

Marble Mania

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For this activity, you will use the interactive to repeat the lesson's first marble experiment that was conducted with only two marbles in the box. Follow these steps to repeat the experiment:

- Put "1"s in the boxes by the red and blue marbles.
- Put "0"s in the boxes by the yellow and green marbles.
- Select "1" marble to draw (per trial).
- Type in "10" in the Trials box.
- Click on the "Run Trials" button.
- When finished, make sure you click on the "Clear Trial" button.
- Once you are done with this trial, discuss your results with the rest of the class.

Be prepared to conduct this same experiment using 50, 100, and then 500 trials.

You can use the charts on this sheet to record the results of your trials.

2 Marbles (Red/Blue) at 10 Trials

	Color:	Color:	Color:	Color:	Total
Number of times marble was picked					
Results (# of times marble was picked divided by total # of picks)					

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2 Marbles (Red/Blue) at 50 Trials

	Color:	Color:	Color:	Color:	Total
Number of times marble was picked					
Results (# of times marble was picked divided by total # of picks)					

2 Marbles (Red/Blue) at 100 Trials

	Color:	Color:	Color:	Color:	Total
Number of times marble was picked					
Results (# of times marble was picked divided by total # of picks)					

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2 Marbles (Red/Blue) at 500 Trials

	Color:	Color:	Color:	Color:	Total
Number of times marble was picked					
Results (# of times marble was picked divided by total # of picks)					

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Next, go ahead and use the interactive to repeat the lesson's earlier 50-trial experiment using three marbles. Follow these directions:

- Type in "1"s for three of the marbles.
- Leave a "0" in the box for the fourth one.
- Select "1" marble to draw (per trial).
- Type in "50" in the Trials box.
- Click on the "Run Trials" button.
- When finished, make sure you click on the "Clear Trial" button after each trial.

Be prepared to conduct this same experiment using 100 and 500 trials. Use the charts below to record your results.

3 Marbles at 50 Trials

	Color:	Color:	Color:	Color:	Total
Number of times marble was picked					
Results (# of times marble was picked divided by total # of picks)					

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3 Marbles at 100 Trials

	Color:	Color:	Color:	Color:	Total
Number of times marble was picked					
Results (# of times marble was picked divided by total # of picks)					

3 Marbles at 500 Trials

	Color:	Color:	Color:	Color:	Total
Number of times marble was picked					
Results (# of times marble was picked divided by total # of picks)					

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After conducting the experiments, answer these questions:

- **Which would most often come closest to the 1 in 3 theoretical probability—a marble experiment with 10 trials or 500? Why?**

- **When conducting a scientific experiment like the marbles one, why is it important to conduct it carefully and use the same procedures?**

- **Why do you think scientists are interested in studying probabilities?**