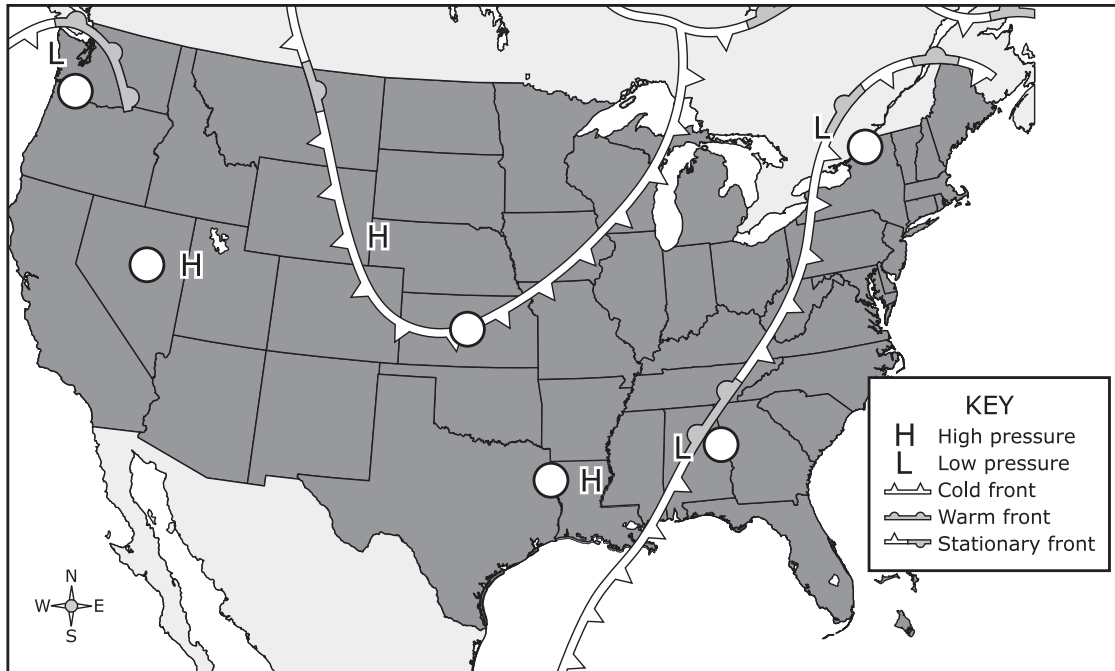
Select **THREE** correct answers.



4 Weather information is shown on the map.

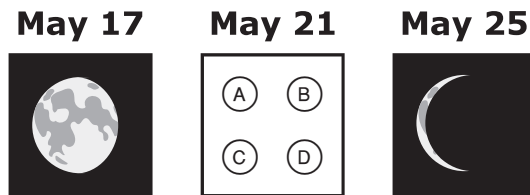
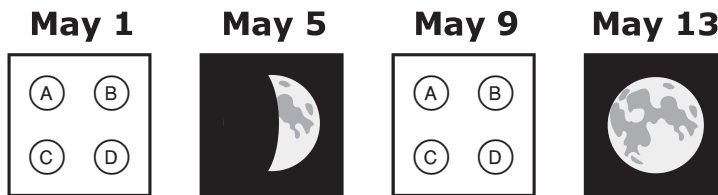
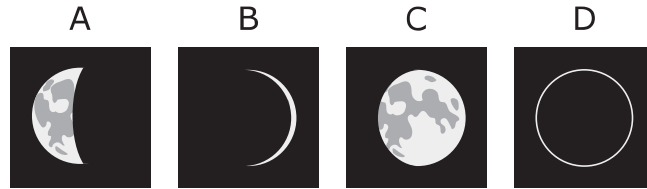
Which three locations likely have rain in their weather forecast?

Shade the **THREE** correct circles that represent the locations.



- 5 The diagram shows how the moon appears on four nights in May. How would the moon **MOST LIKELY** appear on the other three nights shown?

Select the correct answer for each box. Not all answers will be used.



- 6 The map shows the route an airplane takes from Buenos Aires, Argentina, to Houston, Texas. A flight from Buenos Aires to Houston takes about 12 hours to complete.



A plane leaves Buenos Aires at 10:00 P.M. during a time when Earth's northern hemisphere is at its maximum tilt away from the sun.

What is the season in Houston when the plane leaves **AND** what is the time of day in Buenos Aires when the plane lands?

Select the correct answer for each box.

A spring

B summer

C fall

D winter

The flight takes place when it is in Houston.

A morning

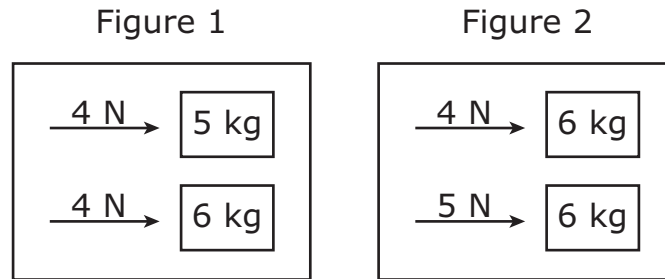
B afternoon

C nighttime

When the plane lands in Houston, it will be in Buenos Aires.

