

TCAP 8th Grade Science Parent-Student Practice Assessment

Question 1

Standard 8.PS2.4

A student is sitting on a bus that is moving forward. To the student, a backpack on the seat looks like it is not moving. How would the backpack appear to someone standing outside the bus?

- A. It is floating in the air
- B. It is moving forward with the bus
- C. It is moving backward
- D. It is switching directions

Question 2

Two students watch the same soccer ball. One is standing on the field; the other is riding a bike past the field. Which best explains why the ball's motion looks different to each student?

- A. The ball changes its speed for each person
- B. The ball changes color depending on the viewer
- C. The observer's own motion affects how the ball's motion appears
- D. The ball only moves if a person is moving

Questions	Answers	Explanations
1	B	Movement can look different depending on where the observer is . Inside the bus the backpack looks still, but to someone outside, it is moving forward with the bus.
2	C	The way an object's motion is seen can change depending on how the observer is moving . A moving observer sees motion differently than a still observer.

Question 3

Standard 8.PS4.2

Which statement correctly compares mechanical waves and electromagnetic waves?

- A. Both need matter to travel
- B. Only mechanical waves need matter to travel
- C. Only electromagnetic waves need matter to travel
- D. Neither type of wave can travel through empty space

Question 4

Light hitting a mirror and sound echoing off a canyon wall are both examples of what wave behavior?

- A. Absorption
- B. Refraction
- C. Reflection
- D. Transmission

Questions	Answers	Explanations
3	B	Mechanical waves (like sound or water waves) must move through matter , but electromagnetic waves (like light) can travel through space with no matter , such as a vacuum.
4	C	Both light and sound can bounce off surfaces . This bouncing is called reflection , and it happens in both mechanical (sound) and electromagnetic (light) waves.