

Forces and Motion Worksheet

Name: _____ Date: _____

Grade: 7

Section 1: Contact vs. Non-Contact Forces

Instructions: Identify whether the following forces are Contact or Non-Contact by placing a checkmark in the correct column.

Scenario	Contact	Non-Contact
A magnet pulling a paperclip		
Kicking a soccer ball		
Gravity pulling an apple to the ground		
Rubbing sandpaper on wood		
A static charge moving hair		

Section 2: Balanced vs. Unbalanced Forces

Instructions: Read each situation and circle whether the forces are Balanced or Unbalanced.

1. A book resting on a table. (Balanced / Unbalanced)
2. A car accelerating at a green light. (Balanced / Unbalanced)
3. Two teams pulling equally in a game of tug-of-war; the rope is not moving. (Balanced / Unbalanced)
4. A skateboarder slowing down as they go up a hill. (Balanced / Unbalanced)

Section 3: Speed and Motion Graphs

Instructions: Read the scenario and answer the questions below.

Scenario: A student walks to school. They walk fast for 5 minutes, stop at a traffic light for 2 minutes, and then walk at a steady pace for 3 minutes.

1. What would the line look like on a Speed-Time graph during the 2 minutes at the traffic light? (Horizontal/Flat, Slanted Up, or Slanted Down?)

2. Calculation: If a cyclist travels 30 meters in 6 seconds, what is their average speed?
(Formula: Speed = Distance / Time)

Answer: _____ m/s

Section 4: Newton's Third Law

Instructions: Newton's Third Law states: "For every action, there is an equal and opposite reaction." Explain the "reaction" for each "action" below.

1. Action: A swimmer pushes against the pool wall with their feet.

Reaction: _____

2. Action: A rocket engine pushes hot gas downward out of the thrusters.

Reaction: _____