

STAAR Spring 2026 Elementary Science Rationales

Item Position	Rationales	
1	Option D is correct	Closing Switch 1 completes the circuit that will allow both bells to ring and keep Lightbulb 1 lit. Opening Switch 2 breaks the circuit that includes Lightbulb 2, which will cause Lightbulb 2 to turn off.
	Option A is incorrect	Both bells are part of a complete circuit that includes Lightbulb 1. This means both bells will ring, and Lightbulb 1 will light up.
	Option B is incorrect	Both bells and Lightbulb 1 are part of a complete circuit. Opening Switch 2 will not cause Lightbulb 2 to light up.
	Option C is incorrect	Opening Switch 2 opens the circuit that includes Lightbulb 2, and opening the circuit will cause the light to turn off. Bell 1 and Bell 2 are part of a closed circuit and will ring even if Switch 2 is open.

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2	Option A is correct	Both plants supplement the nutrients available in the soil with nutrients obtained by digesting insects.
	Option B is incorrect	While the pitcher plant can use sunlight to produce food, so can the Venus flytrap. This is therefore not an advantage.
	Option C is incorrect	Neither adaptation increases the plants' ability to photosynthesize sugars in a shady environment, nor is it clear that the adaptations would necessarily increase the plants' ability to compete with other plants for resources.
	Option D is incorrect	These adaptations do not provide an insect-independent method of pollination, nor do they increase the chances of survival in human-disturbed landscapes.

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3	Option C is correct	In a 24-hour period, Earth turns a full rotation. So in 12 hours, Earth completes half a turn.
	Option A is incorrect	The sun does not move around Earth; Earth rotates on its axis.
	Option B is incorrect	The sun does not stop shining, but when part of Earth's surface is facing away from the sun, that part of Earth experiences darkness.
	Option D is incorrect	Earth does not move around the sun in 12 hours; Earth completes half a rotation on its axis.

Item Position	Rationales	
4	Part A	
	Option C is correct	When light passes from the air into the water droplet, the light rays change direction.
	Option A is incorrect	Absorption occurs when light enters an object but does not come out. A small amount of light is absorbed by the water droplet, but this light does not contribute to the rainbow.
	Option B is incorrect	Light that is reflected bounces off the object. Light that contributes to the rainbow enters the water droplet and comes back out.
	Option D is incorrect	Transmission refers to the passage of light through an object.
	Part B	
	Option A is correct	The different colors of light change direction by different amounts when they enter the water droplet. This is because the different colors of light travel at different speeds in water.
	Option B is incorrect	Merely passing through the water droplet does not create a rainbow. The different light colors must separate, which is the process of refraction.
	Option C is incorrect	To create a rainbow, light must enter the water droplet so that the different colors can change direction.
	Option D is incorrect	Light that is absorbed by ("becomes part of") the water droplet is not seen by observers.

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Item Position	Rationales	
5	Option A is correct	Several decades is long enough for climate data to be recorded.
	Option B is incorrect	The amount of precipitation that falls during a hurricane is considered to be weather data, not climate data.
	Option C is incorrect	Recording wind speeds over a period of one year is the collection of weather data, not climate data.
	Option D is incorrect	Data collected over one season are considered to be weather data, not climate data.

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Item Position	Rationales	
6	Option C is correct	Sand and pebbles are more dense than water, so they do not float. Also, neither sand nor pebbles dissolve in water.
	Option A is incorrect	Sand is not soluble, nor does it float in water.
	Option B is incorrect	Neither sand nor pebbles float in water.
	Option D is incorrect	Neither sand nor pebbles dissolve in water.

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Item Position	Rationales	
7	Option D is correct	Water would wash the sand through the sieve, but the rocks would remain inside the sieve.
	Option A is incorrect	Rocks are not magnetic, so a magnet will not help separate them from the sand.
	Option B is incorrect	Using heat to boil the mixture would separate out any remaining water, but the sand and rocks would remain together.
	Option C is incorrect	Water would run through the coffee filter, but the sand and rock mixture would remain in the filter together.

