

## Indicators

### Objective:

#### 4.03 Conduct experiments involving simple and compound events.

Vocabulary and Resources		
experimental results	sample space	outcomes
favorable outcomes	possible outcomes	tree diagrams
organized lists	Fundamental Counting Principle	

**A.** Conduct an experiment using a styrofoam cup by tossing the cup and recording how it lands.

- How many trials did you conduct?
- How many times did it land right side up?
- How many times did it land upside down?
- How many times did it land on its side?
- Can you determine the probability for each of the above results?

**B.** Devise an experiment using a coin to determine whether a baby is a boy or a girl. Conduct the experiment ten times to determine the gender of ten births. How could you use a die to simulate whether a baby is a girl or a boy?

**C.** Is the probability of getting two heads greater if you toss three coins at the same time or toss one coin three times in succession? Explain your answer.

**D.** You and a friend are going to play a game where you each roll a fair number cube labeled with the numbers 1 through 6. If the resulting two numbers determine a rational number in lowest terms, your friend gets a point; however, if the numbers determine a rational number that is not in lowest terms, you get the point. Repeat this 20 times and record the data in a table with the following headings.

Rational Number	Points	
	Player 1 (Lowest Terms)	Player 2 (Not in Lowest Terms)

Based on the results, decide if this is a fair game and explain why or why not. How do these experimental results compare with the theoretical probability of getting a rational number in lowest terms under these conditions?

**E.** Identify each of the following as a simple or compound event. Determine the probability of each.

- rolling a 4 on a fair number cube
- rolling a prime number on a fair number cube
- drawing a vowel from a bag of 26 alphabet cards
- drawing the letter *p* from a bag of 26 alphabet cards
- selecting a red jelly bean from a bag containing six red, two green, and four orange jelly beans