Probability Stations

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| *Penny Flip* Station   * + 1. Write whether you think the coin is more likely to land on heads or tails and why.     2. Calculate the theoretical probability.     3. There should be 2 pennies at the station. Each person should flip the penny 20 times and record the number of times it lands on heads and the number of times it lands on tails.     4. Record your data on the data collection sheet. |
| *Spinner* Station   * + 1. 1/4 of the spinner should be red, 1/4 should be green, and 1/2 should be blue.     2. Which color do you think you are more likely to stop on and why?     3. Calculate the theoretical probability of landing on each section.     4. Each person should spin the spinner 50 times and record their results   5.Record your data on the data collection sheet. |
| Bag of Marbles Station   * + 1. Place 10 of the white marbles into the opaque bag along with the 5 red marbles.     2. Calculate the theoretical probability of drawing a red marble     3. Draw 1 marble from the bag, record its color, and replace the marble back in the bag.     4. Repeat step 3 until you have drawn 25 marbles.     5. Add 5 more white marbles to the bag for a total of 15 white marbles and 5 red marbles.     6. Calculate the probability of drawing a red marble     7. Draw 1 marble from the bag, record its color, and replace the marble back in the bag.   8. Repeat step 7 until you have drawn 25 marbles.  9. Record your data on the data collection sheet. |
| Deck of Cards Station   * + 1. Calculate the probability of drawing a spade.     2. Mix the deck of cards.     3. Draw 1 card, record whether or not it is a spade, and replace it into the deck.     4. Mix the deck of cards.     5. Draw another card, record whether or not it is a spade, and replace the card back in the deck.     6. Continue this process until you have drawn 20 cards     7. Record your data on the data collection sheet. |

Data Collection Sheet

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Penny Flip Station**

# of coins with heads facing up:

# of coins with tails facing up:

1. What is the theoretical probability that the coin will land with the head side upward?
2. What is the theoretical probability that the coin will land with the tails side facing upward?
3. What was your experimental probability for the coin to land heads side up?
4. What was your experimental probability for the coin to land tails side up?

**Spinner Station**

# of times that the spinner stopped on red:

# of times that the spinner stopped on green:

# of times that the spinner stopped on blue:

1. What is the theoretical probability that the spinner will stop on red?
2. What is the theoretical probability that the spinner will stop on blue?
3. What is the theoretical probability that the spinner will stop on green?
4. What is the experimental probability that the spinner will stop on red?
5. What is the experimental probability that the spinner will stop on blue?
6. What is the experimental probability that the spinner will stop on green?
7. Were your theoretical and experimental results the same? Why do you think your results differed from the theoretical probabilities?

**Bag of Marbles Station**

Place 10 white marbles and 5 red marbles in a bag. Draw a marble out of the bag, record if the

marble is red or white, and then replace the marble back into the bag. Draw 20 marbles from the bag using the draw and replace method described above.

# of red marbles drawn:

# of white marbles drawn:

1. What is the experimental probability that you will draw a red marble?
2. What is the experimental probability that you will draw a white marble?
3. What is the theoretical probability that you will draw a red marble?
4. What is the theoretical probability that you will draw a white marble?

Place 15 white marbles and 5 red marbles in a bag. Draw a marble out of the bag, record if the

marble is red or white, and then replace the marble back into the bag. Draw 20 marbles from the bag using the draw and replace method described above.

# of red marbles drawn:

# of white marbles drawn:

1. What is the experimental probability that you will draw a red marble?
2. What is the experimental probability that you will draw a white marble?
3. What is the theoretical probability that you will draw a red marble?
4. What is the theoretical probability that you will draw a white marble?

**Deck of Cards Station:**

1. Mix the cards, draw a card, record if it is a spade, and replace it back into the deck. Do this

20 times.

Spade:

Not a Spade:

1. What is the experimental probability of drawing a spade?
2. What is the theoretical probability of drawing a spade?