Rube Goldberg Machine

Name: _____

Student quiz

Date: _____

DIRECTIONS: Select the correct answer(s).

1. Which description best describes kinetic energy?
    a. Energy that is stored in the bonds that hold the object together.
    b. Energy that a moving object has due to its mass and speed.
    c. Energy that an object has due to the random movement of all the particles of which it is made.
    d. None of the above.

2. Ebony uses a marble to knock over the first of a series of dominos, resulting in the marble knocking over several of the dominos. Ebony wants it to knock over **only** the first domino. What can she do to solve the problem? Select all that apply.
    a. Use a lighter ball.
    b. Use a heavier ball.
    c. Make changes so the marble rolls more slowly when it reaches the domino.
    d. Make changes so the marble rolls faster when it reaches the domino.

DIRECTIONS: Use the following explanation to select the correct answer(s) for questions 3 and 4

Marquis is designing a Rube Goldberg machine. He wants to use a remote-control car that can roll at 25 cm/s and at double that speed (50 cm/s). His car weighs 50 g, but he can add weights to double its mass (100 g).

3. Which configuration should Marquis choose if he wants his car to have the most kinetic energy possible? Circle all that apply.
    a. 50-g car moving at 50 cm/s
    b. 50-g car moving at 25 cm/s
    c. 100-g car moving at 50 cm/s
    d. 100-g car moving at 25 cm/s
4. Select which statement is correct.
    a. Doubling the speed of the car changes the kinetic energy more than doubling the car's mass.
    b. Doubling the car's mass changes the kinetic energy more than doubling the speed of the car.
    c. Doubling the car's speed and doubling the car's mass have the same effect on kinetic energy.
5. In your own words, explain how knowing the concept of kinetic energy can help you plan and build or design and build a Rube Goldberg machine.