

9.4 Choosing a Data Display

This is the **LAST** lesson

I will teach you!

**Congratulations on your Middle
School Math Career!**

9.4 Choosing a Data Display

Learning Targets

- Choose an Appropriate Data Display
Based on the data
Given Display Choices
- Identify a Misleading Data Display
- Analyze a Misleading Display

Key Idea

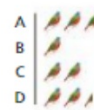
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Data Display

What does it do?

Pictograph

shows data using pictures



Bar Graph

shows data in specific categories



Circle Graph

shows data as parts of a whole



Line Graph

shows how data change over time



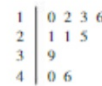
Histogram

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



Scatter Plot

shows the relationship between two data sets by using ordered pairs in a coordinate plane



Choose an Appropriate Data Display

Choose an appropriate data display for the situation. Explain your reasoning.

- a. the number of students in a marching band each year

••• A line graph shows change over time. So, a line graph is an appropriate data display.

- b. a comparison of people's shoe sizes and their heights

••• You want to compare two different data sets. So, a scatter plot is an appropriate data display.

You conduct a survey at your school about insects that students fear the most. Choose an appropriate data display. Explain your reasoning.

Pictograph: count using pictures of each insect
Pie Chart: show the % in each category

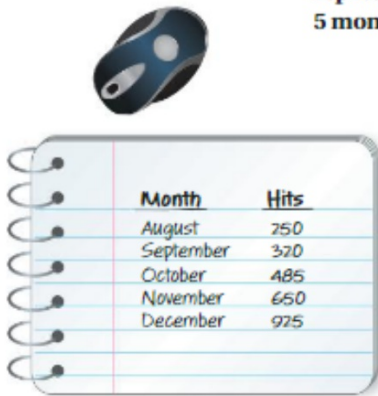
1. the population of the United States divided into age groups

Sample answer: histogram;
shows frequencies of ages
(data values) in intervals
of the same size

2. the percents of students in your school who play basketball, football, soccer, or lacrosse

EXAMPLE 2 Identifying an Appropriate Data Display

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



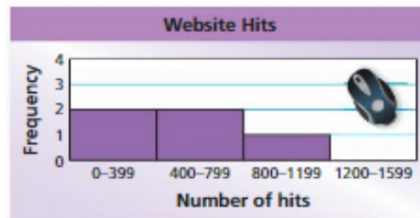
Month	Hits
August	250
September	320
October	485
November	650
December	925

a.



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

b.



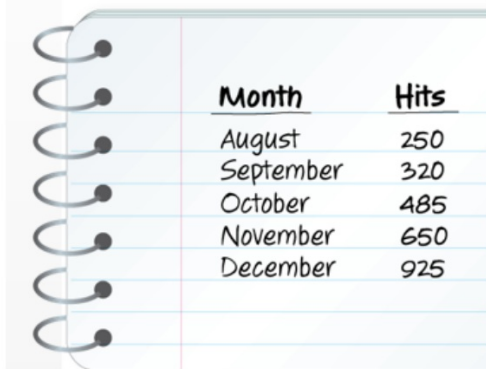
❖ The histogram does not show the number of hits for each month or how the number of hits changes over time. So, it is *not* an appropriate data display.

c.



- ❖ The line graph shows how the number of hits changes over time. So, it is an appropriate data display.

Choose an Appropriate Data Display



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

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

a. pictograph

b. scatter plot

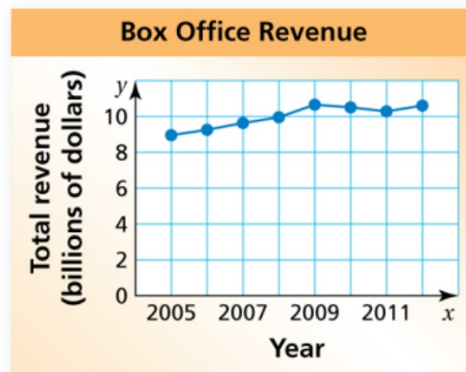
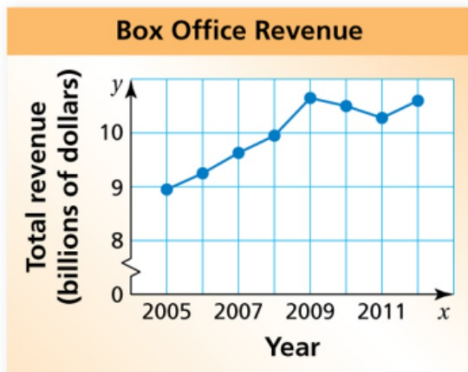
3. dot plot

4. circle graph

5. stem-and-leaf plot

Identifying a Misleading Data Display

Which line graph is misleading? Explain.

