**Quarter 4 Project Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Directions: Complete the following worksheet by rotating to each station. To earn the full 100 points you must attend each station and answer all of the questions COMPLETELY.

**Station 1:** 6-Sided Die

Toss a die 20 times and record the results in the table below.

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1. What is the experimental probability of rolling a 5?
2. What is the theoretical probability of rolling a 5?
3. How do the probabilities compare?

**Station 2:** 20-Sided Die

Toss a die 30 times and record the results in the table below.

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1. What is the experimental probability of rolling a 15?
2. What is the theoretical probability of rolling a 15?
3. How do the probabilities compare?

**Station 3:** 2 six-sided die

Toss two six-sided die 30 times and record the results in the table below.

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1. What is the experimental probability of rolling a 7 or 11?
2. What is the theoretical probability of rolling a 7 or 11?
3. How do the probabilities compare?

**Station 4:** Roulette

Spin the wheel and roll the ball 20 times on the roulette and record the results in the table below. ***Make sure to record color and number***.

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1. What is the experimental probability of getting a black number? What is the theoretical probability?
2. What is the experimental probability of getting a red number? What is the theoretical probability?
3. What is the experimental probability of getting an even number? What is the theoretical probability?
4. What is the experimental probability of getting a 10? What is the theoretical probability?
5. How do the probabilities of each compare?

**Station 5:** Cards

Draw 1 card, look at it, and replace it 30 times. Record the results in the table below. Make sure to record the suit and the card.

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1. What is the experimental probability of drawing a heart? What is the theoretical probability?
2. What is the experimental probability of drawing a King? What is the theoretical probability?
3. How do the probabilities of each compare?

**Station 6:** Spinner

Spin the spinner 20 times and record the results in the table below.

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1. What is the experimental probability of spinning a 0? What is the theoretical probability?
2. What is the experimental probability of spinning an odd number? What is the theoretical probability?

3. How do the probabilities of each compare?

**Station 7:** Toss a coin

Toss a coin 20 times and record the results in the table below.

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1. What is the experimental probability of getting a tails? What is the theoretical probability?
2. What is the experimental probability of getting a heads? What is the theoretical probability?
3. How do the probabilities of each compare?

**Station 8:** Colored chips

Draw a chip at random from the bag 20 times. Record the color in the table below.

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1. What is the experimental probability of selecting an red chip? What is the theoretical probability?
2. What is the experimental probability of selecting a blue chip? What is the theoretical probability?
3. What is the experimental probability of selecting a white chip? What is the theoretical probability?

4. How do the probabilities of each compare?

**Follow Up Questions:**

Roulette

Collect the data from the other groups on how many times they obtained an even number.

a. How many times total did the groups get an even number?

b. What was the experimental probability getting an even number for all of the groups?

c. How does the experimental probability compare to the theoretical probability?

d. Based on your experiment if you were playing Roulette what would you bet on? What is your probability of winning on any given spin?

20-sided die

a. How many times total did the groups roll a 15?

b. What was the experimental probability rolling a 15 for all of the groups?

c. How does the experimental probability compare to the theoretical probability?

d. How does the probability compare of rolling a 5 on a 6-sided die to rolling a 5 on a 20-sided die?

When playing the game *Settlers of Catan* the numbers 6, 7 and 8 are the most commonly rolled with a pair of dice. Why is it that in a given game a 4 or 12 could be rolled more often than an 8?

\_\_\_\_\_\_\_\_\_ (24 points) Completed each station – collected all the data

\_\_\_\_\_\_\_\_\_ (64 points) Answered all questions at stations

\_\_\_\_\_\_\_\_\_ ( 9 points) Answered all follow up questions

\_\_\_\_\_\_\_\_\_ (3 points) Stayed on-task during class

**\_\_\_\_\_\_\_\_\_ / 100**