Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Core: \_\_\_\_\_\_\_\_

**Pre-Assessment: Motion and Forces**

**Directions** – Answer each question in the final answer column. When you are finished answering, place a checkmark (√) in the box that represents your confidence level (did you know the answer or was it a guess).

Final Answers:

|  |  |  |  |
| --- | --- | --- | --- |
| Problem Number | Answer | I know the answer! | Guessed on it! |
| 1 | **C** |  |  |
| 2 | **S = D/T** |  |  |
| 3 | **D** |  |  |
| 4 | **D** |  |  |
| 5 | **Gravity and friction** |  |  |
| 6 | **A** |  |  |
| 7 | **C** |  |  |
| 8 | **A** |  |  |
| 9 | **B** |  |  |
| 10 | **B** |  |  |
| 11 | **A** |  |  |
| 12 | **B** |  |  |
| 13 | **A** |  |  |
| 14 | **D** |  |  |
| 15 | **C** |  |  |
| 16 | **B** |  |  |

**Multiple Choice** – Select the BEST answer from the choices given.

1. If you have calculated the distance a baseball has traveled in a period of time, you have calculated its

1. Acceleration
2. Direction
3. Speed
4. Inertia

2. What is the formula for calculating speed? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. The force that prevents your shoes from slipping on the floor while you walk is

1. Momentum
2. Gravity
3. Speed
4. Friction

4. Which statement about forces is TRUE?

1. Only unbalanced forces can make an object move
2. Balanced forces occur when a push or pull in one direction is stronger
3. Unbalanced forces will only cause objects to stop moving
4. Unbalanced forces will cause a change in an objects motion

5. What are the two main forces acting on any object on Earth?

6. Which of the following would be an example of negative acceleration?

1. A car slowing down at a stoplight
2. Two cars getting closer as they change lanes on the highway
3. A car backing out of a parking space at the grocery store
4. A car using up gas to drive to grandma’s house in Virginia

7. Mass and distance are the two factors that affect the strength of which force?

1. Inertia
2. Friction
3. Gravity
4. Momentum

8. A hollow plastic ball and a solid metal ball are dropped from the same height in a vacuum. With no air resistance, gravity is the only force acting on the balls. What do you predict will happen?

1. The balls will fall at the same rate
2. The metal ball will fall faster
3. The plastic ball will fall faster
4. The larger ball will fall faster

