

2023–2024 Gr4 Science Benchmark Unit 3

Question 1.

A car will travel _____ down a steep hill than a shallow hill.

- A. faster
- B. slower
- C. the same speed
- D. Answer 4

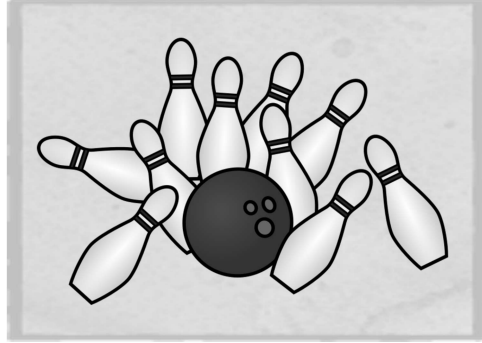
Question 2.

The faster an object moves, the _____ energy the object has.

- A. less
- B. same
- C. more
- D. Answer 4

Question 3.

Which statement correctly describes the transfer of energy being shown in the picture?

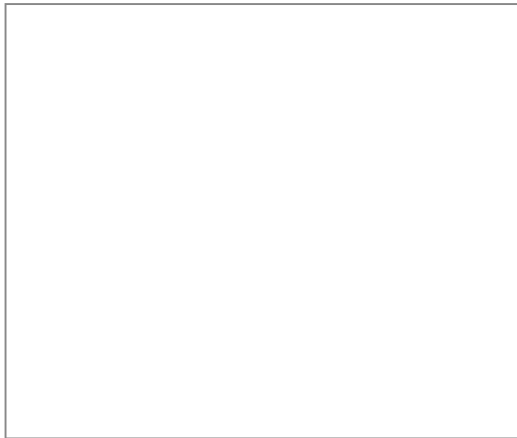


- A. The bowling pins are blocking the energy from the bowling ball.
- B. There is not any transfer of energy happening.
- C. The bowling ball did not gather enough energy to affect the bowling pins.
- D. The bowling ball gathered enough energy as it traveled down the lane that it transferred to the bowling pins, knocking them over.

Question 4.

Two rubber balls that have identical mass and diameter are rolling down a slope. One ball is rolling twice as fast as the other.

- How can you tell that the balls have different amounts of energy?
- Which ball has more energy?



Question 5.

Jake poured water into a pot. He put the pot on a stove and turned the stove on low. After a few minutes, the water in the pot began to boil. Which statement **BEST** describes why the water boiled?

- A. The stove transferred light to the pot of water.
- B. The stove transferred electricity to the pot of water.
- C. The stove transferred heat energy to the pot of water.
- D. The stove transferred mechanical energy to the pot of water.

Question 6.

This heater can warm your room on a cold day.



Photo by Daniel Oines, creativecommons.org/licenses/by/2.0/deed.en

- 1) What type of energy makes the heater work?
- 2) What type of energy does the heater make to warm the room?

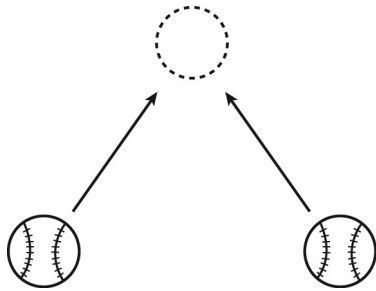
Question 7.

Katie stretched out her hand and dropped a rubber ball. The ball fell to the floor, and Katie's hand stayed where it was. What happened next?

- A. The ball gained energy from the floor and bounced above Katie's hand.
- B. The ball bounced back to Katie's hand because it gained energy from the air.
- C. The ball bounced back to Katie's hand because the amount of energy did not change.
- D. The ball bounced lower than Katie's hand because some energy transferred to the floor.

Question 8.

Two balls are rolling in the directions of the arrows.



What will happen if both balls reach the circle at the same time?

- A. The energy of the balls will make them roll in different directions.
- B. The energy will be used up when the balls bump together so they will stop rolling.
- C. All of the energy will go into one ball and the other ball will stop rolling.
- D. Most of the energy will keep the balls rolling in the same directions but slower.

Question 9.

This car bumped into a tree and the metal bent.



Where did the energy that bent the metal come from?

- A. energy stored in the metal
- B. energy stored in the tree
- C. energy from the movement of the car
- D. energy from the surface of the road

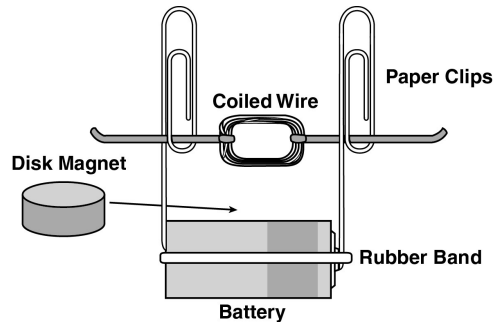
Question 10.

Toni claps her hands together. Her hands have energy of motion as they move toward each other. What happens to this energy after she claps her hands?

- A. The energy is destroyed when her hands stop moving.
- B. The energy is all used up, so her hands stop moving.
- C. The energy is changed into heat and sound.
- D. The energy is stored in Toni's muscles and bones.

Question 11.

An electromagnet is shown in the figure.



A student placed a disk magnet on top of the battery to make a simple motor. When the coil was given a gentle spin, it kept turning on its own.

Which statement **BEST** explains how this motor works?

- A. The magnet completes a circuit so that an electric force turns the coil.
- B. Electric current makes the bottom part of the coil hot so that it flips over.
- C. Electricity makes the coil act like a magnet that is repelled by the disk magnet.
- D. The battery gives off heat that rises through the magnet and makes the coil spin.

Question 12.

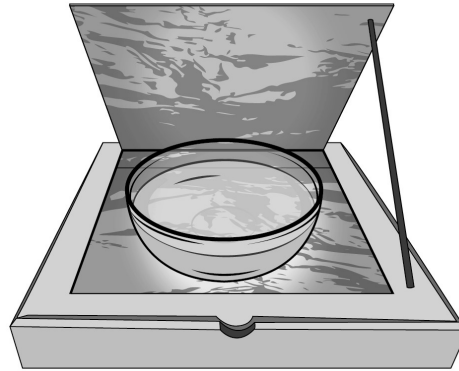
This toy car has a switch that says “on” and “off.” When the switch is moved to the “on” position, the car moves forward, and the lights flash.



1. Where does the energy to move the car and turn on the lights come from?
2. How does moving the switch cause the car to start moving?

Question 13.

A group of students built a solar oven using a pizza box and aluminum foil. Here is what the oven looked like.



The students used the oven to heat the water in the bowl.

1. What was the source of energy for their oven?
2. What energy change occurred inside the oven?