

# Conducting a Probability Experiment

You may have noticed that different groups had different results for the Colors Spinner experiment. No one result is “more correct” than another. When you consider the whole class’s results, you get closer to what you might expect to happen.

- 1 If the whole spinner is 1, write a fraction estimate for the area of each color section. If you want, you may cut up the spinner to compare the pieces.

Green \_\_\_\_\_ Blue \_\_\_\_\_ Red \_\_\_\_\_ Yellow \_\_\_\_\_

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- 2 Write fractions that describe your class’s results for the probability experiment with the Colors Spinner.

Green \_\_\_\_\_ Blue \_\_\_\_\_ Red \_\_\_\_\_ Yellow \_\_\_\_\_

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- 3 Compare your answers to Problem 1 and Problem 2. How similar or different are they?

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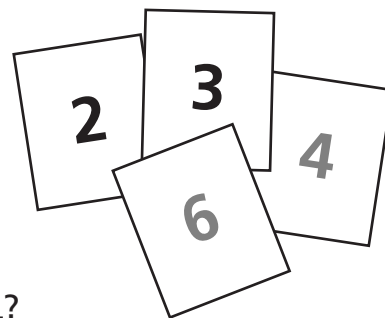
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# Finding Probabilities

**You will need to picture or make a deck of cards that consists of 25 cards numbered 0–25 with a red marker and 25 cards numbered 0–25 with a black marker.**



- 1 Suppose you draw a card at random from the deck. What is the probability that you will get \_\_\_\_\_? Write some events that might fit in that blank space, and then figure out the probability of getting that event. Some ideas are suggested below to get you started.

Events	Probability
1. A number greater than 19	1.
2. A red number	2.
3. A black odd number	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.

- 2 Think about performing a probability experiment using these cards. How many times do you think you would need to draw a card in order to get experimental results that are close to the probabilities you wrote in the table above? Explain why you chose that number.

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# Sampling Experiments

The sampling experiments described on LAB page 276 are sometimes called the Capture-Recapture method. This method is one way scientists estimate the size of populations of animals.

As an experiment, Jake used this method to estimate the number of children in his neighborhood. On Tuesday, after school, he spent a half hour watching all the children who entered the toy shop near his school. Forty-one children entered. Jake knew them all, and wrote down their names. On Wednesday, he went back to the toy shop at the same time, and watched again. About the same number of children entered the store in the half-hour that he watched, but only ten of them were on his list.

- 1 What estimate would you make, based on these numbers?

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- 2 Then Jake thought about it some more and decided his experiment might not be giving him reliable numbers. His first thought was that perhaps children who had gone one day might be less likely to go the very next day. If that is true, how should he change his estimate?

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- 3 Then he wondered if there were many children who simply **never** go to the toy store. If there are, how should that change his estimate of the number of children in his community?

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# Another Sampling Experiment

Below is some information about musical abilities for 20 fifth-grade students at one school.

Student	In band class	In chorus class	Can sing	Can play an instrument
Angelique	Yes	No	Yes	Yes
Brad	Yes	No	Yes	No
Craig	No	Yes	Yes	Yes
Dai	No	No	No	No
Enrique	Yes	No	Yes	Yes
Fiona	No	Yes	Yes	No
Gwen	Yes	No	No	Yes
Harry	No	Yes	Yes	Yes
Ian	No	No	Yes	No
Juanita	No	Yes	Yes	No
Karen	Yes	No	No	Yes
Lin	No	No	No	No
Mitch	Yes	No	Yes	Yes
Nancy	No	Yes	Yes	No
Ollie	No	Yes	Yes	Yes
Pat	Yes	No	No	Yes
Quentin	Yes	No	No	Yes
Revonda	No	Yes	Yes	No
Sari	No	Yes	No	No
Tosho	No	No	No	Yes

- 1 Ursula asked these 20 students whether they could play an instrument. Use the answers above to estimate what part of fifth-grade students in the school can play an instrument. Write your answer as a fraction, decimal, or percent.
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- 2 Victor only surveyed some of these 20 students, and he said that about  $\frac{7}{8}$  of the fifth-graders could play an instrument! Suggest a way in which Victor's sample could be *biased* toward playing an instrument.
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# Introducing Percents

1 Fill in the missing parts of this table.

	50%	25%	10%	75%	5%
1 hour	min	15 min	min	min	min
1 yd and 4 in.	in.	in.	4 in.	in.	in.
5 dollars	\$ .	\$ .	\$ .	\$ .	\$ .

2 To solve this one correctly, you may have to think hard about which entries to fill in first.

	10%	___ %	15%	___ %	___ %
\$25.00	\$ .	\$ .	\$ .	\$1.25	\$ .
___ min	6 sec	24 sec	sec	sec	sec
___ ft	1 ft	ft	in.	in.	$2\frac{1}{2}$ ft

# Circle Graphs

**Construct a circle graph to show the data below.  
Write a title for the graph and label each section.  
(You do not need to use a calculator.)**

Read 1 hr/day	Read 2 hrs/day	Read 3 hrs/day	Read 4 hrs/day	Read > 4 hrs/day
12	8	3	1	1

