

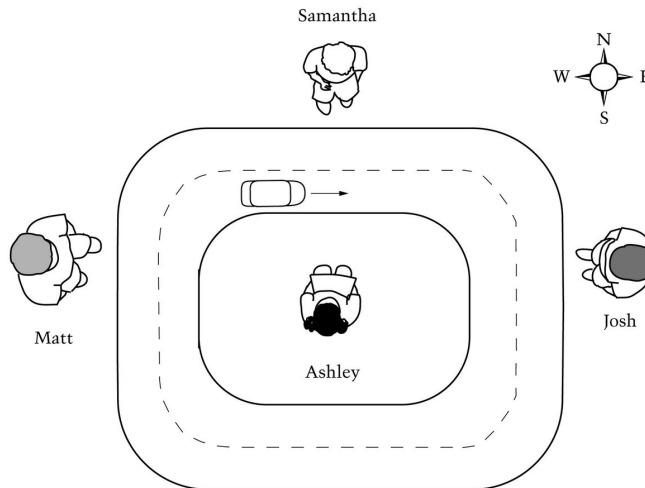
Forces and Motion

10 Multiple Choice Questions and 2 Short Answer Questions

1.) What causes an object to fall to the ground when you let it drop from your hand?

- A. Magnetism
- B. Gravity
- C. Air resistance
- D. The push from your hand

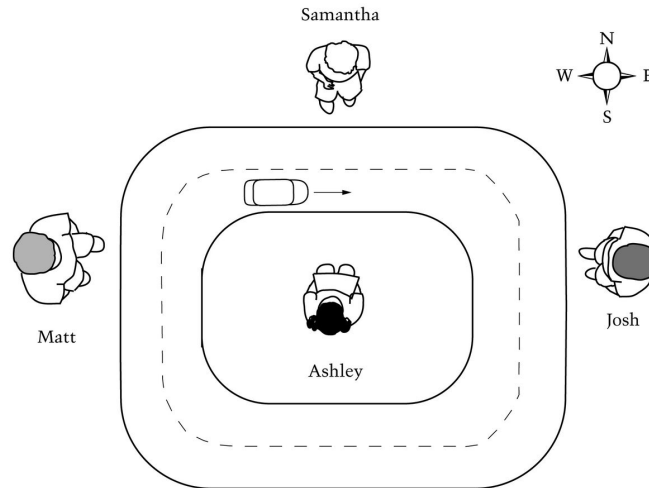
2.) This question refers to the diagram below. The diagram below shows the top of a toy car as it travels on a curved track. Four students, Matt, Samantha, Josh, and Ashley stand in the positions shown and watch the toy car move.



When the toy car is in the position shown in the diagram, what can all four students correctly conclude about the direction in which the car is moving?

- A. The car is moving left to right.
- B. The car is moving right to left.
- C. The car is moving east to west.
- D. The car is moving west to east.

3.) This question refers to the diagram below. The diagram below shows the top of a toy car as it travels on a curved track. Four students, Matt, Samantha, Josh, and Ashley stand in the positions shown and watch the toy car move.



When the toy car is in the position shown in the diagram, which student sees the car as moving away from him or her?

- A. Ashley
 - B. Josh
 - C. Matt
 - D. Samantha
- 4.) Kelly and Jane are being pushed on swings. The girls weigh the same, but Kelly swings much higher than Jane. How are the girls being pushed?
- A. Kelly is being pushed harder than Jane.
 - B. Kelly is being pushed more gently than Jane.
 - C. Kelly and Jane are being pushed equally.
 - D. Kelly is being pushed in a different direction than Jane.

5.) Kristen pushes an 8 kg ball and a 5 kg ball toward Jeremy. She wants the balls to reach Jeremy at the same time. How does Kristen push the balls?

