

Activity 4 – How Does Amplitude Affect the Period of a Pendulum?



Riding on a Pendulum



CurrTech Integrations, LLC

... where curriculum joins technology

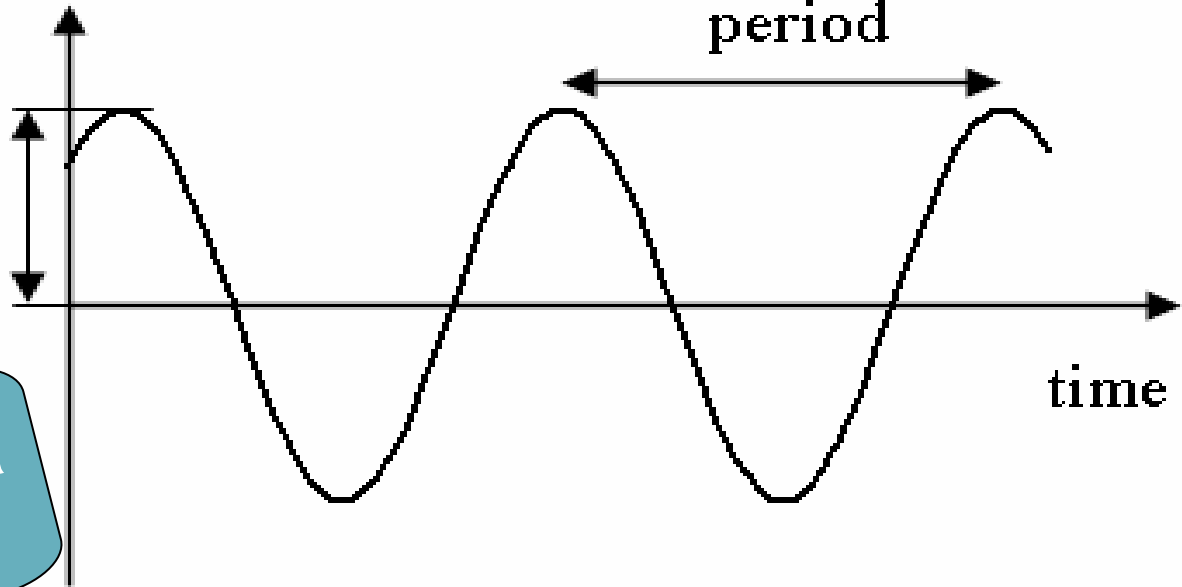
Engage

displacement

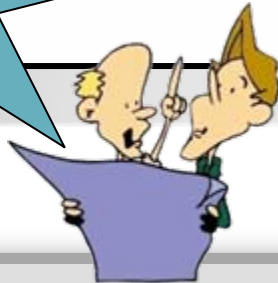
amplitude

period

time



How are these characteristics of a wave similar to a pendulum?



Think About This

4a. Use what you have learned in the previous activities and HYPOTHESIZE how the period of a pendulum will be affected if the amplitude is changed.

Review “Performance Criteria” for hypothesis testing in your Resource Booklet before you start to write your hypothesis.



