

Motion

Enduring Understanding - All motion can be described using the terms position, displacement, velocity, and acceleration.

Constant Motion
The movement of an object at a constant rate. (Previous Unit)

Changing Motion
The movement of an object at a changing rate.

Essential Question
How are the relationships between velocity and acceleration illustrated graphically?

Essential Question
What does it mean to accelerate?

Essential Question
How does a well-drawn sketch help solve a physics problem?

Acceleration (Qualitative)

Acceleration (Quantitative)

Problem Solving

Relationships between Position, Velocity and Acceleration

Graphs of Motion

Constant Acceleration Lab

Intersection Problem

Carts and Ramps Lab

Position vs. Time

Velocity vs. Time

Acceleration vs. Time

Graph Analysis

Equation Derivation

Carts and Ramps Lab

Types of Velocity
Constant
Average
Instantaneous

$$\Delta d = v_{avg} t$$

$$v_f = v_i + at$$

$$\Delta d = v_i t + \frac{1}{2} at^2$$

$$v_f^2 = v_i^2 + 2a\Delta d$$

Graph Analysis
Steepness
Slope
Y-Intercept
Area Beneath Curve
Change in Position
Change in Velocity

