

Family Letter

Dear Student and Family Members,

We close our exciting year of mathematics by exploring probability. Probability tells you that it is very unlikely for you to win the grand prize in a state lottery. Suppose you have to pick six different numbers from 1 to 54. To win the grand prize, all six numbers must match those selected in a random drawing. The probability that you will win is only 1 in 25,827,165 or 0.00000004.

The probability that some event will happen can be described by a number between 0 and 1.

- A probability of 0 means that the event has no chance of happening. (So the probability of winning a state lottery is very close to 0.)
- A probability of 1 means that the event is certain to happen.
- A probability of $\frac{1}{2}$ or 50% means that the event is just as likely to happen as not to happen.

For example, if a weather forecaster says that the probability of rain tomorrow is 90%, it's probably a good idea to take your umbrella, although it might not rain after all. If the probability of rain is 10%, it is unlikely that it will rain.

In this chapter, you'll use mathematical reasoning to calculate probabilities in simple situations like tossing coins or drawing names from a hat. You will also do some experiments in which you actually toss coins or draw names and then compare the results with the calculated probabilities.

Vocabulary Along the way, you'll learn these new vocabulary terms:

equally likely

experimental probability
probability

simulation

theoretical probability

What can you do at home?

Look for situations in everyday life that involve probability, such as the chance of rain or the odds in sports games. You might encourage your student's exploration by playing games of chance together. Have your student teach you the games we play in class and ask him or her to describe what part probability plays in each game.