- 7 This question has two parts. First, answer Part A. Then, answer Part B.

Each figure shows two unbalanced forces measured in newtons acting on two boxes having masses measured in kilograms.



Students were asked to compare the accelerations of the boxes in each figure. Two students made these statements:

Student 1: The boxes in Figure 1 will have identical accelerations.

Student 2: The boxes in Figure 2 will have identical accelerations.

Part A

Which student is correct?

- | | |
|-------------------|-----------------|
| Ⓐ Student 1 | Ⓑ Student 2 |
| Ⓒ Neither student | Ⓓ Both students |

Part B

Which evidence supports the answer to Part A?

- Ⓐ In both figures there is only a single unbalanced force acting on each of the two boxes.
- Ⓑ In Figure 1 both boxes experience the same amount of force.
- Ⓒ In Figure 2 both boxes have the same amount of mass.
- Ⓓ In both figures, either the forces are different from each other or the masses are different from each other.

- 8** This question has two parts. First, answer Part A. Then, answer Part B.

Scientists used two sets of mustard seeds to study changes due to environmental conditions. One set of seeds was produced during a severe drought. The other set was produced during normal rainfall conditions.

Part A

When the two sets of seeds were grown together, the plants grown from the set of seeds produced during drought conditions formed flowers much earlier than the plants grown from the other set. Which conclusion is supported by these results?

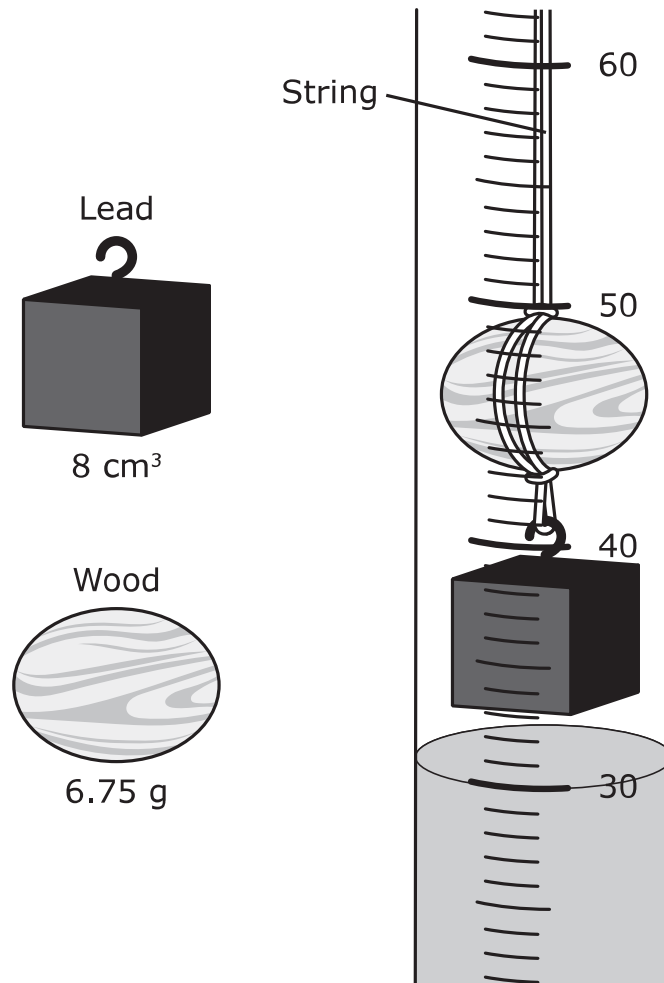
- (A) Drought can affect future generations of some plant populations.
- (B) Drought can benefit plants that produce flowers.
- (C) Normal rainfall damages the roots of flowering plants.
- (D) Normal rainfall reduces reproduction of plant populations.

Part B

Which statement supports the answer to Part A?

- (A) Plants can regulate their flowering times based on the environment.
- (B) Plants produce flowers only when environmental conditions are favorable.
- (C) Plants with genes for producing flowers early were favored by the environment.
- (D) Plants maintain reproductive cycles regardless of environmental conditions.

- 9 Students perform an investigation using density to determine what kind of wood an oval-shaped block is made of. One student attaches a lead cube to an oval-shaped piece of wood and submerges them in water, as shown in the diagram. The lead cube keeps the wood from floating. When the wood is underwater, the water level reads 47 milliliters.



The students use the table of standard densities shown to complete their investigation.

