

## Lesson Summary

- *Categorical data* are data that take on values that are categories rather than numbers. Examples include male or female for the categorical variable of gender or the five superpower categories for the categorical variable of superpower qualities.
- A *two-way frequency table* is used to summarize bivariate categorical data.
- A *relative frequency* compares a frequency count to the total number of observations. It can be written as a decimal or percent. A two-way table summarizing the relative frequencies of each cell is called a *relative frequency table*.
- The marginal cells in a two-way relative frequency table are called the *marginal relative frequencies*, while the joint cells are called the *joint relative frequencies*.

1. Consider the Rufus King High School data from the previous lesson regarding after-school activities:

	Intramural Basketball	Chess Club	Jazz Band	Not Involved	Total
Males	20	2	8	10	40
Females	20	10	10	20	60
Total	40	12	18	30	100

Calculate the relative frequencies for each of the cells to the nearest thousandth. Place the relative frequencies in the cells of the following table. (The first cell has been completed as an example.)

	Intramural Basketball	Chess Club	Jazz Band	Not Involved	Total
Males	$\frac{20}{100} = 0.200$				
Females					
Total					

- Based on your relative frequency table, what is the relative frequency of students who indicated they play basketball?
- Based on your table, what is the relative frequency of males who play basketball?
- If a student were randomly selected from the students at the school, do you think the student selected would be a male or a female?
- If a student were selected at random from school, do you think this student would be involved in an after-school program? Explain your answer.
- Why might someone question whether or not the students who completed the survey were randomly selected? If the students completing the survey were randomly selected, what do the marginal relative frequencies possibly tell you about the school? Explain your answer.
- Why might females think they are more involved in after-school activities than males? Explain your answer.