



Tick Tock

Objective

Collaborate to investigate variables in pendulums. The length can be short or long. The weight can be heavy or light. Do they move at the same speed or different speeds?

What question will you explore to meet this objective?

Materials

- scissors
- string
- meterstick
- small metal washer
- large metal washer
- timer

Procedure

STEP 1 Be careful using scissors. Work with a partner. Cut two pieces of string, each about 40 centimeters (cm) long. Knot one end of each string to a washer, forming two pendulums.



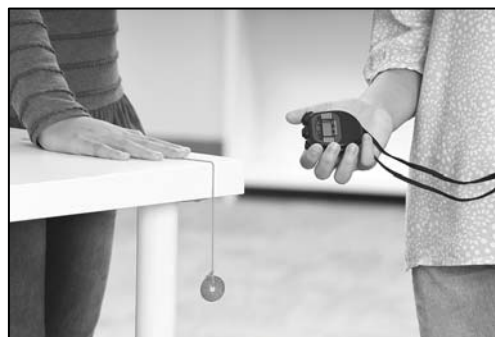
Why are you preparing two pendulums?

STEP 2 Hold the string of the smaller pendulum so that the pendulum length is 10 cm.

How do you think the motion of the pendulum with the smaller washer will differ from the one with the larger washer?

Name _____

STEP 3 Pull the washer to the side and release it. Count the number of swings it completes in 5 seconds. One partner should hold the pendulum while another uses the timer. Record your data in the table below.



STEP 4 Predict how using the larger washer will affect the pendulum swing rate. Write your prediction here, and then repeat Steps 2 and 3 using the larger washer.

STEP 5 Predict how making the string longer will affect the swing rate. Choose a distance between 10 and 30 cm. Write that number on the data table. Hold the string so the small washer's pendulum length is that distance and repeat Step 3. Do the same using the large washer. Record your data in the data table below.

Record your Results

STEP 6 Repeat Step 5 holding the string so the pendulum length is 30 cm. Record your data in the data table below.

	Time to Complete Five Swings		
	10 cm	____ cm	30 cm
Small washer			
Large washer			

Name _____

Analyze Your Results

STEP 7 Which pendulum produced the greater number of swings? Was this true for all string lengths?

STEP 8 Which string length produced the least number of swings? Was this true for all washer sizes?

Draw Conclusions

STEP 9 Describe what makes a difference in how many times a pendulum swings in five seconds. Enter your answer in the box below.

STEP 10 How would observing the pattern of motion of the pendulum help you predict its future motion? Enter your answer below.
