If you want to make a prediction about a large group of people, you may wish to use a smaller group, or sample, from the larger group. The larger group from which you gathered your sample is known as the population. To make sure your information represents the population, the sample must be random, or drawn by chance from the population. You can then use the information from the sample to make a prediction about the larger population.

EXAMPLES

Kwame found that 20 of the 50 students he surveyed in the lunch line liked enchiladas the best.

A What is the probability that any student will like enchiladas the best?

20 out of 50, or \( \frac{2}{5} \), like enchiladas.

The probability is \( \frac{2}{5} \), or 40%.

B There are 520 students at Kwame’s middle school. Predict how many like enchiladas the best.

Use a proportion. Let \( s \) represent the number of students who like enchiladas. Remember 20 out of 50, or \( \frac{2}{5} \) of the students like enchiladas.

\[
\frac{2}{5} = \frac{s}{520}
\]

\[
1,040 = 5s \quad \text{Multiply to find the cross products.}
\]

\[
208 = s \quad \text{Divide each side by 5.}
\]

About 208 of 520 students probably like enchiladas.

Try These Together

Kwame found that 10 out of the 50 students liked hamburgers the best.

1. What is the probability that any student will like hamburgers the best?

Hint: Write a ratio.

2. Predict how many of the 520 students will like hamburgers the best.

Hint: Use a proportion.

PRACTICE

3. Recreation Carmelina conducted a survey to find out if students preferred in-line skating or skateboarding. 64 out of 80 students preferred in-line skating. There are 200 students at her school. Predict how many of them prefer in-line skating.

4. Standardized Test Practice A survey was conducted to find out if people preferred cheddar cheese or mozzarella cheese. 5 out of 20 people preferred cheddar cheese. What is the probability that any given person will prefer cheddar cheese?

A \( \frac{2}{5} \)  

B \( \frac{1}{5} \)  

C \( \frac{2}{3} \)  

D \( \frac{1}{4} \)