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Item Position	Rationales	
8	Option C is correct	Deltas are formed when sediment is eroded and carried to a new location by runoff and then deposited where water slows down.
	Option A is incorrect	A piece of ice is not part of the model and is not needed to model delta formation.
	Option B is incorrect	Wind is not being modeled and is not needed to model delta formation.
	Option D is incorrect	Condensation is the process by which water vapor in the air condenses into droplets as it cools. This process is not being modeled and is not part of delta formation.

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Item Position	Rationales	
9	Option D is correct	Growing in the tops of trees would expose orchids to more sunlight.
	Option A is incorrect	Growing in the tops of trees would make orchids more accessible to birds, not less.
	Option B is incorrect	Rainfall, not groundwater, provides the water that orchids need.
	Option C is incorrect	Growing in the tops of trees would leave orchids more exposed to the wind.

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Item Position	Rationales	
10	2 pts	The student identifies that Sydney is experiencing summer AND that Sydney is experiencing more daylight hours than Chicago is, which indicates that it is summer in Sydney.
	1 pt	The student answers half of the questions correctly.
	0 pts	The response is incorrect or irrelevant.

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Item Position	Rationales	
11	Option D is correct	Fossil fuels are typically formed in aquatic or semi-aquatic areas by dead organic matter that is compressed, while sedimentary rock forms from weathering, erosion, deposition, compaction, and cementation of sediment.
	Option A is incorrect	Sedimentary is formed through both weathering and erosion. Fossil fuels are not formed directly through weathering.
	Option B is incorrect	Fossil fuels and sedimentary rock both take millions of years to form.
	Option C is incorrect	Sedimentary rocks are formed through the weathering, erosion, deposition, compaction, and cementation of sediment. Fossil fuels are formed through the compression of decaying organisms.

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Item Position	Rationales	
12	Option C is correct	The masses of both the water and the drink mix maintain their value, making the total mass of the solution greater.
	Option A is incorrect	The mass of the water does not decrease; it will stay the same even when the red drink mix is added.
	Option B is incorrect	Although the red drink mix crystals will no longer be visible, the mass will be conserved in the solution.
	Option D is incorrect	The masses of both the water and the red drink mix will be conserved, and the final solution will contain 100 grams of water and 10 grams of red drink mix.

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Item Position	Rationales	
13	2 pts	The student identifies that fast-moving water creates a V-shaped canyon. The slow-moving glacier creates a U-shaped valley. The river water changing from fast to slow aids in the creation of a delta, and the sand dune is created by steady, low-speed winds.
	1 pt	The student answers half or more than half of the questions correctly.
	0 pts	The response is incorrect or irrelevant.

Item Position	Rationales	
14	Option D is correct	Lightbulb 1 would stop glowing, and Lightbulb 2 would continue to glow, because Lightbulb 1 would become part of an open circuit, and Lightbulb 2 would continue to be part of a closed circuit.
	Option A is incorrect	Lightbulb 2 would continue to glow because it is still part of a closed circuit.
	Option B is incorrect	Lightbulb 1 would stop glowing because it would no longer be part of a closed circuit.
	Option C is incorrect	Lightbulb 1 would stop glowing because it would no longer be part of a closed circuit, while Lightbulb 2 would continue to glow because it would still be part of a closed circuit.

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Item Position	Rationales	
15	Option C is correct	Condensation happens when the water vapor is cooled. In the model, the cooling process is represented by ice cubes.
	Option A is incorrect	Cooling water vapors does not represent the water flowing back to the ocean.
	Option B is incorrect	The model would need to be placed in below-freezing temperatures to model freezing.
	Option D is incorrect	Heat would need to be added to model evaporation.

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Item Position	Rationales	
16	Option D is correct	The length and size of a shadow during the day is a direct result of Earth rotating on its axis.
	Option A is incorrect	It takes approximately one month (29.5 days) for the moon to orbit Earth, which is not a result of Earth rotating on its axis.
	Option B is incorrect	The sun appears to move in the sky because Earth rotates on its axis; however, the sun appears to move from east to west, not from west to east.
	Option C is incorrect	Earth's rotation factors into why a location would experience a high tide, but it is the moon's gravitational pull that causes high tide in some locations at night. High tides can also happen at other times during the day.