Standard Densities of
Some Woods

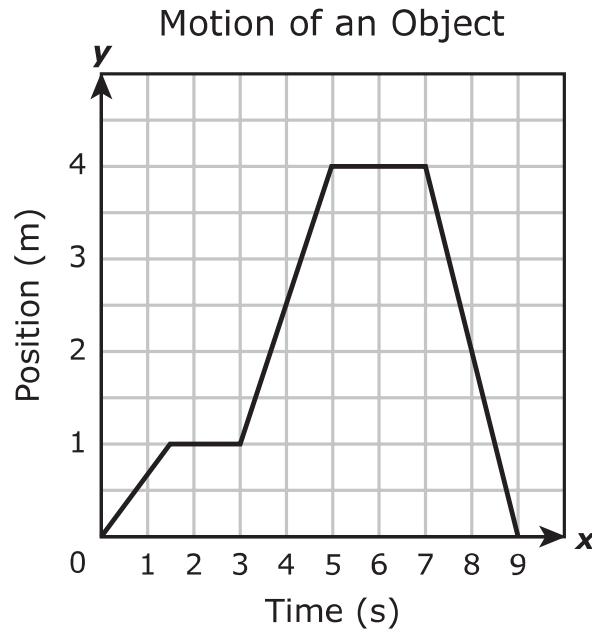
Wood	Density (g/cm ³)
Balsa	0.12
Bamboo	0.35
Holly	0.75
Oak	0.90

Which statements are supported by the data?

Select **TWO** correct answers.

- The volume of the oval piece of wood is greater than the volume of the lead cube.
- The oval piece of wood is made of either balsa or bamboo.
- The lead cube would not be needed if the wood was shaped as a cube.
- The oval piece of wood is made of holly.
- The oval piece of wood is made of oak.

10 The motion of an object is shown in the graph.



Which statements are supported by the graph?

Select **TWO** correct answers.

- An unbalanced force acts on the object between 1 and 2 seconds.
- The object's velocity increases between 4 and 5 seconds.
- The object reaches its greatest acceleration between 4 and 5 seconds of motion.
- The object's greatest speed occurs between 5 and 7 seconds.
- An unbalanced force causes the object to increase its speed between 6 and 8 seconds.

11 During a lab investigation, students followed this procedure:

1. Measure the mass and length of a piece of chalk.
2. Place the piece of chalk in a small beaker.
3. Cover the chalk with vinegar.
4. Record observations.

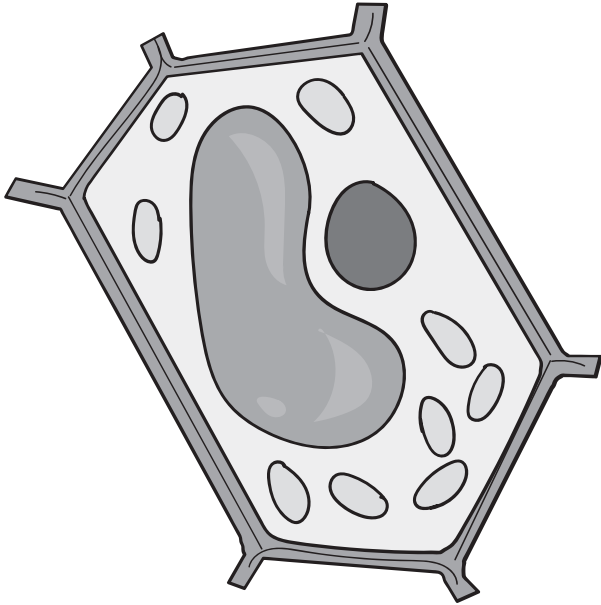
Students observed bubbles immediately forming around the chalk. After the bubbles stopped forming, the students noticed that the chalk was smaller. Some students tried to recover the missing chalk from the vinegar, but no chalk particles were visible.

What kind of change did the chalk undergo **AND** what evidence could be used to support the answer?

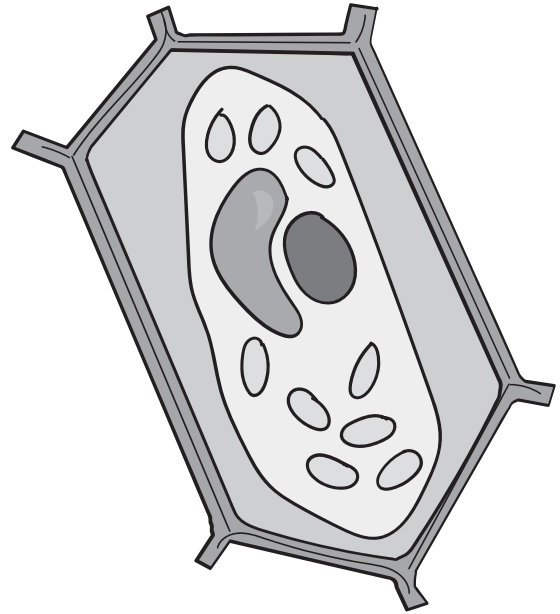
Think about the question carefully. Then record your answer and evidence in the box provided.

12 A cell is taken from its normal environment and placed in a high-salt environment, causing water to exit the cell. The diagram shows the cell under both conditions.

Cell in normal environment



Cell in high-salt environment



What functions do the cell wall **AND** cell membrane carry out when the cell is placed in a high-salt environment?

Look at the diagram and think about the question carefully. Then record your answer in the box provided.

**STAAR
GRADE 8
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