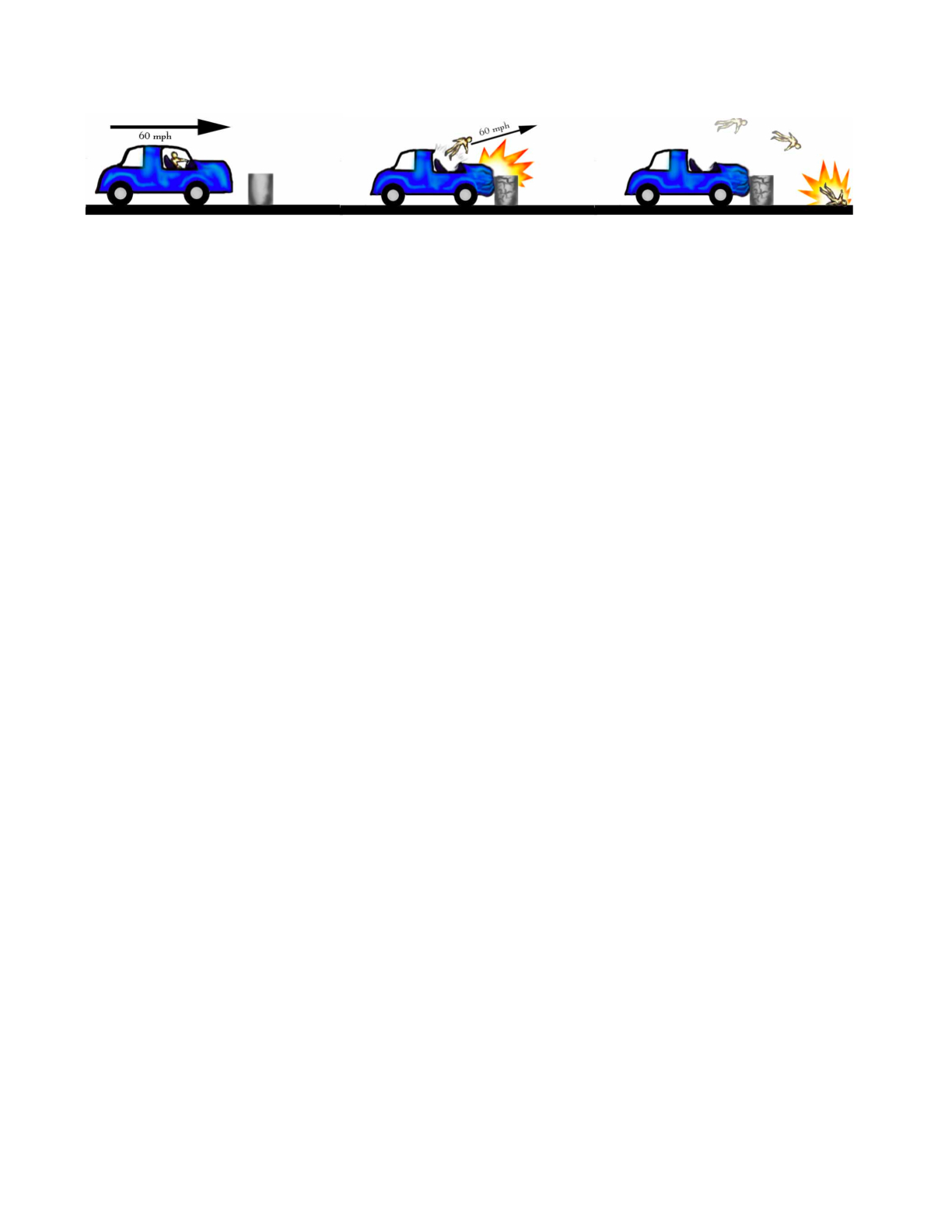
9. Which concept described in Newton’s Laws of Motion is being illustrated below?

a. Gravity

b. Inertia

c.c. Friction

d. Mass



10. **When does a roller coaster have the greatest potential energy?**  
A. When it is on the bottom of the first hill and about to go up the next hill  
B. When it is on the top of the first hill about to go down the first drop  
C. When it is half way up the second hill

D. After the wheels and tracks are oiled

11. Which of the following is **NOT** an example of potential energy?  
A. A slice of pizza  
B. A ball rolling down a hill  
C. A marine with a parachute is standing on the edge of an opened airplane door, ready to jump.  
D. Gasoline in a car's fuel tank

12. A tennis ball is thrown vertically upwards. Its velocity keeps on decreasing. What happens to its kinetic energy when its velocity becomes zero?