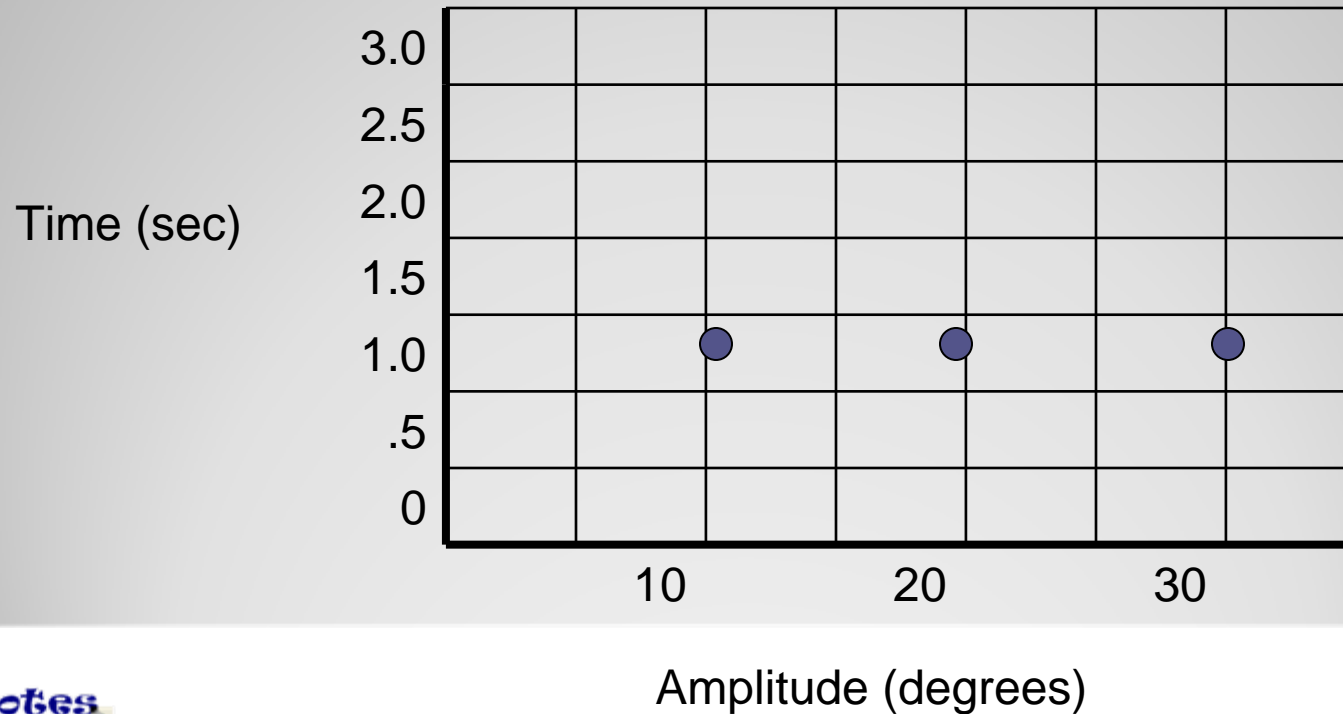
Explore – Test Your Hypothesis

4b and c. Below is one data sheet for activities 4b & c.
How is it different from the data sheets in your booklet?

Amplitude and Period of a Pendulum						
Amplitude	Total Time for 10 Swings (seconds)					Period
degrees	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	seconds
30						
20						
10						

Explain - Display Data

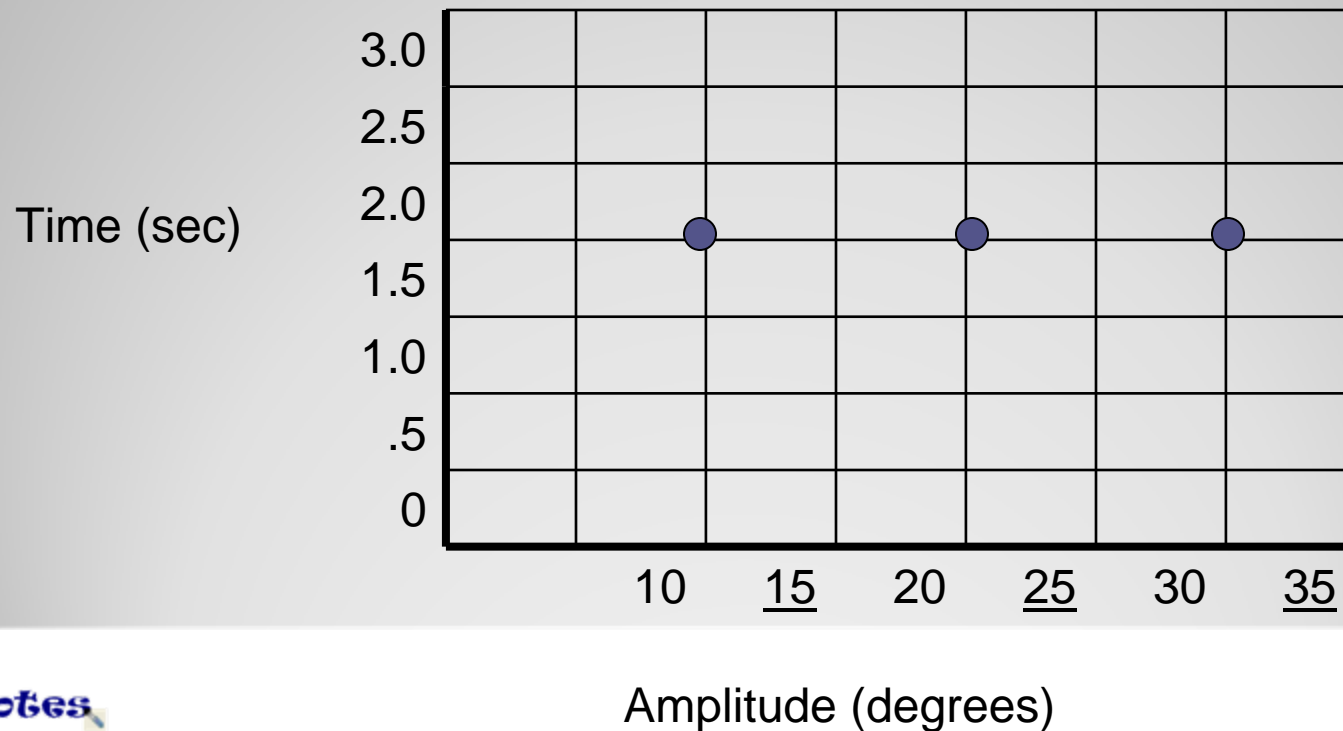
4d and e. How Does the Change of Amplitude Affect Period of a Pendulum



