IM 9–12 MATH v.1

Unit 1
One-variable Statistics

ALGEBRA 1

Lesson 3

A Gallery of Data

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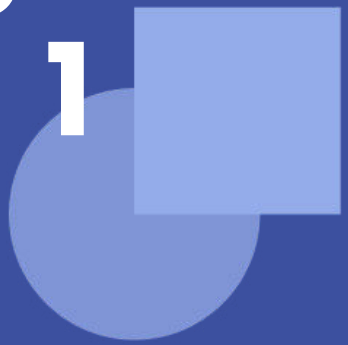
Kendall Hunt

Learning Goal

Let's make, compare, and interpret data displays.

Algebra 1

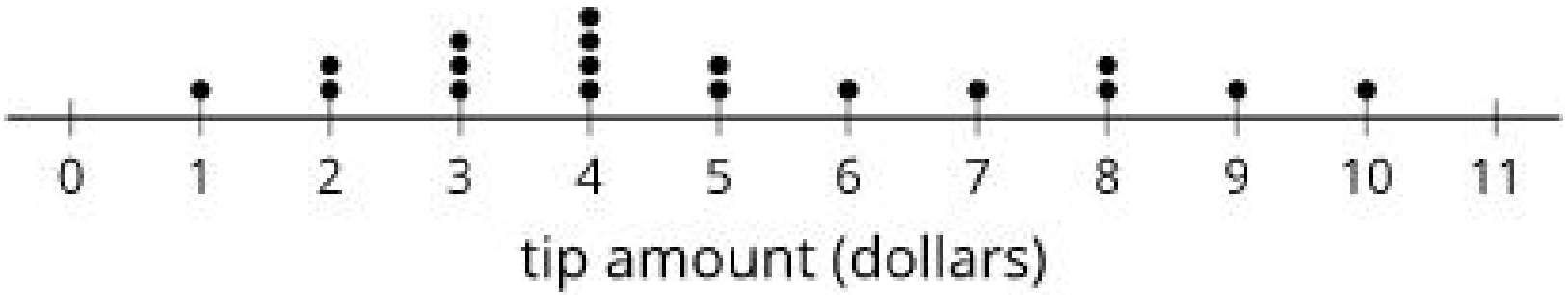


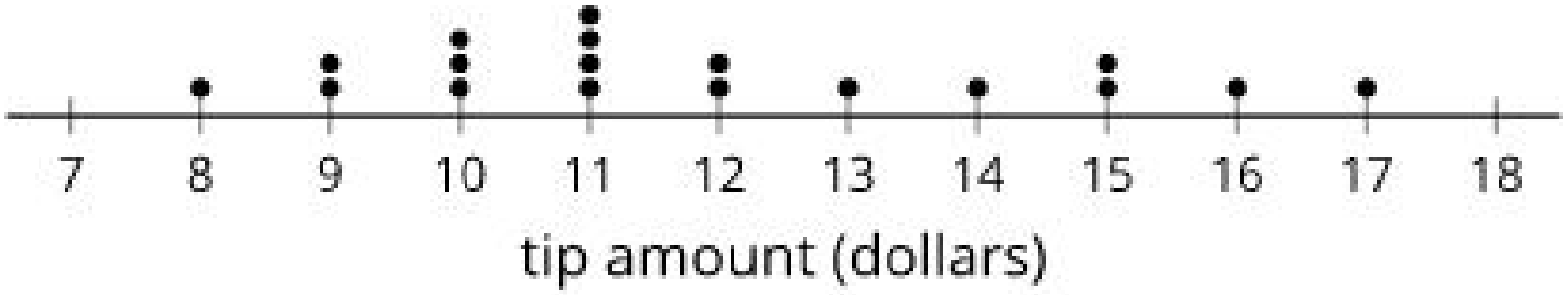
Dot Plots

Warm-up: Notice and Wonder

The dot plots represent the distribution of the amount of tips, in dollars, left at 2 different restaurants on the same night.

What do you notice? What do you wonder?