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Item Position	Rationales	
17	1 pt	The students are able to see the bright-colored shirt because the shirt reflects light.
	0 pts	The response is incorrect or irrelevant.

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Item Position	Rationales	
18	Option A is correct	February 4 is about 29.5 days from the new moon in January.
	Option B is incorrect	February 11 would be too late for the new moon, as the pattern repeats every 29.5 days.
	Option C is incorrect	February 18 would be closer to a full moon than to a new moon.
	Option D is incorrect	February 25 would be closer to a third-quarter moon than to a new moon.

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Item Position	Rationales	
19	Option B is correct	The greater the mass of the object, the more energy it has available to transfer to other objects.
	Option A is incorrect	In both cases, the marbles have the same shape.
	Option C is incorrect	Speed affects energy transfer, but the marble speeds are not measured in this investigation.
	Option D is incorrect	In this investigation, the marbles are all the same shape, and speeds were not measured.

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Item Position	Rationales	
20	Option A is correct	The listed resources are renewable, and air is a renewable resource.
	Option B is incorrect	The listed resources are not hard to find.
	Option C is incorrect	The listed resources are not in limited supply, as they can be replenished over a short time.
	Option D is incorrect	The listed resources can be conserved or replenished.

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Item Position	Rationales	
21	Option C is correct	Nutrients in the soil are abiotic factors that are important for a plant's survival.
	Option A is incorrect	Frogs are a biotic factor.
	Option B is incorrect	Fish and insects are both biotic factors.
	Option D is incorrect	Dragonflies and pollen are both biotic factors.

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Item Position	Rationales	
22	Option A is correct	Wide, flat hooves help the addax antelope walk on the sands of the desert.
	Option B is incorrect	Grasslands do not have many tall trees.
	Option C is incorrect	Grasslands are not icy habitats.
	Option D is incorrect	Deserts do not have many rocky streams.

Item Position	Rationales	
23	Part A	
	Option C is correct	The missing organism eats herbivores (grasshoppers) and producers (grasses), so the missing organism must be the prairie chicken, which is an omnivore.
	Option A is incorrect	Because it eats grasses, the missing organism is not strictly a carnivore.
	Option B is incorrect	The missing organism is not a mushroom because mushrooms are decomposers that get their energy from decomposing plants and animal matter.
	Option D is incorrect	The missing organism is not a herbivore because the missing organism eats grasshoppers (animals) and grasses (plants).
	Part B	
	Option D is correct	The missing organism eats both producers (grasses) and consumers (grasshoppers).
	Option A is incorrect	The missing organism also eats consumers (grasshoppers).
	Option B is incorrect	The missing organism also eats producers (grasses).
	Option C is incorrect	The food web does not indicate that any of the organisms are dead; therefore, the missing organism is not receiving energy from dead organisms.

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Item Position	Rationales	
24	Option D is correct	Cementation of rock fragments is the last step in the process of sedimentary rock formation.
	Option A is incorrect	Erosion of pieces of rock is not the last step in the process of sedimentary rock formation. Erosion is the transportation of sediment by water, wind, or glacier ice away from the rock from which it was weathered.
	Option B is incorrect	Weathering of rock begins the process of sedimentary rock formation by breaking down existing rocks to create sediments.
	Option C is incorrect	Compaction of small pieces of rock is not the last step in the process of sedimentary rock formation. Compaction occurs when sediment builds up in layers, and the weight of the top layers presses the sediment particles in the lower layers closer together.

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Item Position	Rationales	
25	1 pt	The change in the height of the dropper over the paper increases the force of the water striking the paper, causing the size of the splash to increase.
	0 pts	The response is incorrect or irrelevant.

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Item Position	Rationales	
26	Option A is correct	All of the objects in Group X can conduct electricity, but none of the objects in Group W can.
	Option B is incorrect	The rubber band is flexible, but the other objects in Group W are not.
	Option C is incorrect	None of the objects will take the shape of a container, since none are liquids.
	Option D is incorrect	The steel paper clip will be attracted to a magnet, but the copper penny will not.