

## 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!