



# HEADS-TAILS

## *A Probability Experiment*



### DIRECTIONS

#### **Materials: (per student pair)**

- one coin in a cup
- Heads-Tails recording sheet

#### **ONE COIN GAME:**

- Partner A empties the cup onto the desk and records whether the coin shows heads or tails. He/she returns the coin to the cup.
- Partner B shakes the cup then empties the cup onto the desk. If the coin is the same as the last throw, Partner A gets a point. If the coin is not the same as the last throw, Partner B gets a point.
- Toss the coin 10 times for each round.
- At the end of these ten tosses, the partner with the most points wins that round.
- Play two more rounds.
- Decide if the game is fair for both players. Do both players have an equal chance of winning? Explain.

#### **TWO COIN GAME:**

- Repeat the experiment. Use two coins. If both coins are the same (both heads or both tails), Partner A gets a point. If both coins are different (one head and one tail), then Partner B gets a point.
- Decide if the game is fair for both players. Do both players have an equal chance of winning? Explain.

#### **EXTRA FOR EXPERTS:**

- Make up a different two-player game using coins.
- Play your game with a partner to see who wins.
- Make sure that both players have an equal chance of winning.



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## Recording Sheet

Roll	H or T	A gets pt.	B gets pt.
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

### Game 1:

- Did Partner A or Partner B win this first game?
- Add your results to the class graph.
- Play the game again.

### Game 2:

- Did Partner A or Partner B win this second game?

Roll	H or T	A gets pt.	B gets pt.
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

- Add your results to the class graph.
- Do you think the game is a fair game? Why or why not?