- A. She pushes the 8 kg ball more gently than she pushes the 5 kg ball.
- B. She pushes the 8 kg ball harder than she pushes the 5 kg ball.
- C. She pushes the 8 kg ball in a different direction than she pushes the 5 kg ball.
- D. She pushes the 8 kg ball and the 5 kg ball equally.

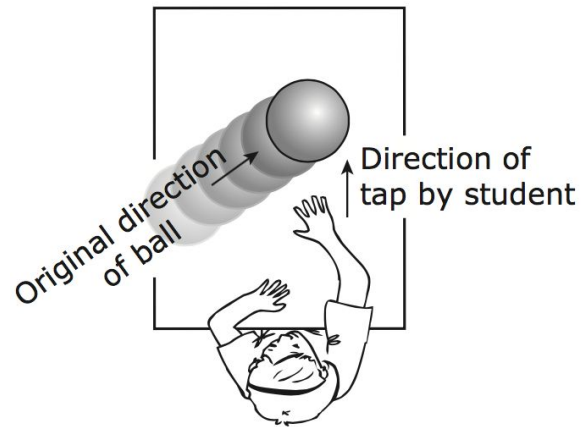
6.) Which of the following is an example of heat made by friction?

- A. A candle burning
- B. Hands rubbing together
- C. Water heating on a stove
- D. Sunlight warming a sidewalk

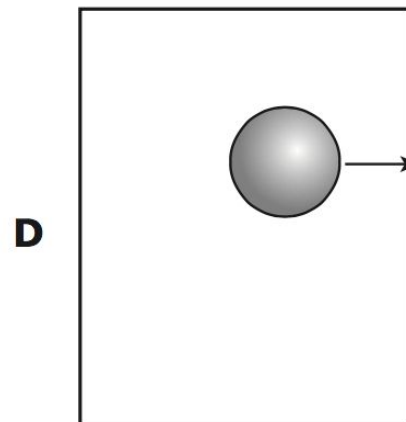
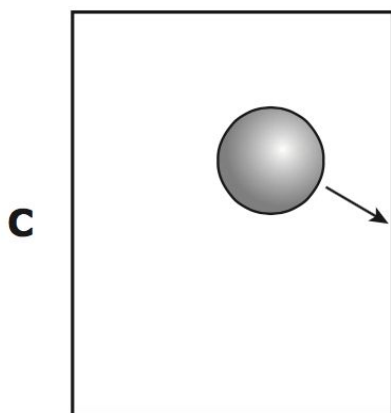
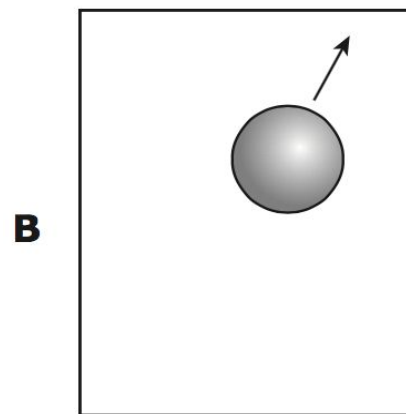
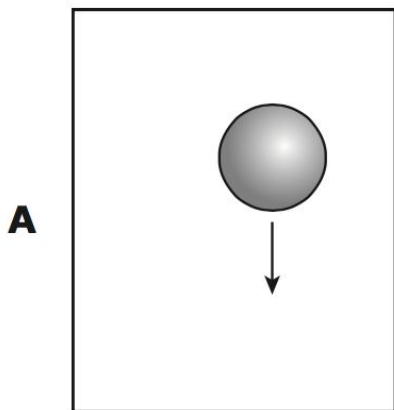
7.) A student predicts that the distance an object moves depends on how hard it is pushed. He designs an experiment to test his prediction. The student repeats the experiment 10 times. Which of the following should stay the same each time he does the experiment?

- A. The weight of the object.
- B. The temperature of the object.
- C. The force used to push the object.
- D. The distance the object moves.

8.) The diagram below shows a view of a ball from above a table. The ball is rolling across the table. A student lightly taps the rolling ball in the direction shown below.