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Data Display

Your teacher will assign your group a statistical question. As a group:

1. Create a dot plot, histogram, and box plot to display the distribution of the data.
2. Write 3 comments that interpret the data.

As you visit each display, write a sentence or two summarizing the information in the display.

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Data Display

- What are some ways you summarized the information in the display?
- If you collected data from all the students in the school, instead of just your classmates, which would you rather create, a dot plot or a box plot? Why?
- What is the shape of the distribution in your dot plot?
- What information is displayed by the dot plot that is not displayed by the box plot
- What information is displayed by the box plot that is not displayed by the dot plot?

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A Gallery of Data

Lesson Synthesis

- When you look at the two data displays you made, what information jumps out at you?
- What are some contexts that you have seen dot plots, box plots, or histograms outside of this class?
- What do you understand about data displays?

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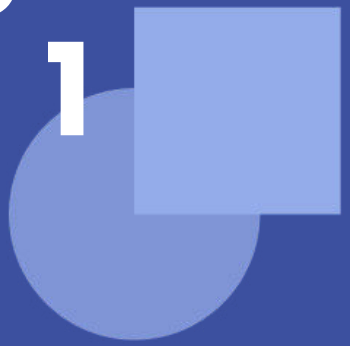
I can graphically represent the data I collected and critique the representations of others.

Learning Targets

Algebra 1



Why Graphical Representations?

Cool-down

A large school system summarizes the number of teachers at 51 schools in the area.

20–30	5
30–40	7
40–50	5
50–60	6
60–70	6
70–80	4
80–90	2
90–100	7
100–110	8
110–120	1

minimum: 20 teachers

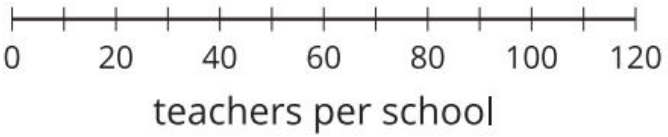
maximum: 110 teachers

median: 65 teachers

Q1: 40

Q3: 95

1. Create a box plot that shows this information.



2. Create a histogram that shows this information.

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categorical data

Categorical data are data where the values are categories. For example, the breeds of 10 different dogs are categorical data. Another example is the colors of 100 different flowers.

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distribution

For a numerical or categorical data set, the distribution tells you how many of each value or each category there are in the data set.

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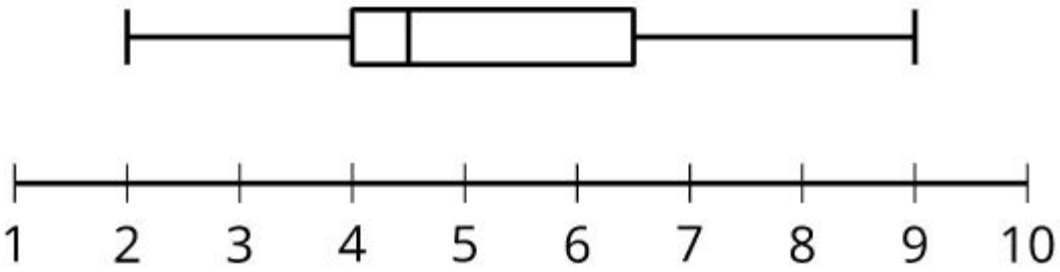
five-number summary

The five-number summary of a data set consists of the minimum, the three quartiles, and the maximum. It is often indicated by a box plot like the one shown, where the minimum is 2, the three quartiles are 4, 4.5, and 6.5, and the maximum is 9.



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non-statistical question

A non-statistical question is a question which can be answered by a specific measurement or procedure where no variability is anticipated, for example:

- How high is that building?
- If I run at 2 meters per second, how long will it take me to run 100 meters?

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numerical data

Numerical data, also called measurement or quantitative data, are data where the values are numbers, measurements, or quantities. For example, the weights of 10 different dogs are numerical data.

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statistical question

A statistical question is a question that can only be answered by using data and where we expect the data to have variability, for example:

- Who is the most popular musical artist at your school?
- When do students in your class typically eat dinner?
- Which classroom in your school has the most books?

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