What Are My Chances?

NAME_____

You will be evaluating games of chance to help you understand probability. For each game of chance, predict what will be the most frequent outcome. Then run the experiment 10 times. For each trial, record the actual outcome in the Result row. If this matches your predicted outcome, put a check mark in the Prediction row.

1. Flip a Coin
Prediction for most frequent outcome: Heads Tails

RESULT										
PREDICTION										

2. Roll 1 Die
Prediction for most frequent outcome: 1 2 3 4 5 6

RESULT										
PREDICTION										

3. Pick a Card Color
Prediction for most frequent outcome: Red Black

RESULT										
PREDICTION										

4. Pick a Card Suit
Prediction for most frequent outcome: Clubs (♣) Spades (♠) Diamonds (♦) Hearts (♥)

RESULT										
PREDICTION										

5. Pick an Exact Card
Prediction for most frequent outcome: _____ (e.g., 3♥)

RESULT										
PREDICTION										

6. In which game of chance were your predictions most accurate?

7. Complete the table below with the probability for each event. Use the results from your experiments above to calculate the experimental probabilities.

GAME OF CHANCE	EVENT	EXPERIMENTAL PROBABILITY	THEORETICAL PROBABILITY
Flip a Coin	Heads		
Roll 1 Die	6		
Pick a Card Color	Red		
Pick a Card Suit	Diamonds		
Pick an Exact Card	5 of Diamonds		

8. Compare the theoretical and experimental probabilities for each game of chance. Were you close in any of the experiments?

9. Collect data from the entire class for the probability of an event matching the predicted event (**Note:** This works even if different groups predicted different outcomes.) Record the number of correctly predicted trials and the experimental probability of each. Since each group performed 10 trials for each game, the number of trials will be 10 × the number of groups.

GAME OF CHANCE	# OF CORRECT PREDICTIONS	EXPERIMENTAL PROBABILITY
Flip a Coin		
Roll 1 Die		
Pick a Card Color		
Pick a Card Suit		
Pick an Exact Card		

10. Are the experimental probability different in Questions 7 and 9? Why or why not?

11. How do the theoretical probabilities in Question 7 compare to the experimental probabilities in Question 9? What do you think would happen if even more trials were added?