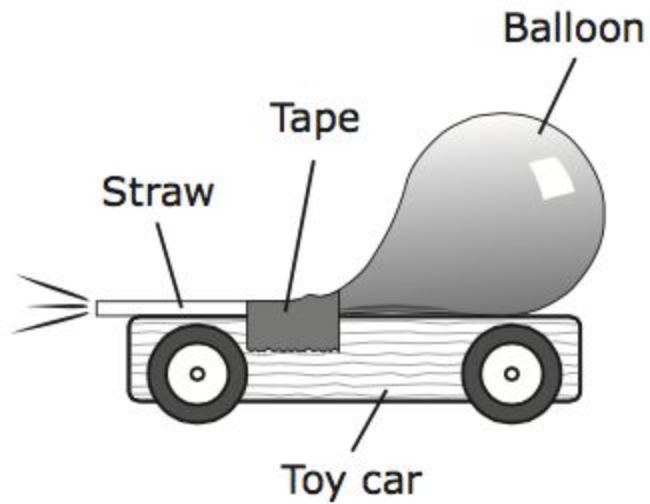


In which direction does the ball most likely move after the student taps the ball?



9.) Some students attach a balloon to a straw and then tape the straw to the top of a toy car.

The students inflate the balloon and release the car. The car travels 40 centimeters across the floor.



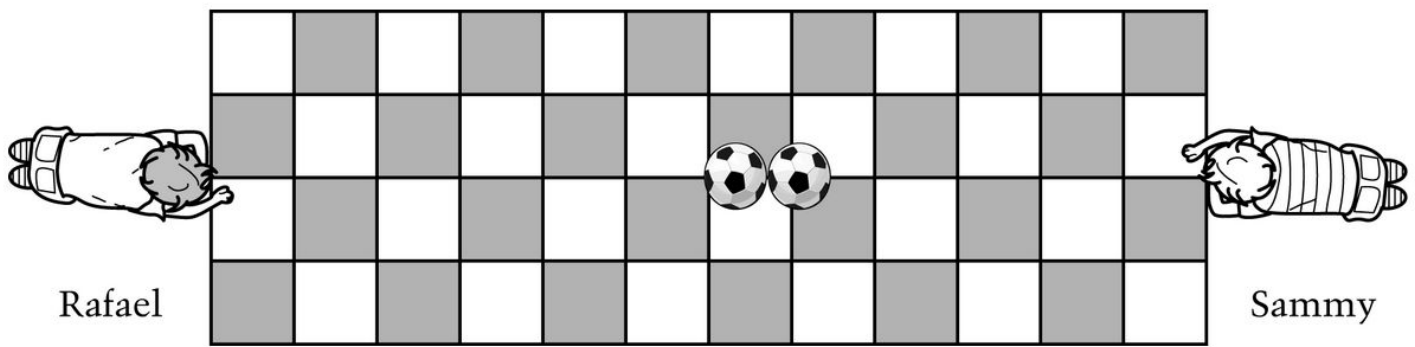
What should _____ the students do to determine whether the force of the air from a balloon is enough to push the car 40 centimeters across the same floor in repeated trials?

- A Test the car several times using an identical balloon filled with different amounts of air.
- B Test the car several times using different-sized balloons filled with the same amount of air.
- C Test the car several times using an identical balloon filled with the same amount of air.
- D Test the car several times using different-sized balloons filled with different amounts of air.

10.) A force that resists motion created by objects rubbing together is what?

- A. Gravity
- B. Friction
- C. Speed
- D. Force

11.) Rafael and Sammy were playing with soccer balls on a flat tile floor. Each boy rolled a soccer ball at the same time, and the balls hit, as shown below.



Which boy rolled his ball faster? How do you know?

12.) A tire swing can be made by tying a car tire to a rope and then tying the rope to a tree branch. What are the forces acting on the tire in the tire swing shown below?

