



## Note-taking Worksheet

# Motion and Speed

## Section 1 Describing Motion

- A. \_\_\_\_\_—when an object changes its position relative to a reference point
- \_\_\_\_\_—how far an object has moved
  - \_\_\_\_\_—distance and direction of an object's change in position from the starting point
- B. \_\_\_\_\_—distance an object travels per unit of time
- \_\_\_\_\_—any change over time
  - Calculation for speed:  $speed = distance /$  \_\_\_\_\_
  - Speed that doesn't change over time—\_\_\_\_\_ speed
  - Speed is usually not constant; usually an object has \_\_\_\_\_ speed.
  - \_\_\_\_\_—speed of motion when speed is changing:  
 $speed = total$  \_\_\_\_\_  $/ total$  travel time
  - \_\_\_\_\_—speed at any given point in time
- C. A distance-time \_\_\_\_\_ displays motion of an object over time.
- Plot distance on a(n) \_\_\_\_\_ axis.
  - Plot time on a(n) \_\_\_\_\_ axis.
- D. \_\_\_\_\_—speed and direction of an object's motion
- E. Motion of Earth's crust—so \_\_\_\_\_ we don't notice

## Section 2 Acceleration

- A. \_\_\_\_\_—change in velocity's rate
- \_\_\_\_\_ acceleration—speed is increasing.
  - \_\_\_\_\_ acceleration—speed is decreasing.
  - When an object changes speed or \_\_\_\_\_, it is accelerating.
- B. Calculating acceleration
- Acceleration = \_\_\_\_\_ / time
  - Change in velocity = \_\_\_\_\_ – initial velocity
  - Unit for acceleration—meters per \_\_\_\_\_ squared
  - Positive acceleration—positive number with a \_\_\_\_\_ slope on a velocity-time graph

**Note-taking Worksheet** (continued)

5. Negative acceleration—negative number with a \_\_\_\_\_ slope on a velocity-time graph

C. Amusement park acceleration—Roller coasters

1. Changes in \_\_\_\_\_ cause acceleration.
2. Changes in \_\_\_\_\_ cause acceleration.

**Section 3 Motion and Forces**

A. \_\_\_\_\_—a push or pull that one body applies to another

1. A force can cause an object's \_\_\_\_\_ to change.
2. When two or more forces combine at the same time, they create a \_\_\_\_\_.
3. **Balanced forces** are equal in \_\_\_\_\_ and opposite in \_\_\_\_\_.
4. \_\_\_\_\_ are unequal in size and / or are in the same direction.

B. Inertia and Mass

1. \_\_\_\_\_—an object's resistance to any change in motion
2. Objects with greater \_\_\_\_\_ have greater inertia.
3. Newton's \_\_\_\_\_—an object moving at a constant velocity keeps moving at that velocity unless a net force acts on it; an object at rest will stay at rest unless a net force acts on it.

C. Auto crashes—the law of \_\_\_\_\_ at work

1. A passenger not wearing a seat belt keeps moving \_\_\_\_\_ at the car's speed even after the car stops.
2. A passenger wearing a seat belt \_\_\_\_\_ as the car slows down and stops.