

## BIVARIATE CATEGORICAL DATA

Bivariate data is data that has two variables based on the same population.

The results of an 9<sup>th</sup> grade survey about favorite color are below.

	Pink	Red	Blue	Purple	TOTAL
Boys	2	10	10	3	
Girls	8	2	3	7	
TOTAL					

1. Complete the table by finding totals for the rows and the columns.
2. How many students total were surveyed?  $n =$  \_\_\_\_\_
3. How many girls were surveyed? \_\_\_\_\_
4. What percent of girls preferred pink? \_\_\_\_\_
5. How many boys were surveyed? \_\_\_\_\_
6. What percent of boys preferred pink? \_\_\_\_\_
7. How many students preferred pink? \_\_\_\_\_
8. What percent of the students who preferred pink are girls? \_\_\_\_\_
9. What percent of the students who preferred pink are boys? \_\_\_\_\_
10. Compare the **questions** from problems 4 and 8. How are they different?
11. Compare your **answers** from problems 4 and 8. Why are they different?
12. The table above is called a two-way table. Explain what you think a two-way table is in your own words.

# CHORES AND CURFEWS

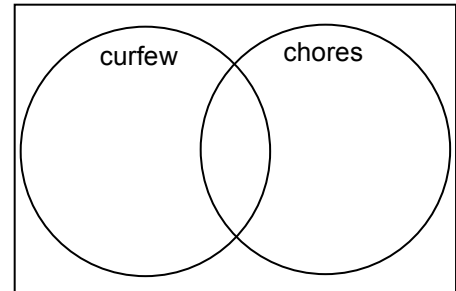
Ten different 10<sup>th</sup> graders were asked the following questions:

- Do you have a curfew?
- Are you assigned chores at home?

Data was collected on their responses and recorded in the table below.

	Students A through J									
	A	B	C	D	E	F	G	H	I	J
Curfew	Yes	No	No	Yes	Yes	No	Yes	No	No	Yes
Chores	Yes	No	Yes	Yes	No	No	Yes	Yes	No	Yes

1. Use the sections in the Venn diagram to record the number of students in each category. Be sure to include the number of students with neither chores nor curfew outside of the circles.



2. How many students were surveyed? \_\_\_\_\_  
This is called the number of observations ( $n$ ) or sample size for the survey.

3. How many students surveyed had chores? \_\_\_\_\_

4. How many students surveyed had a curfew? \_\_\_\_\_

5. What percent of students had both chores and a curfew? \_\_\_\_\_

6. What percent of students had neither chores nor a curfew? \_\_\_\_\_

7. What percent of students who had chores also had a curfew? \_\_\_\_\_

8. What percent of students who had a curfew also had chores? \_\_\_\_\_

9. Madhav thinks that most students have both a curfew and chores. Does the data support Madhav's claim? Explain.

# TWO-WAY FREQUENCY TABLES

A frequency table is a table that lists items and the number of times they occur in a data set.

A two-way frequency table is useful for displaying bivariate categorical data.

1. Use the data on the previous page to complete the table.

	Students with <b>Curfew</b>	Students with <b>No Curfew</b>	<b>TOTAL</b>
Students with <b>Chores</b>			
Students with <b>No Chores</b>			
<b>TOTAL</b>			

Based on this table:

2. Circle the number that indicates the sample size for the whole survey.

What percent of all students had chores? \_\_\_\_\_

3. Draw a square around the number that indicates the total number of students who had chores.

What percent of students who had chores also had a curfew? \_\_\_\_\_

4. Draw a triangle around the number that indicates the total number of students who did not have a curfew.

What percent of the students who did not have a curfew also did not have chores?  
\_\_\_\_\_

5. Draw a parallelogram around the number that indicates the total number of students who had a curfew.

What percent of students who had a curfew also had chores? \_\_\_\_\_

6. Raji thinks that most students who had chores were more likely to have a curfew. Does the data support Raji's claim? Explain.