STUDENT JOURNAL: POPULATIONS AND PREDICTIONS

Using the data table below, calculate the **Mean, Median, Mode,** and **Range** for all values: "Final Bid Count", "Final Bid Value", and one more category of your choice.

	Mean	Median	Mode	Range
Final Bid Count				
Final Bid Value				
Your Choice				

Mean - The average of all the numbers. **Median** - The middle number, when in order.

Mode - The most common number. Range - The largest number minus the smallest number.

- 1. If you were playing a big game with your whole class and 300 dice were rolled how many 1's would you expect to see?
 - a. How many 2's or 6's would you expect to see?

b. How many odd numbers should be shown on the dice?

- 2. When 300 dice are rolled, why might it be better to estimate the number expected than to count the number. What about with 300,000 dice?
 - a. Why is it important to sample a population sometimes instead of looking at the entire population?

- 3. By the end of the game, did your percentage of dice compared to the rest of the population increase or decrease?
 - a. Identify the rounds when you did not lose a die by placing a star above the column.
 - b. What was similar about the rounds when you did not lose a die?
 - c. What was the difference between the rounds when you lost a die and those when you did not lose some dice?

d. What was similar among the rounds when you did lose a die?

4. Liar's Dice helps us to look at populations in many ways: The shift in the number of dice, the total population of dice, and the dice pool throughout the game. How often did the mode of the number on a dice match the number on the final bid?

a. If the mode was the same, how often did you keep all your dice?

b. If the mode differed from the final bid, how often did you lose a die?

5. What is one more question you could ask about the data to understand your best choices better?

6. If you were telling a friend how to play the game, what advice would you give them when playing?

7. We have sampled a population ten times. Do you have enough information to predict the best course of action? How many samples would be the best to know how the game works, so you can tell a friend how to play the game?

8. When you give your friend advice about playing the game, you provide some rules you suggest they follow. Put our advice into writing by constructing an algorithm. An algorithm is a set of rules for a task, like playing a game or finishing a math problem.

