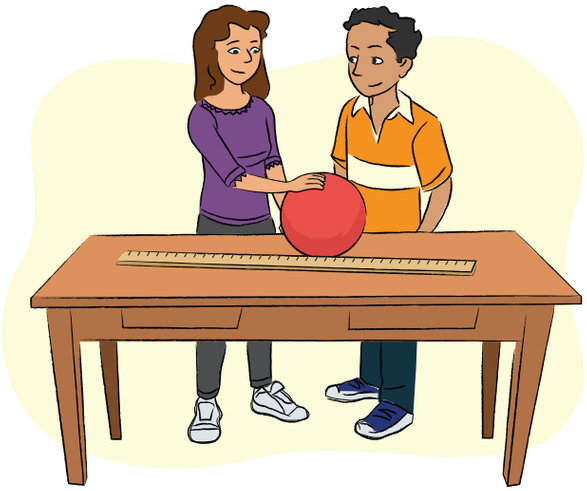
Project 2: Ball Bounce Experiment

In this experiment, you will investigate how the height from which a ball is dropped is related to the height it bounces. Read the directions carefully before you start. Be prepared to explain your findings to the rest of the class.



Materials:

- a meter stick
- a ball that bounces

Directions:

Divide the work among the members of your group.

1. Make a table with columns for recording drop height and bounce height.
2. Hold the meter stick perpendicular to a flat surface, such as an uncarpeted floor, a table, or a desk.
3. Choose and record a height on the meter stick as the height from which you will drop the ball. Hold the ball so that either the top of the ball or the bottom of the ball is at this height.
4. Drop the ball and record the height of the first bounce. If the *top* of the ball was at your starting height, look for the height of the *top* of the ball. If the *bottom* of the ball was at your starting height, look for the height of the *bottom* of the ball. (You may have to do this several times before you feel confident you have a good estimate of the bounce height.)
5. Repeat this for several different starting heights.

After you have completed the experiment, write a report that includes the following:

- a coordinate graph of the data you collected;
- a description of the variables you investigated in this experiment and a description of the relationship between the variables;
- a list showing your predictions for:
  - the bounce height for a drop height of 2 meters;
  - the drop height needed for a bounce height of 2 meters;
- a description of how you made your prediction, whether you used a table, a graph, or some other method, and the clues in the data that helped you make your predictions;
- an explanation of the bounce height you would expect for a drop height of 0 centimeters and where you could find this on the graph;
- a description of any other variables besides the drop height, which may affect the bounce height of the ball.