

## Pendulum Snake Exhibit Exploration

- At the **Pendulum Snake** raise the board and set the pendulums in motion. What do you observe?
- Why do the pendulums make the patterns they make as they swing? Explain the different patterns.
- Why do all of the pendulums swing together ever 30 seconds?
- Record the length of each pendulum on the Pendulum Snake and the number of swings every 30 seconds.

Length of pendulum	Number of swings

- Which units did you choose to use for measurement of the length of the pendulum and why?

- What is the independent variable?
- What is the dependent variable?
- Graph the data. Is this a linear or a non-linear relationship? Explain.

### **Going further**

- Use the data to predict the length of a pendulum that would swing 30 times in 30 seconds. Using a stopwatch test your prediction(s) on the **Pendulum Table**. Explain how you made your predictions. Explain successes and failures with your predictions.

### **Algebra 1 GLE's**

7. Use proportional reasoning to model and solve real-life problems involving direct and inverse variation (N-6-H)
17. Determine appropriate units and scales to use when solving measurement problems (M-2-H) (M-3-H) (M-1-H)
18. Solve problems using indirect measurement (M-4-H)
27. Identify trends in data and support conclusions by using distribution characteristics such as patterns, clusters, and outliers (D-1-H) (D-6-H) (D-7-H)
28. Create a scatter plot from a set of data and determine if the relationship is linear or nonlinear (D-1-H) (D-6-H) (D-7-H)

### **Physical Science GLE's**

2. Gather and organize data in charts, tables, and graphs (PS-H-A1)
35. Describe and demonstrate the motion of common objects in terms of the position of the observer (PS-H-E4)
42. Describe the relationship between wavelength and frequency (PS-H-G1)