



Explore Probability

Model It

➤ Complete the problems about outcomes of an event.

1 A standard number cube has six sides labeled 1 through 6. Think about rolling a number cube one time.



- a. Is it more likely that the cube will show a multiple of 2 or a multiple of 3?
 ↘ 3, 6 ↘ 2, 4, 6
 More likely to show a multiple of 2
- b. How likely is the cube to show a 3?
 Not very likely

c. Why is it just as likely that the cube will show an even number as an odd number?

On a cube there are the same amount of even numbers as there are odd numbers

2 Doing something where you cannot know the **outcome** is called an **experiment**. In problem 1, rolling the number cube is the experiment. The outcomes are the possible results of the experiment.

a. What are the possible outcomes of rolling a standard number cube?

1, 2, 3, 4, 5, 6

b. An **event** is a set of one or more outcomes. What are the possible outcomes for the event of rolling a multiple of 2?

2, 4, 6

c. What are the possible outcomes for the event of rolling a multiple of 3?

3, 6

d. What are the possible outcomes for the event of rolling an even number? An odd number?

Even: 2, 4, 6

Odd: 1, 3, 5

Learning Targets SMP 2, SMP 3, SMP 7

- Use words to describe the probability of an event.
- Use a number between 0 and 1 to describe the probability of an event.

DISCUSS IT

Ask: Why do some events have only one outcome and others have more than one outcome?

Share: An event will probably happen when ...

Model It

► Complete the problems about describing the likelihood of an event happening.

- 3 **Probability** describes how likely an event is to occur. One way to describe probabilities is to use words. *Certain* describes an event that will occur. *Impossible* describes an event that can never occur. *Likely* describes events that will probably, but not certainly, occur. Events that will probably not occur, but could, can be described as *unlikely*. And if an event is as likely to occur as not occur, it can be described as *equally likely as not*.

Suppose you roll a standard number cube. Give the possible outcomes, if any, for each event.

Event	Outcomes	Probability
rolling a 7	—	impossible
rolling a number less than 2	1	unlikely
rolling a prime number	2, 3, 5	equally likely as not
rolling a number greater than 1	2, 3, 4, 5, 6	likely
rolling an integer	1, 2, 3, 4, 5, 6	certain

DISCUSS IT

Ask: Why is rolling a 7 impossible?

Share: I think an event is certain when ...

- 4 **Reflect** Ben plays a card game with his foster mother. On his first turn, Ben selects one of the four animal cards shown below at random.



Name an event with each probability.

- Impossible *Select a dog card*
- Certain *Select an animal card*
- Equally likely as not *Select a big cat card*
- Unlikely *Select a goat card*