

INSPIRE GK12 Lesson Plan



Lesson Title: Modeling Linear Equations
Length of Lesson: 50 minutes
Created By: John DuFour
Subject: Geometry and Algebra I
Grade Level: 10-12
State Standards: Geometry 2a, Algebra I 2e
DOK Level: 2

DOK Application: Collect and graph data, construct an equation, interpret and summarize.

National Standards: Analyze properties and determine attributes of two- and three-dimensional objects

Graduate Research Element: none

Student Learning Goal:

Understand the concept of constant rate of change, slope, linear equations. Understand how the ropes behavior models linear equations.

Materials Needed (supplies, hand-outs, resources):

Measuring tape, rope, paper, pencil, graphing paper.

Lesson Performance Task/Assessment:

See presentation (Knots!Modeling Linear Equations). Graph the data, find a linear equation which best fits the data (linear curve fitting), answer inquiry questions.

Lesson Relevance to Performance Task and Students:

Students learn how to represent data from real-world contexts, graph the data, and analyze the data. Students learn how to mathematical model real-world observations.

Anticipatory Set/Capture Interest:

Is there any math in a rope? Can a rope behave in a predictable way? Can I write a math equation that defines how a rope behaves as we tie knots in it?

Guided Practice:

See presentation, guide introduction of anticipatory set questions and activity; set up table, and explain steps in detail. Teacher will review correct solutions.

Independent Practice:

See presentation, tie knots and measure, complete the table of data, graph data, and write equation.



Remediation and/or Enrichment:

Guided seat work, one-on-one assistance will be provided. Individual IEP's will be supported. Partner help may be allowed on a case by case basis.

As an enrichment opportunity, a second rope will be provided; students will compare and analyze the behavior of both ropes and their associated math.

Check(s) for Understanding:

Determine the linear equation that models the rope as knots are tied into it. Graph the linear equation and data. Examine inquiry questions.

Closure:

Discuss other common things that exhibit linear behavior, a candle burning, a car traveling at constant speed, etc.

Possible Alternate Subject Integrations:

Physics, linear motion

Teacher Notes:

A fun one day mathematical modeling activity. Most students are impressed that a ropes behavior can be described with math!