Make a Prediction

4f. Predict the period for amplitudes 15, 25, and 35 degrees

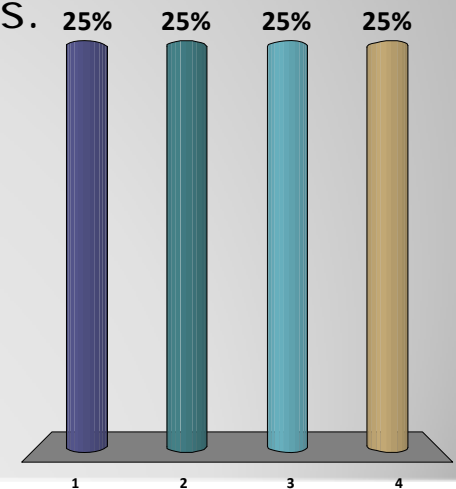
How Does the Change of Amplitude Affects Period of a Pendulum



Evaluate – Check for Understanding

1. Based upon your explorations with amplitude, you can conclude that

1. Amplitude has a significant effect on the period of a pendulum.
- ✓ 2. Amplitude has no significant effect on the period of a pendulum.
3. A pendulum with amplitude of 30 degrees has a longer period than a pendulum with amplitude of 10 degrees.
4. A pendulum with amplitude of 10 degrees has a longer period than a pendulum with amplitude of 30 degrees.

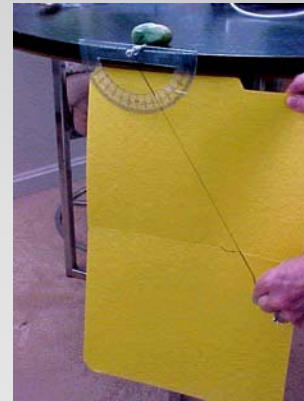


Evaluate – Check for Understanding

1. Based upon your explorations with amplitude, you can conclude that

And the answer is...

B

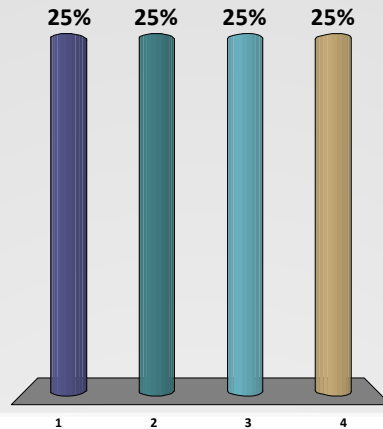


Amplitude has NO significant effect on the period of a pendulum.

Evaluate – Apply What You Learned

2. Which one of the following is the correct way to write a scientific hypothesis?

- ✓ 1. If baking soda is added to the water and the Elodea is placed in front of a strong light source, then the rate of photosynthesis should increase.
2. When baking soda is added to the water and the Elodea is placed in front of a strong light source, then the rate of photosynthesis should increase.
3. Once baking soda is added to the water and the Elodea is placed in front of a strong light source, the rate of photosynthesis should increase.
4. Baking soda is added to the water and the Elodea is placed in front of a strong light source. As a result, the rate of photosynthesis should increase



Evaluate – Apply What You Learned

2. Which one of the following is the correct way to write a scientific hypothesis?

And the answer is... A

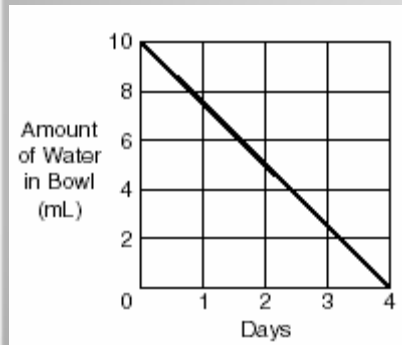
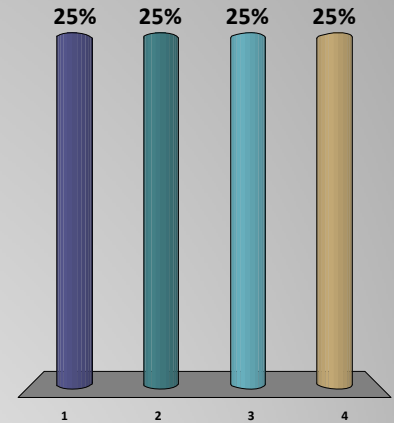


If baking soda is added to the water and the Elodea is placed in front of a strong light source, then the rate of photosynthesis should increase.

