Explore Compound Events

Previously, you learned how to find the probability of a single event. In this lesson, you will learn about finding the probability of a compound event.

➤ **Use what you know to try to solve the problem below.**

Laqueta tosses two different coins. What are the possible outcomes for the way the coins land?

TRY IT

Math Toolkit coins, two-color counters

H H
T T
H T
T H

DISCUSS IT

Ask: How do you know your solution shows all the possible outcomes?

Share: My solution shows all possible outcomes . . .

Learning Targets **SMP 1, SMP 2, SMP 3, SMP 4, SMP 5, SMP 6, SMP 7, SMP 8**

- List the possible outcomes for a compound event.
- Use a sample space to find the probability of a compound event.
- Use a simulation to find the probability of a compound event.

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CONNECT IT

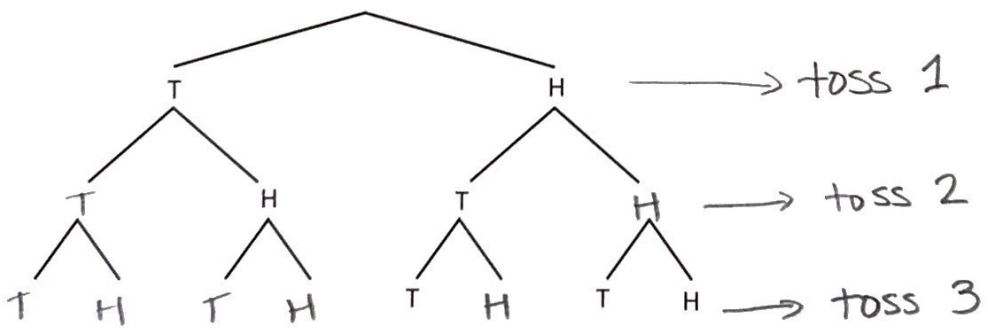
1 **Look Back** What are the possible outcomes for tossing two different coins? Why are there more than two possible outcomes?

2 **Look Ahead** The outcome of tossing two coins, or of tossing one coin two times, is an example of a **compound event**. A compound event is made up of two or more simple events, such as the outcome of tossing a coin one time. One way you can represent the sample space for a compound event is with a **tree diagram**.

a. Suppose you toss a coin three times and record the outcome. How many simple events are in this compound event? Explain.

3. The outcome of each toss of the coin is a simple event

b. Complete the tree diagram below to show all of the possible outcomes of tossing a coin three times. Use H to represent a coin landing heads up and T to represent a coin landing tails up.



c. How many outcomes are in this sample space?

8 (bottom of the tree)

d. List the possible outcomes for tossing a coin three times. (follow the paths top to bottom)

TTT THT HTT HHT
TTH THH HTH HHH

3 **Reflect** When you toss a coin three times, why is the outcome HHT different from the outcome THH?

The order that you toss the tails and heads matter

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