

# Pendulums

## Experiment 1

Build a pendulum

Follow these steps to build a pendulum:

1. Take a ball (the 'bob'), some string, a ruler, and strong sticky tape.
2. Place the ruler on a desk so that 10 cm (4 inches) of the ruler is on the desk and 20 cm (8 inches) extends over the side. Tape it to the desk.
3. Wrap one end of the string around the ball once. Wrap a piece of tape around the ball, covering the string. Put two pieces of tape where the string hangs off the ball.
4. Tie or tape the other end of the string around the ruler.

Now you are ready to do the experiment.

1. Set the pendulum in motion by pulling it up and letting it go.
2. Predict what will happen.
3. Write your group's prediction.
4. Now set your pendulum in motion and write your results.
5. Write what happened and why you think it happened.
6. Now repeat the experiment using different lengths of string.
7. Record any differences in results.

	<b>Prediction</b>	<b>Results</b>	<b>Why do you think this happened?</b>
Pendulum 1			
Pendulum 2 (longer string)			
Pendulum 3 (shorter string)			

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## Experiment 2

### Bobs of different mass

1. Make a pendulum using the same length of string as the last one, but a bob of different mass. (The ball was the 'bob' in the first experiment.)  
e.g. You could use a marble, a bigger ball, a rock, a pebble
2. Predict what might happen.
3. Set the pendulum in motion and count the number of swings until it stops. Write your results and why you think this happened.
4. Repeat the experiment using different bobs of different mass.

Type of bob	Prediction	Results	Why do you think this happened?

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## Experiment 3

### Different paths

1. Take a pendulum that you have already made.
2. Release pendulum so that it follows different paths, e.g. makes it swing at a different angle or in a circular path.
3. Count the number of swings in a 2 minute period.
4. Record your results for each type of path. Write down the number of swings.
5. Look at your results and say see whether the path of the bob affected the number of swings the pendulum made in a 2 minute period?
6. Explain why this happened.

Type of path	Prediction	Results	Why do you think this happened?