

# Introduction to Calculus: Rates of Change and Derivatives

**Grade Level:** 10th Grade

**Duration:** 5-Day Unit (50 minutes per class)

**Prerequisites:** Strong foundation in algebra, functions, and graphing

## Unit Overview

This unit introduces students to fundamental calculus concepts through real-world applications and visual representations, making abstract concepts more concrete and accessible.

## Learning Objectives

Students will be able to:

1. Understand the concept of instantaneous rate of change
2. Calculate average rate of change using difference quotients
3. Interpret the derivative as an instantaneous rate of change
4. Graph and analyze rate of change in real-world scenarios
5. Apply basic derivative rules to polynomial functions