

## Drop It! Activity

### QUESTIONS FOR STUDENTS:

#### Pre-activity:

1. How many squares are on the Game Board?
2. How many purple squares are there?
3. What is the probability of your penny landing on a purple square [P(purple)]?
4. What is the P(yellow)? P(green)? P(red)? P(blue)?
5. What is the probability of your penny landing on a pink square?
6. What is the probability of your penny landing on a square that is colored?
7. What is another event with a probability of 0?
8. What is another event with a probability of 1?
9. What is the P(green or purple)?
10. What is the P(yellow or red)?

### INSTRUCTIONS: Drop It!

**Players:** 2 to 4

**Equipment:** Game Board, Score Sheet for each player, penny

**Object:** To drop your coin on the squares so that you get a total of 1

**Preparation:** Color each square of your Game Board according to the name in the square.

**Set-up:** Place the Game Board on the floor. Each player should stand on one side of the Game Board. Decide who will go first.

**Play:** With your arm stretched out in front of you, drop the penny on the Game Board. Record on your Score Sheet the color of the square in which your penny lands. Write the probability of landing on that color as a fraction, decimal, and percent. Total the probabilities each time.

- When a penny lands off of the board, drop it again.
- When a penny lands on two colors, record the color of the square that is most covered.
- When a penny lands equally between two or four squares, pick the color you would like to use.

The player who gets to a total of one first, wins. You must get exactly one! If your drop puts you over 1, you must wait to try again on your next turn.

(This is a sample Score Sheet for a player getting green, yellow, red, and then blue on his/her first 4 drops.)

	1	2	Total	3	Total	4	Total
Color	Green	Yellow	/	Red	/	Blue	/
Fraction	$\frac{2}{16}$	$\frac{1}{16}$	$\frac{3}{16}$	$\frac{4}{16}$	$\frac{7}{16}$	$\frac{6}{16}$	$\frac{13}{16}$
Decimal	0.125	0.0625	0.1875	0.25	0.4375	0.375	0.8125
Percent	12.5%	6.25%	18.75%	25%	43.75%	37.5%	81.25%

**Note:** On the 5<sup>th</sup> drop, the player must get yellow or green to advance, or purple to win the game.

### EXTENSIONS:

- Create a Game Board where
  - P(red) = 40%
  - P(blue) = 16%
  - P(yellow) = 12%
  - P(green) = 8%
  - P(purple) = 24%
- Use your new Game Board to play again and change how you drop the penny (e.g., close your eyes when you drop the penny).
- Alternate adding and subtracting the drops and, after your tenth drop, the lowest score wins!