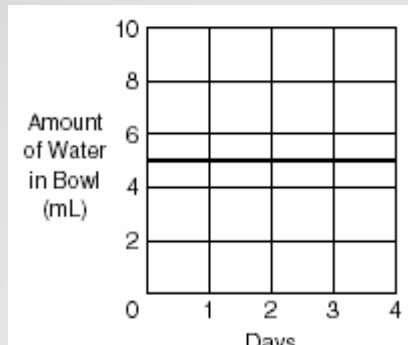
Evaluate – Apply What You Learned

3. Connie placed an uncovered bowl of water in the refrigerator. Each day she recorded the amount of water left in the bowl. Which of these graphs probably shows the results?

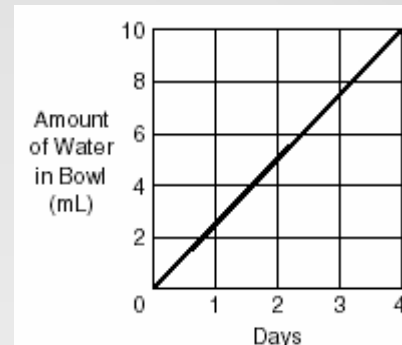
- ✓ 1. A
- 2. B
- 3. C
- 4. D



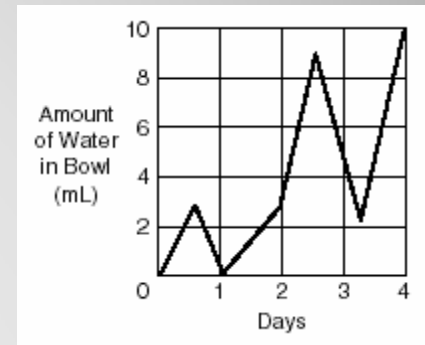
Graph A



Graph B



Graph C



Graph D

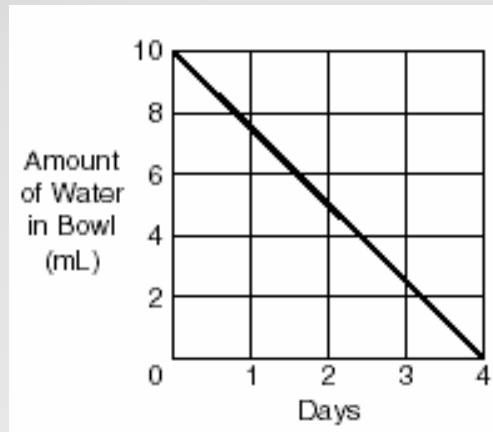


Evaluate – Apply What You Learned

3. Connie placed an uncovered bowl of water in the refrigerator. Each day she recorded the amount of water left in the bowl. Which of these graphs probably shows the results?

And the answer is...

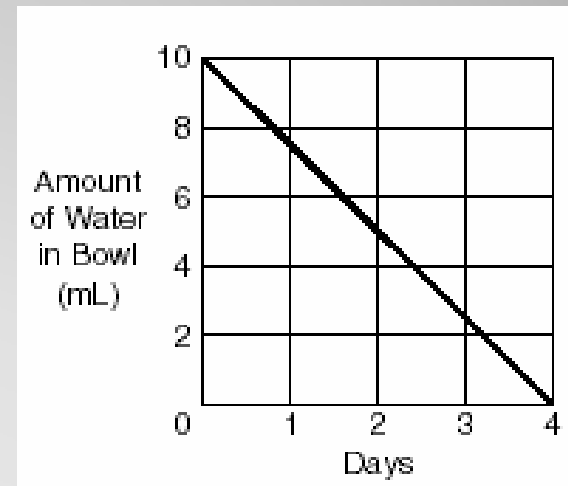
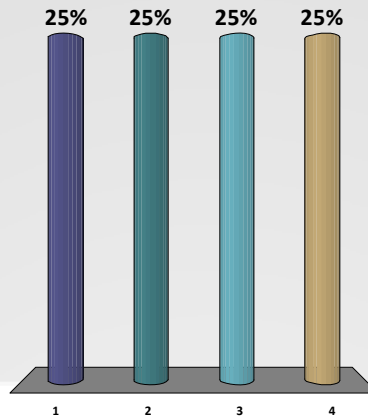
Graph A



Evaluate – Apply What You Learned

4. What is the dependent variable in investigation?

1. Days
2. Refrigerator
3. Type of water
- ✓ 4. Amount of water in bowl



Evaluate – Apply What You Learned

4. What is the dependent variable in investigation?

And the answer is... **D**

Amount of water in bowl