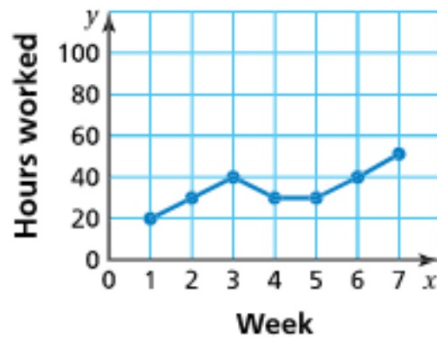
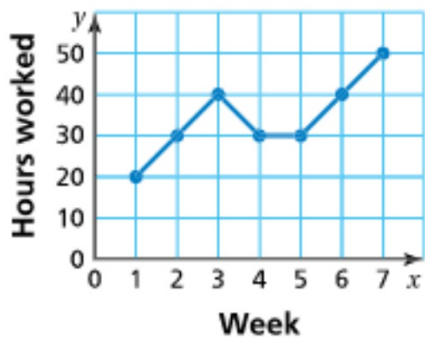


The vertical axis of the line graph on the left has a break (↯) and begins at 8. This graph makes it appear that the total revenue increased rapidly from 2005 to 2009. The graph on the right has an unbroken axis. It is more honest and shows that the total revenue increased slowly.

❖ So, the graph on the left is misleading.

Identifying a Misleading Data Display

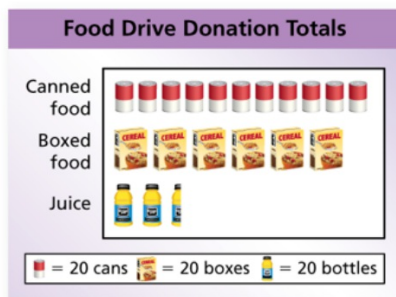
Which line graph is misleading? Explain.



The second: The y-scale makes the change from week to week appear smaller.



Analyzing a Misleading Data Display



A volunteer concludes that the numbers of cans of food and boxes of food donated were about the same. Is this conclusion accurate? Explain.

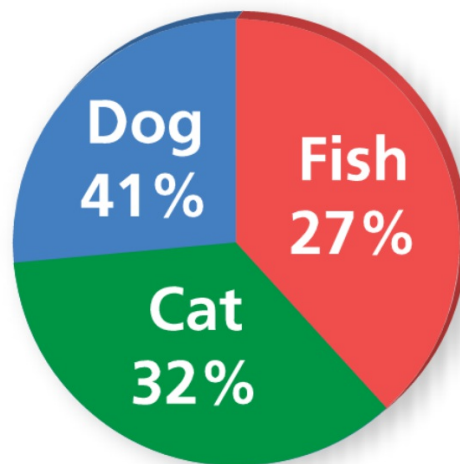
Each icon represents the same number of items. Because the box icon is larger than the can icon, it looks like the number of boxes is about the same as the number of cans. But the number of boxes is actually about half of the number of cans.

❖ So, the conclusion is not accurate.

Analyzing a Misleading Data Display

Explain why the data display is misleading.

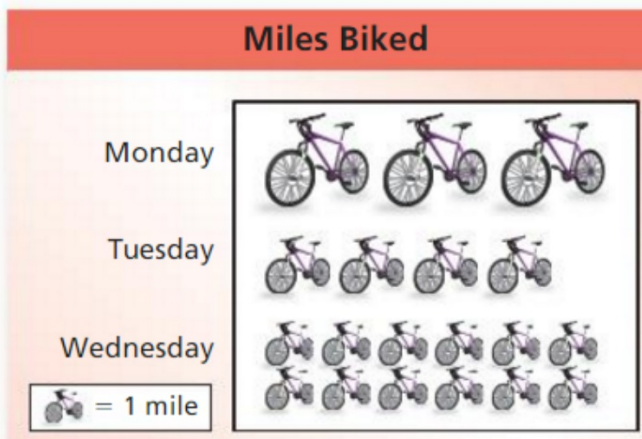
Favorite Pets



Analyzing a Misleading Data Display

Explain why the data display is misleading.

