Unit 11: Introduction to Calculus

Content Area: **Mathematics**
Course(s): **Generic Course**
Time Period: **Semester 2**
Length: **3 weeks**
Status: **Published**

Standards - NJCCS/CCSS

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.F-IF.C.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.
MA.F-IF.C.7b	Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.

Enduring Understandings

Why is calculus more powerful than previous math studied?

How do you find the limit of a function?

When does a limit fail to exist?

How do you determine continuity of a function?

How do you find a one sided limit?

How do you find a derivative and integral?

Essential Questions

Why is calculus more powerful than previous math studied?

How do you find the limit of a function?

When does a limit fail to exist?

How do you determine continuity of a function?

How do you find a one sided limit?

What is a derivative?

How can we find the minimum or maximum of a function by analyzing the slope?

What is a integral?

Knowledge and Skills

SWBAT find the derivative of a function.

SWBAT explain the contextual definition of a derivative.

SWBAT find the relative minimum/maximum of a function and its graph.

SWBAT apply limit theorems.

SWBAT decompose fractions using Bernoulli's partial fractions method.

Transfer Goals

Recognize and solve practical or theoretical problems involving mathematics, including those for which the solution approach is not obvious, by using mathematical reasoning and strategic thinking.

Recognize that a graph includes multiple facts at any given data point.

Resources

Precalculus: Graphical, Numerical, Algebraic 10th Edition

Desmos

Problem-Attic

Classkick

Geogebra