

# Exponential Growth and Decay

## Summary

This lesson is designed to help students understand the basic concepts of exponential growth and decay. The lesson assumes that the students have basic knowledge of exponents and functions. This lesson is meant to help the students understand the real-life applications of exponential decay and growth.

## Main Core Tie

Secondary Mathematics I

[Strand: FUNCTIONS - Linear and Exponential \(F.LE\) Standard F.LE.3](#)

## Additional Core Ties

Secondary Mathematics I

[Strand: ALGEBRA - Creating Equations \(A.CED\) Standard A.CED.2](#)

Secondary Mathematics II

[Strand: FUNCTIONS - Linear, Quadratic, and Exponential Models \(F.LE\) Standard F.LE.3](#)

## Time Frame

1 class periods of 70 minutes each

## Group Size

Small Groups

## Life Skills

Thinking & Reasoning

## Materials

Use the attached Power Point Presentation to teach the lesson. Make certain that the students work in small groups to do the problems presented in the presentation. I would also strongly suggest doing a few of the problems from the worksheet together.

## Background for Teachers

This lesson assumes that students have a basic understanding of functions as well as exponents.

## Student Prior Knowledge

Basic knowledge of functions and exponents.

## Intended Learning Outcomes

The students will understand the basic formulas for exponential growth and decay and apply them to real-life situations - specifically car depreciation and interest.

## Instructional Procedures

Present the Power Point presentation to the class. Have them work in groups on the problems presented in the presentation. After the presentation is over have the students complete the two worksheets.

### Strategies for Diverse Learners

This lesson goes through the very basics of exponential growth and decay. For advanced learners you could ask them to create their own problems involving interest and car depreciation. For students who struggle you could offer the calculator as a tool to help them better understand and perform the problems.

### Extensions

This lesson only covers interest compounded yearly. You could choose to show the students the equation for interest compounded continuously, quarterly, daily, etc.

### Assessment Plan

Have the students complete the two attached worksheets to demonstrate their understanding. The answer keys for both worksheets are also attached.

### Authors

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