6.



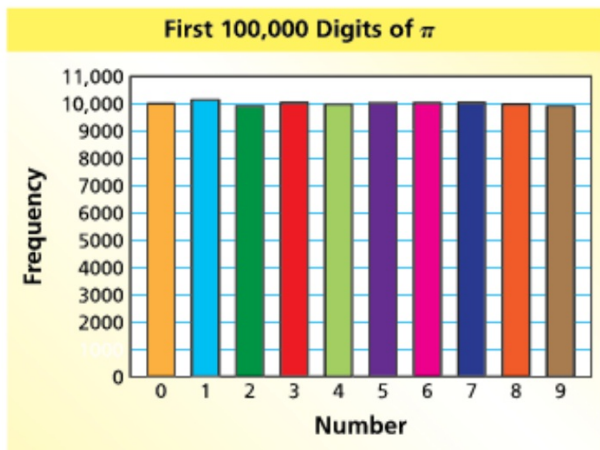
7.



Which Display is more Appropriate?

Number	0	1	2	3	4	5	6	7	8	9
Frequency	9999	10,137	9908	10,025	9971	10,026	10,029	10,025	9978	9902

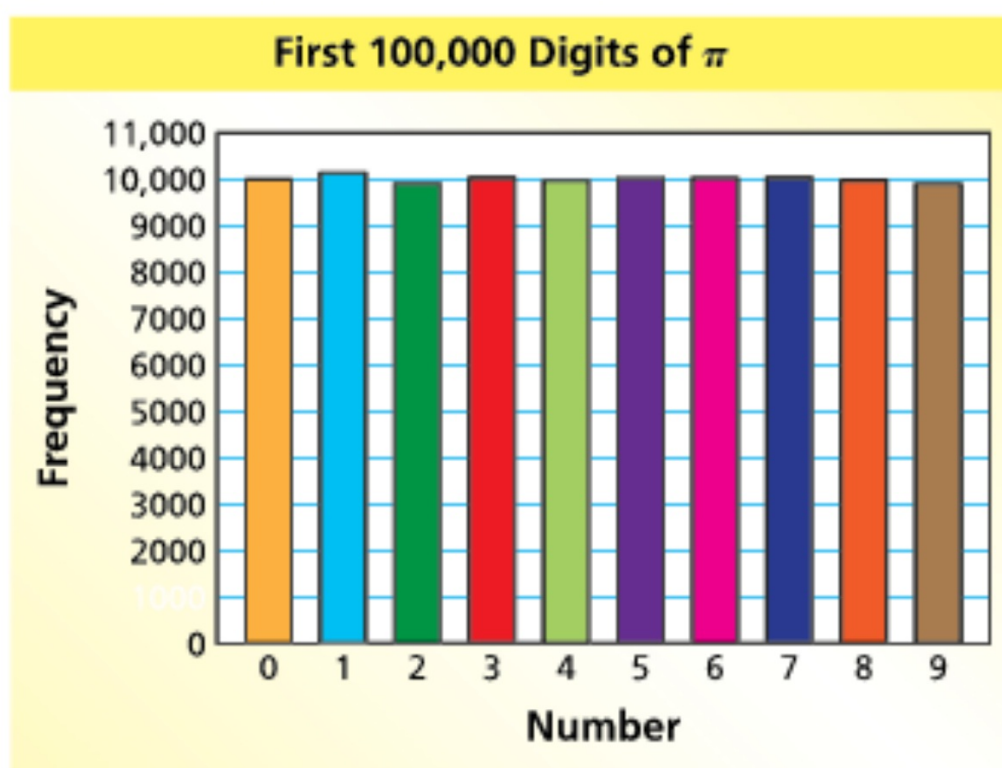
Frequency of each number 0-9 in the first 100,000 digits of pi.



Number	0	1	2	3	4	5	6	7	8	9
Frequency	9999	10,137	9908	10,025	9971	10,026	10,029	10,025	9978	9902



Number	0	1	2	3	4	5	6	7	8	9
Frequency	9999	10,137	9908	10,025	9971	10,026	10,029	10,025	9978	9902



Homework:
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