RECORD SHEET

Activity 2: Relationships in Science

Name Date Class

Key Question

I Think

1. *My Hypothesis*: I think that as the length of the pendulum *increases*,

2. *My Reason*: My reason is that

Explore Your Ideas

Experiment: If the length of a pendulum increases, what happens to the time it takes to swing back and forth 10 times?

Table: Time for 10 Swings of the Pendulum	
Length of Pendulum = _____ cm	Time for 10 Swings (s)
Trial 1	
Trial 2	
Trial 3	
Trial 4	
Best Value	
Uncertainty	

Best Value (calculation) =

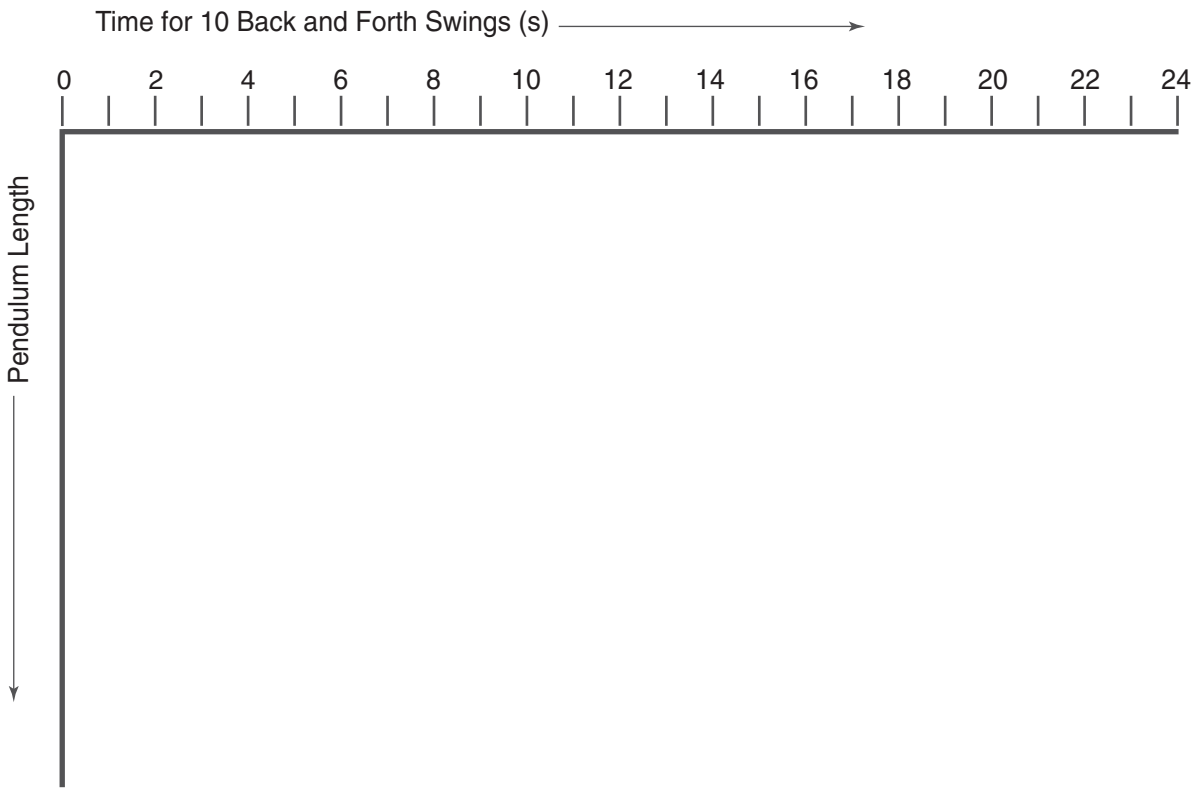
Uncertainty (calculation) =

1. Complete the following sentence:

Our team's best value for the time for 10 swings is _____ s (seconds) with an uncertainty of _____ s. This means that the true value of the time is probably within the range between _____ s and _____ s.

2. Complete the class graph.

Graph: Time for 10 Swings versus Pendulum Length



My Ideas

1. *Conclusion*: As the length of the pendulum increases,

_____

_____

2. In looking at your class graph, you may have noticed that some points (positions of washers) were above or below the smooth line you drew. Why do you think not all of the class data points ended up on a smooth line?

_____

_____

_____

3. Look back at the hypothesis you made at the beginning of the activity. How has your thinking changed after collecting data in the experiment?

4. Imagine that two teams each measured the time for 10 swings using pendulums. Each team calculated its best value and uncertainty.

Team 1: Best value was 20 s with an uncertainty of 1 s.

Team 2: Best value was 21 s with an uncertainty of 1 s.

Unfortunately, the teams forgot to write down the lengths of their pendulums. Since the best values were different, can you conclude that the pendulums of the two teams were different lengths? Explain your thinking.

My Ideas

The key question for this activity is:

What is the relationship between the length of a pendulum and how long it takes to swing back and forth 10 times?

Are you satisfied that you now know the answer to the key question? Explain.