

6.4 Lesson

Key Idea

Data Display

Bar Graph

What does it do?

shows data in specific categories



Circle Graph

shows data as parts of a whole



Histogram

shows frequencies of data values in intervals of the same size



Stem-and-Leaf Plot

orders numerical data and shows how they are distributed



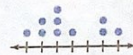
Box-and-Whisker Plot

shows the variability of a data set by using quartiles



Dot Plot

shows the number of times each value occurs in a data set



Example 1 Creating an Appropriate Data Display

5
MTR

RELATE CONCEPTS

Explain how a stem-and-leaf plot shows the variability of a data set.

The spreadsheet shows the lengths of 12 phone calls. Create an appropriate display to represent the data.

There are several displays you can use to represent the data. One is a stem-and-leaf plot.

Step 1: Order the data.

2, 3, 5, 6, 10, 14, 18, 23, 23, 30, 36, 55

Step 2: Choose the stems and the leaves. Because the data values range from 2 to 55, use the *tens* digits for the stems and the *ones* digits for the leaves.

	A
1	MINUTES
2	55
3	3
4	6
5	14
6	18
7	5
8	23
9	30
10	23
11	10
12	2
13	36

Phone Call Lengths

Stem	Leaf
0	2 3 5 6
1	0 4 8
2	3 3
3	0 6
4	
5	5

Order the stems vertically. The stem for data values less than 10 is 0.

Write the leaves horizontally.

Include stems without leaves.

Key: 1 | 4 = 14 minutes

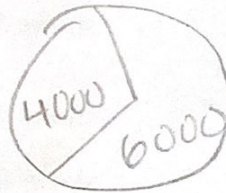


Try It

Male	Female
6000	4000

1. The table shows estimated population data for Liberty County, Florida, in 2030. Create an appropriate display to represent the data.

circle graph



since there are only 2 categories

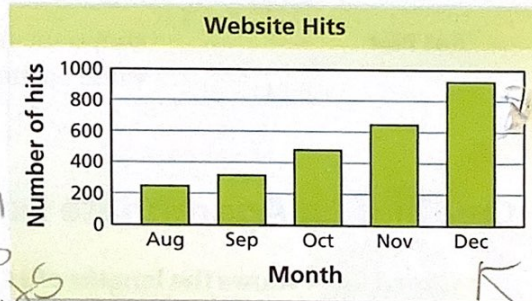
Example 2 Identifying an Appropriate Data Display

You record the number of hits for your school's new website for 5 months. Tell whether each data display is appropriate for representing how the number of hits changed during the 5 months. Explain your reasoning.



Month	Hits
August	250
September	320
October	485
November	650
December	925

a.

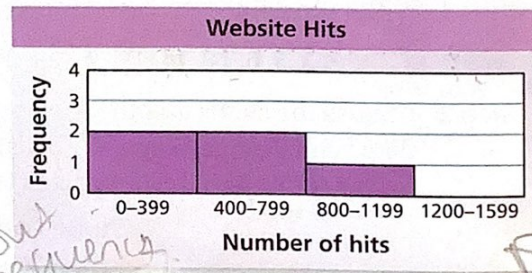


has # hits

has months

▶ The bar graph shows the number of hits for each month. So, it is an appropriate data display.

b.



no months and the data says nothing about frequency

has # hits

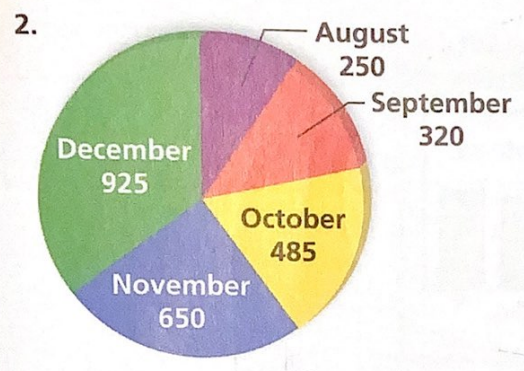
▶ The histogram does not show the number of hits for each month or how the number of hits changes over time. So, it is *not* an appropriate data display.

The bar graph is the best display.

