



## Continuous Learning Resource for Mathematics Exponential Growth



**Grade Level:** 9-12

**Title of Math Task:** Exponential Functions

**Essential Learning Targets:** F-LE Construct and compare linear, quadratic and exponential models and solve problems.

1. Distinguish between situations that can be modeled with linear functions and with exponential functions.
  - b. Recognize situations in which one quantity changes a constant rate per unit interval relative to another.
  - c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.

### Lesson Includes:

- Daily instruction practice - Combined handouts (PDF & WORD):  
<https://mc2.nmsu.edu/teachers/webinars/> (posted under Exponential Functions webinar)
- Screened tutorials
- YouTube videos
  - Exponential Functions Webinar: <https://www.youtube.com/watch?v=VBvgCmZJhE8>
  - Skittles Directions Video Clip: <https://www.youtube.com/watch?v=R0KpNJwYpLE>
  - Share-Out Video Clip: <https://www.youtube.com/watch?v=xakQOn3GU-8>
  - Gallery Walk Video Clip: <https://www.youtube.com/watch?v=grKROkzbgrA>
- Podcast: <https://www.npr.org/sections/goatsandsoda/2014/09/18/349341606/why-the-math-of-the-ebola-epidemic-is-so-scary>
- Accepting student-developed projects that develop competency

### Supplies for Home Learning:

- 1 large bag of Skittles, M&Ms, or two different kinds of beans (one kind marked with a dot using a pen or marker). One set of data can be used if students are not able to conduct the simulation.
- Graph paper
- Calculator
- Optional graphing calculator or similar technology

**Notes:** This is a series of four lessons that can be done independently and are greatly enhanced by having students share outcomes and strategies.

- Students can send in pictures of their graphs.
- Students can research comparisons of the Ebola outbreak and the COVID-19 virus.
- Online learning may include discussions about variability in the data collected and what social distancing looks like in the simulation (examples that start out more slowly than the others). Other conversations can be about how to modify the simulation to reflect the start of social distancing part way through.
- Students can search for published COVID-19 data and create their own mathematical models and compare them to those published nationally.