Using Mathematics Activity #2: Pendulums are Mathematically Beautiful

After learners have been introduced to pendulums (refer to the Planning and Carrying Out Investigations Activity #2 and Analyzing and Interpreting Data Activity #1) they can begin to examine the mathematical properties of pendulums.

Take an existing data table of pendulum length and frequency. Discuss with learners the mathematical methods that can be used with numbers (division, multiplication, etc.).

Eventually arrive at the notion of squaring a number. Have learners create a third column in their data table and square the frequency. Next, graph the squared frequency against the length, keeping in mind that length is the independent variable and it is the X axis.

- Square It Pendulum Activity Info Sheet (PDF format)

Related Crosscutting Concepts:

- Cause & Effect
- Scale, Proportion & Quantity
- Systems & System Models
- Structure & Function

Related Disciplinary Core Ideas:

- Core Idea PS2: Motion and Stability: Forces and Interactions
    - PS2.A: Forces and Motion
    - PS2.B: Types of Interactions
    - PS2.C: Stability and Instability in Physical Systems
- Core Idea ETS1: Engineering Design

- ETS1.A: Defining and Delimiting an Engineering Problem
- ETS1.B: Developing Possible Solutions
- ETS1.C: Optimizing the Design Solution