USING BAR GRAPHS



The student is expected to represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stemand-leaf plots.

The student is expected to solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.

TELL ME MORE ...

A **bar graph** is a graphical display using bars of different lengths to represent the frequency of items, categories of items, or numbers.

The **title** gives information about the data being counted.

A bar graph organizes frequencies or counts of graphed data and allows for easy visual comparison of counted quantities.

When solving problems using a bar graph:

> Determine the interval or scale of the vertical axis.



- Determine the length of each bar using the vertical axis and its scale to count items represented by the bar.
- Use operations as necessary to compare quantities or to combine quantities.

EXAMPLES

EXAMPLE 1: Mrs. Mathis made a table of the number of 5th grade students with a birthday in each month. Represent these data using a bar graph.

Month	1	2	3	4	5	6	7	8	9	10	11	12
Number of Students	3	4	2	3	8	10	6	1	7	8	4	7

- **STEP 1** Plan the graph and determine the interval or scale for the vertical axis.
 - The horizontal axis is labeled with months.
 - The vertical axis is labeled with frequencies of the number of students, at least 0 through 10.
 - The title is "Birthdays by Month."

The vertical axis can be labeled with intervals of 2.



YOU TRY IT!

The local movie theatre conducted a survey to learn more about customers' movie preferences. The table shows some of the collected data.

Movie Type	People
Comedy	23
Action	28
Romance	16
Drama	12
Sci-Fi	20

Make a bar graph to represent the data.

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P2 Draw a bar for each month representing the frequency of student birthdays for each using the vertical axis scale.

The bar for month 1 goes to 3, halfway between 2 and 4. The bar for month 2 goes to 4. The bar for month 3 goes to 2. The remaining bars are drawn based on the values in the table.



EXAMPLE 2: The graph shows the average rainfall by month for a Texas city. How much combined rainfall did this city receive in the summer months, June, July, and August?



- **STEP 1** Identify the amount of rainfall for June, which is month 6. Note that the lines on the vertical axis increase by 0.2 inches and the numbers increase by 0.4 inches.
 - The city received 3.3 inches of rainfall in June.
- **STEP 2** Identify the amount of rainfall for July, which is month 7.

The city received 2.1 inches of rainfall in July.

STEP 3 Identify the amount of rainfall for August, which is month 8.

The city received 2.0 inches of rainfall in August.

STEP 4 Add the values to determine the combined rainfall for the three summer months.

3.3 + 2.1 + 2.0 = 7.4

The city received 7.4 inches of combined rainfall during the summer months.



Use the information below for questions 1 - 4.

Paula surveyed students in the cafeteria about favorite lunch offerings. The table shows the data she collected.

Lunch Choice	Number of Students
Pizza	24
Hamburgers	26
Fried Chicken	18
Meatloaf	10

- 1. When constructing a bar graph what labels belong along the horizontal axis?
- 2. What range of values will be shown on the vertical axis? What interval between numbers would be best to use for drawing vertical lines on the graph?
- **3.** When the data are plotted in a bar graph, what will be the length of each bar?
- **4.** Construct a bar graph to represent this data set.

5. The bar graph shows the frequency, in inches, of snowfall per month in a city over a 4-month period. How many inches of snow did the city get in the 4-month period?



Month

Use the information below for questions 6 - 7.



Type of Vehicle

- **6.** How many vehicles are in each parking lot?
- **7.** How many more sports cars or 4-door cars are found in the shopping center lot than trucks and vans in the building supply lot?

8. The graph shows the numbers of girls and boys participating in track meet events. The bar for girls' hurdles has been omitted.



If the number of girls in the hurdles is $\frac{3}{4}$ the number of boys in the 4×4 relay, to what number should the bar be drawn that represents the girls' hurdles?

9. The bar graph shows the results of number cube rolls during a game. How many more prime numbers were rolled than composite numbers?



Number Rolled Frequencies

10. The graph shows after-school activities students report doing most often. How many students spend time in an after school activity other than homework?



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After School Activities

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11. The table shows the number of newspapers sold at a street newsstand each day in a week.

	Newspaper Sales														
Day	1	2	3	4	5	6	7								
Papers Sold	23	34	20	39	16	45	28								

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Which bar graph represents these data?







Newspaper Sales



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