

**Instructions:** This activity will be conducted using a set of five dice, and 5 coins. Your instructor will provide them, or you can use your own. This experiment will be conducted twice. Once with the coins, and once with the dice.

**Coins**

**Dice**

1. Choose 5 coins that you can distinguish one from the other. Indicate below how you are distinguishing them.

penny, nickel, dime, quarter dollar coin

2. Assuming that each of the coins is fair, the probability of each event in the sample space is the same. These are equiprobable events. List the events in the sample spaces and their probabilities.

H, T

3. We would like to collect 100 samples to test the equiprobability of the sample space. We are going to this by taking our 5 coins and sample each 20 times. Since we can tell them apart, we can treat each as separate tosses. Tally the results below.

Heads


Tails


1. Choose 5 dice from one of bags of dice provided by the instructor. How many sides does it have, and how are they labeled. Be sure to choose dice that are all different colors.

10-sided  
10, 20, 30, 40, 50, 60, 70, 80, 90, 100

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10, 20, 30, 40, 50, 60, 70, 80, 90, 100

3. We would like to collect 100 samples to test the equiprobability of the sample space. We are going to this by taking our 5 dice and sample each 20 times. Since we can tell them apart, we can treat each as separate tosses. Tally the results below. More space is available on the back as well.

10, 20, 30, 40, 50


60, 70, 80, 90, 100


4. Based on your experiment in #3, calculate the experimental probability of each event.

$$\frac{46}{100} = H \quad 46\%$$

$$\frac{54}{100} = T \quad 54\%$$

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$$\frac{52}{100} = (\leq 50) \quad 52\%$$

$$\frac{48}{100} = (> 50) \quad 48\%$$

5. How do the results compare? Are they similar?

They are similar to expected 50%

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They are similar to expected 50%

6. What are some other examples of equiprobable sample spaces? Give at least three.

roulette wheel, other fair die,  
raffle tickets  
(answers will vary)