



How to support your student as they learn about One-Variable Statistics

Mathematics is a connected set of ideas, and your student knows a lot. Encourage them to use the mathematics they already know when encountering new concepts in this topic.

Where are we?



In this MATHbook topic, students begin by representing data in dot plots, histograms, and box-and-whisker plots. Students are introduced to more formal notation for mean. By the end of the topic, students know when and how to describe a data set with mean and standard deviation vs. median and IQR. The final lesson provides students with opportunities to practice comparing two data sets and making decisions.

Where have we been?

Students represented data using various data displays. They described the shape of the graph in terms of symmetry and skew. They calculated the mean and median to represent the central tendency of a data set, the interquartile range, and mean absolute deviation to represent the spread of the data.

Where are we going?

This topic prepares students for the use of the standard normal distribution for calculating the likelihood of a specific outcome, which leads students to significance test, margin of error, and confidence intervals.



Encourage your students to work through the sequence of MATHia assigned to them. These workspaces deepen their understanding and provide practice with the concepts of **One-Variable Statistics**.

Graphically Representing Data

- Created Frequency Plots
- Describing Data Sets

Comparing Data Sets

- Comparing and Interpreting Measures of Center
- Comparing Data Sets Using Center and Spread

Comparing Measures of Center and Spread

- Determining Appropriate Measures
- Measuring the Effects of Changing Data Sets
- Creating Box Plots and Identifying Outliers
- Calculating Standard Deviation



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How to support your student as they learn

MATH MYTH

Some people are “right-brain” learners while others are “left-brain” learners.

As you may know, the brain divides into left and right hemispheres. Some people assign dominant modes of thinking to the sides of the brain. They consider a person that is more intuitive, creative, and imaginative as “right-brained”, and more logical, verbal, and mathematical thinkers as “left-brained.”

The brain also breaks down into lobes. The occipital lobe, located in the back of the brain, is responsible for processing visual information. The temporal lobes, which sit above your ears, process language and sensory information. A band across the top of your head, the parietal lobe, controls movement. Finally, the frontal lobe is where planning and learning occurs. Another way to think about the brain is from the back to the front, where information goes from highly concrete to abstract.

The brain is a highly interconnected organ. We don't claim that some people are “back brain thinkers” while others are “frontal thinkers.” Each lobe hands-off information to be processed by other lobes, and they are constantly talking to each other. All of us are whole-brain thinkers!

#mathmythbusted

Talking Points

Discuss With Your Student

Your student is learning about one- variable statistics. You can further support your student’s learning by asking questions about the work they do in class or at home.

Questions to Ask

- 1 *How does this problem look like something you did in class?*

- 2 *Can you show me the strategy you used to solve this problem? Do you know another way to solve it?*

- 3 *Does your answer make sense? How do you know?*

- 4 *Is there anything you don't understand? How can you use today's lesson to help?*



KEY TERMS

interquartile range

The interquartile range, IQR, measures how far the data are spread out from the median. You calculate it by subtracting $Q3 - Q1$ in the five-number summary.

outlier

An outlier is a data value that is significantly greater or lesser than other data values in a data set.

standard deviation

Standard deviation is a measure of how spread out data are from the mean.



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