

Motion Outline and Study Guide

- I. Describing and Measuring Motion
 - A. An object is in motion if it changes position relative to a reference point.
 - B. If you know the distance an object travels in a certain amount of time, you can calculate the speed of the object.
 - C. $\text{Speed} = \text{Distance} / \text{Time}$
 - D. When you know both the speed and direction of an object's motion, you know the velocity of the object.
 - E. You can show the motion of an object on a line graph in which you plot distance versus time.
 - F. $\text{Slope} = \text{Rise} / \text{Run}$
 - G. Key terms
 1. Motion
 2. Reference point
 3. International System of Units
 4. Meter
 5. Speed
 6. Average speed
 7. Instantaneous speed
 8. Velocity
 9. Slope
- II. Slow Motion on Planet Earth
 - A. According to the theory of plate tectonics, Earth's landmasses have changed position over time because they are part of plates that are slowly moving.
 - B. Some plates move at a rate of several centimeters each year. Others move a few millimeters per year.
 - C. Key Terms
 1. Plate
 2. Theory of Plate Tectonics
- III. Acceleration
 - A. In science, acceleration refers to increasing speed, decreasing speed, or changing direction.
 - B. To determine the acceleration of an object moving in a straight line, you must calculate the change in speed per unit of time.
 - C. $\text{Acceleration} = \text{Final speed} - \text{Initial speed} / \text{Time}$
 - D. You can use both a speed-versus-time graph and a distance-versus-time graph to analyze the motion of an accelerating object.
 - E. Key Terms
 1. Acceleration