

# Flipping a Coin

NAME \_\_\_\_\_

Use the Box Model to help you answer the questions below.

To begin, click on the 0 and the 1 to move them into the “box model.” Next, click on “Show Theoretical Probability.” The theoretical probability values will be displayed in a bar chart.

1. What is the theoretical probability for heads?
2. What is the theoretical probability for tails?

## 10 Coin Flips

After you have answered the first two questions, click on the “Start” button. Once 10 draws have been completed, click on the “Start” button once again to pause the tool.

3. What is the experimental probability of heads?
4. What is the experimental probability of tails?
5. Why might the experimental probability be different from the theoretical probability?

## 20 Coin Flips

Begin the drawing again by pressing “Start.” Pause after 20 draws (total). Answer the following questions.

6. Is the experimental probability closer to the theoretical probability than after 10 draws?
7. Explain why more draws affects the closeness of the two values.
8. Predict the number of draws that would bring the values “very” close to each other.

Test your conjecture by beginning the drawing again and pausing after you reach your predicted number of draws. Repeat if necessary until you have gotten the two values “very” close to each other.

9. What hypothesis can you make at this point about the number of draws it would take to ensure that the experimental and theoretical probabilities are equal?