

## THE MONTY HALL PROBLEM

The Monty Hall problem originates from the game show, *Let's Make a Deal*—the host, Monty Hall, shows the player three closed doors and tells the player that behind one of the closed doors is a brand new car (the prize) and behind the other two doors are goats. The player then chooses one of the three doors. Monty does not open the door that the player has selected just yet. First, Monty opens one of the two OTHER doors, revealing a goat. Monty now asks the player if he/she would like to stick with the door they originally selected or switch their choice to the only other unopened door.

1. Make a prediction: Do you think that your chances of winning are higher, lower, or the same if you switch doors?

2. You are now going to simulate the Monty Hall problem using cups instead of doors.

### HOW TO CARRY OUT A TRIAL:

1. **Player** closes her eyes while **Monty** places a coin under one of the three cups
2. When Monty is ready, **Player** will open eyes and choose a cup (do not lift the cup!)
3. **Monty** lifts one of the remaining two cups **that is empty**.
4. **Player** either switches or does not switch choice of cup.
5. **Recorder** records whether the Player has won or lost.
6. Repeat until you have completed all trials

a) Carry out 20 trials where you “switch” cups. Record wins/losses in the table below.

b) Carry out 20 trials where you do not switch cups. Record wins/losses in the table below.

c) Calculate your win percentage for switching and your win percentage for not switching and record them in the table below.

	Switch	Do Not Switch
WIN		
LOSE		
Win Percentage (Calculate)		

3. Do your results support your prediction? Explain.