

Bottle Racers

Name: _____

Grade 6 – Design Task Assessment

Date: _____

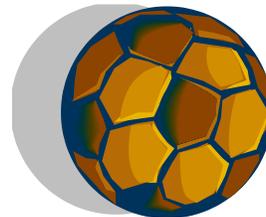
Directions: For each of the questions below, choose the BEST answer.

1. An object has kinetic energy if it is _____.

- A. moving
- B. standing still
- C. just about to move
- D. sitting on the ground

2. When Austin kicks a soccer ball across the soccer field, he is the source of the soccer ball's _____.

- A. chemical energy
- B. nuclear energy
- C. kinetic energy
- D. magnetic energy



3. Sally and Joe are each designing a ramp they will use for racing marbles. They want to know which ramp design is better. Which of the following statements will help Sally and Joe create the BEST fair test investigation for their designs?

- A. They need to test both of their ramps more than once.
- B. They need to test both of their ramps but only one time.
- C. They only need to test Sally's ramp design.
- D. They only need to test Joe's ramp design.

4. Potential energy can be defined as:
- A. Energy due to motion
 - B. Transferred energy
 - C. Released energy
 - D. Stored energy
5. Great Golf Club wants Ace Engineering to design and build a solar powered golf cart. A local golf team, The Pros, is very interested in trying a solar powered golf cart. A science club from a local school is also interested in how well the solar powered golf cart will work. Which of the following best describes who the client is?
- A. School science club
 - B. Ace Engineering
 - C. The Pros
 - D. Great Golf Club
6. Chris and Vicky are designing a golf cart that will be powered by solar energy and will be able to carry two people. They took a prototype golf cart outside on a sunny day and tested it. The golf cart ran when one person drove it but did not run when two people were in it. What part of the design process best describes what they have just done?
- A. Research and brainstorm potential solutions.
 - B. Test the prototype and see how well it solves the problem.
 - C. Communicate the results.
 - D. Redesign to improve the solution.

7. Chris and Vicky wrote a report with all the results from testing the solar powered golf cart and sent this report to the golf cart company. The report included graphs and tables that presented data on the prototype's performance. What part of the design process are they at?
- A. Identify the problem.
 - B. Select a solution to the problem.
 - C. Communicate the results.
 - D. Redesign to improve the solution.
8. Which of the following materials could potentially release the most kinetic energy?
- A. A wound pipe cleaner.
 - B. A twisted rubber band.
 - C. A coiled piece of string.
 - D. A roll of tape.
9. A mixture of baking soda and vinegar is used to power a toy car. This is an example of:
- A. Chemical energy
 - B. Electrical energy
 - C. Elastic energy
 - D. Gravitational energy

10. Rosa winds up her toy race car, places it on the floor, and lets it go. The toy car races across the floor. This is an example of transforming the car's energy from_____.

- A. potential energy to kinetic energy
- B. potential energy to more potential energy
- C. kinetic energy to potential energy
- D. kinetic energy to more kinetic energy

11. Which of the following is a chemical change?

- A. Melting a chocolate bar.
- B. Paper shredded into tiny pieces.
- C. Oxygen reacts with iron and causes rust.
- D. Dying a white t-shirt purple and green.

12. Which of the following is an example of kinetic energy?

- A. A notebook resting on a bookshelf.
- B. A bird sitting on a branch.
- C. A hammer hitting a nail.
- D. A bicycle waiting at the top of a hill.