a. Increases because its altitude is increasing

b. Decreases because its energy is converting into potential energy

c. Stays the same because no forces are being applied

d. Cannot be determined because we don’t know the wind speed

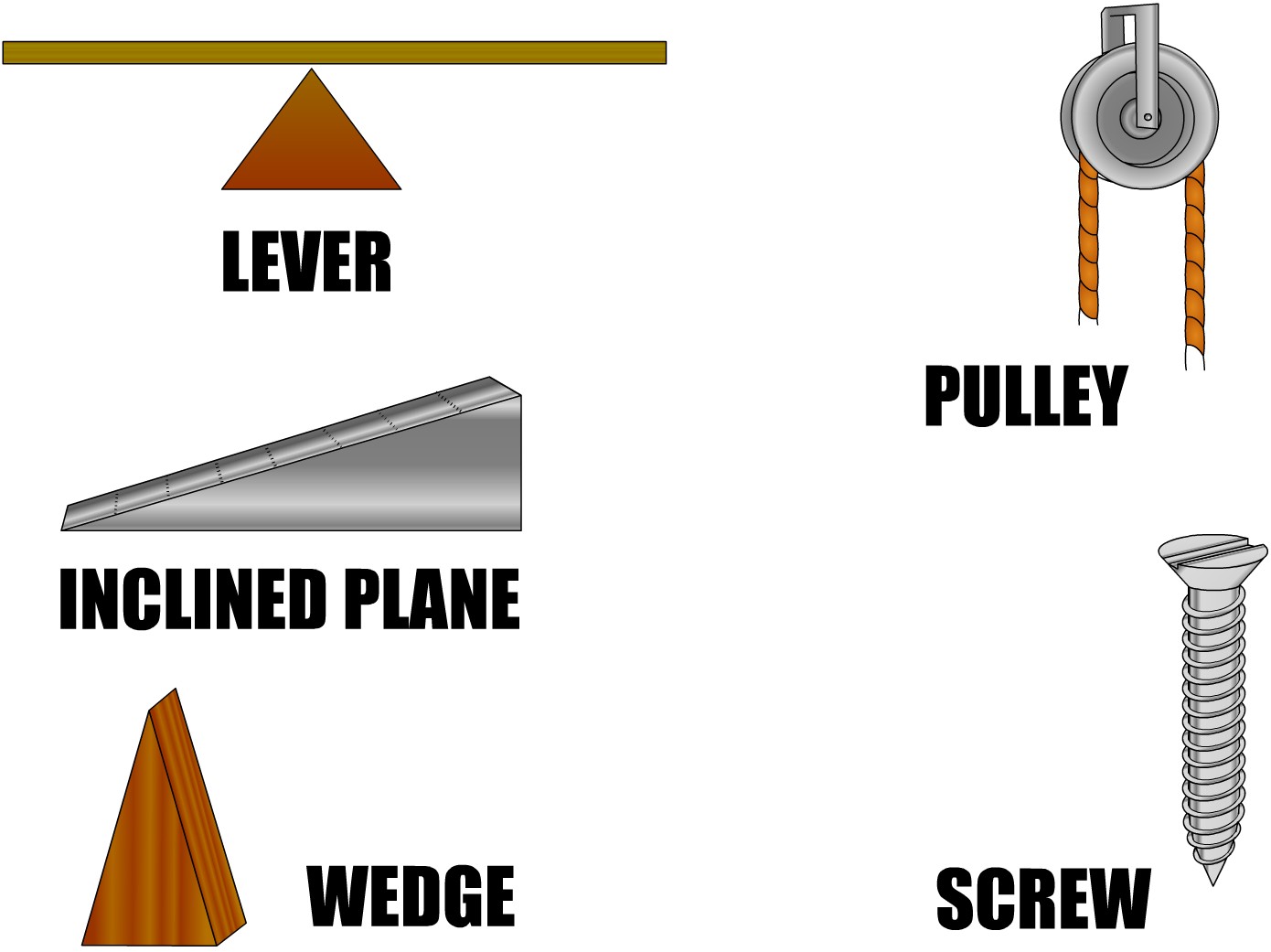
13. Energy transformation is the process of

a. Changing energy from one form into another form

b. Moving an energy source from one place to another

c. Decreasing the amount of energy an object has

d. Increasing the amount of energy an object can release



14. The following illustration is an example of which simple machine?

1. Lever
2. Screw
3. Wheel and axle
4. Pulley

15. How do simple machines make work easier?

a. Decrease the amount of work that needs to be done

b. Allows more people to work together to get a job done

c. Magnifies the amount force applied

d. Uses a motor to make the work easier

16. Which of the following might increase the efficiency of a simple machine?

a. Increasing the amount of rope used in a pulley

b. Decreasing friction on a screw by applying oil

c. Using parts that are well used and worn down

d. Using parts that are flexible in a simple machine