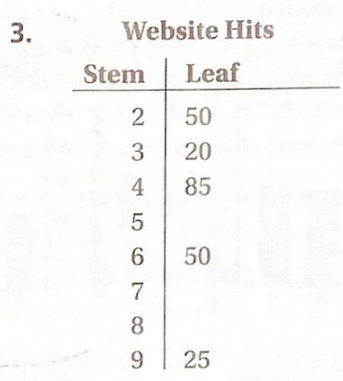


Try It

Tell whether the data display is appropriate for representing the data in Example 2. Explain your reasoning.



yes the circle graph shows the # of hits for each month

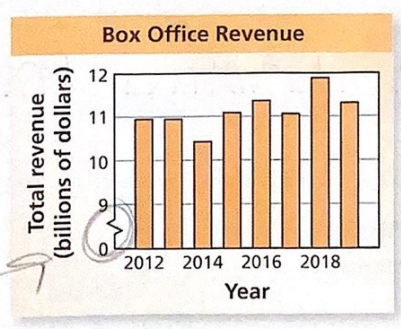


Key: 3 | 20 = 320 hits

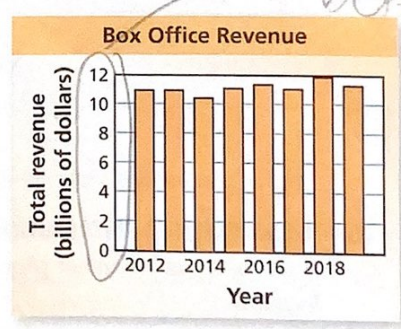
no the stem and leaf doesn't show the months

Example 3 Identifying a Misleading Data Display

Which bar graph is misleading? Explain.



not accurate



evenly spaced better display

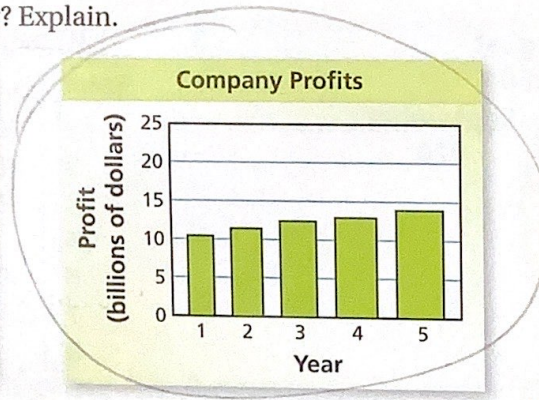
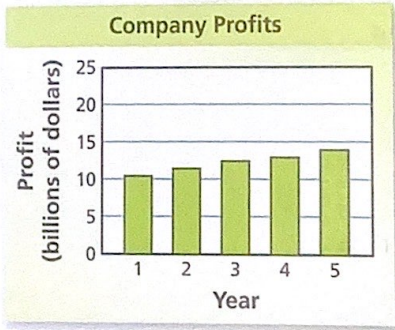
The vertical axis of the bar graph on the left has a break (↗) and begins at 9. This graph makes it appear that the total revenue fluctuated drastically from 2012 to 2019. The graph on the right has an unbroken axis. It is more honest and shows that the total revenue changed much less from 2012 to 2019.

► So, the graph on the left is misleading.



Try It

4. Which bar graph is misleading? Explain.



the bars become wider

In-Class Practice

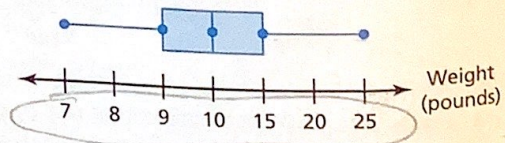
- 1 I don't understand yet.
- 2 I can do it with help.
- 3 I can do it on my own.
- 4 I can teach someone else.

Instrument	Percent
Woodwind	6
Brass	9
Percussion	4
String	1

5. **CREATING A DATA DISPLAY** The table shows the numbers of band students playing different types of instruments. Create an appropriate display to represent the data.

circle graph is a good display for %

6. **IDENTIFYING A MISLEADING DISPLAY**
Is the box-and-whisker plot misleading? Explain.



yes misleading
the #s are in a random order