Name: _____ Hour: _____ Date: _____

Who will win the Last Banana?

Suppose that you're on a desert island playing dice with another castaway. The winner's prize will be the last banana. Here are the rules of the game:

- Each player rolls a die
- If the <u>largest value</u> shown is a 1, 2, 3, or 4, then Player 1 wins
- If the <u>largest value</u> shown is a 5 or 6 then Player 2 wins

1. Who do you think has advantage in this game: Player 1, Player 2, or neither? Make your **best guess** and explain your choice.

2. Play the game 20 times with your partner and record the winner of each game by tallying in the table below.

Player	1	2
Tally/Count of Wins		
Percentage of Wins		

   a. How many times did Player 1 win? _____ Write this as a proportion. _____

   b. How many times did Player 2 win? _____ Write this as a proportion. _____

3. Who won more often? Maybe this was only true for your group. Let's see how the rest of the class did. Write the number of wins for Player 1 in the table on the board.

   a. Find the total proportion of wins for Player 1 for the whole class.

   b. Find the total proportion of wins for Player 2 for the whole class.

4. To determine the true probability of Player 1 winning, we should list out all possible rolls that we could get. Complete the table below to show all possible rolls.

   a. Use your table to find the probability of Player 1 winning.

   b. Which was closer to the probability you found in #4a, your group data or the classroom data? Why do you think that is?

	1	2	3	4	5	6
1	1,1					
2						
3						
4						
5						
6						

Basic Probability Rules

Important ideas:

Check Your Understanding

Pew Research Center reported that among mothers, family size is shrinking. Suppose we are to randomly select one mother (age 40 to 44) and record the number of children she has. Here is a probability model.

Number of Children	1	2	3	4+
Probability	0.22	0.41	0.24	0.13

(a) Explain why this is a valid probability model.

(b) Explain why events "have 1 child" and "have 2 children" are mutually exclusive

For each of the following write the event using proper notation and find the probability:

(c) Find the probability that a randomly selected mother has less than 2 children.

(d) Find the probability that a randomly selected mother has 1 or 2 children.

(e) Find the probability that a randomly selected mother does not have 4 or more children.

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