

# Unit 11: Introduction to Calculus

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

## Standards - NJCCS/CCSS

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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

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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

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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**

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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**

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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**

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Precalculus: Graphical, Numerical, Algebraic 10th Edition

Desmos

Problem-Attic

Classkick

Geogebra

