

Veggie-Tables

Middle school students Jennifer and Lucas Harris's 200-acre family farm has grown traditional crops such as corn and wheat for four generations. Both siblings are interested in business and feel the farm could prosper if they added a few modern touches, like growing organic and exotic crops. Their parents are willing to try out these new ideas, but they don't want to "bet the farm" on a total makeover. They put Lucas and Jennifer in charge of ten acres to see how successful the siblings are on a more limited scale.

The first step for the siblings is to select the crops they want to grow. "How about sweet potatoes on an acre or two?" wondered Jennifer. "They're high in vitamins A and C, so I'll bet we can convince Bertie's Baked Potato Bar to buy from us. I wonder what type of seed would give us the largest crop per acre."

Lucas surveyed local farmers and found that they had varying degrees of success with two different varieties: Tuber-ific and Terrific Taters.



WORK THE MATH

Use separate paper to show your work.

Sweet Potato Variety	Tons per Acre Harvested by Farm
Tuber-ific	3, 19, 11, 34, 6, 11, 27
Terrific Taters	8, 22, 16, 3, 16, 42, 0, 18

1. Prepare a **table** for each variety of sweet potato showing tons per acre in ascending order.
2. Calculate the **range** for each variety.

NOW TRY THIS:

Suppose three more farms reported results for the Tuber-ific variety:

Sweet Potato Variety	Tons per Acre Harvested by Farm
Tuber-ific	34, 27, 0

How would the range change after considering the additional results?

DEFINITIONS:

- **Ascending:** Arranged from least to greatest
- **Range:** The difference between the lowest and highest values

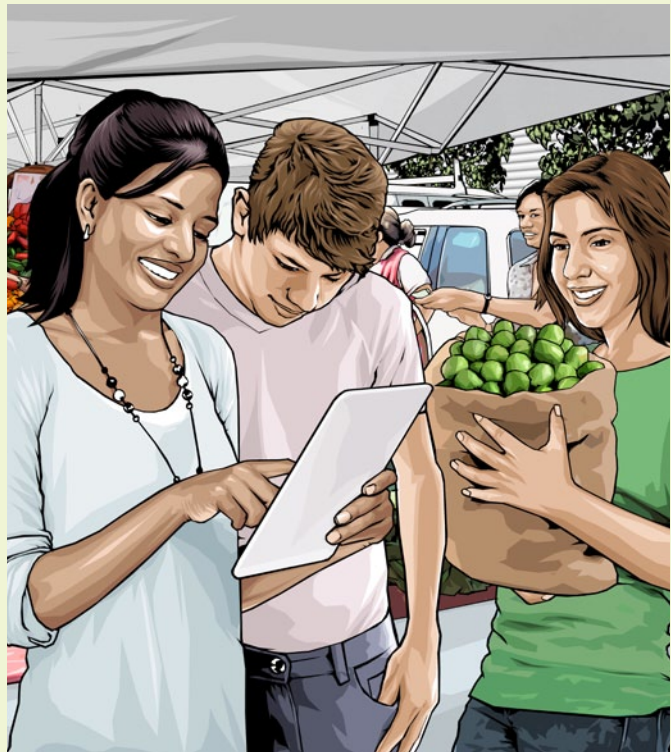


Those Are Some Mean Brussels Sprouts!

Business has been good at the local farmers' market, and Jennifer and Lucas have been thinking about planting a crop for fall harvest. "What about Brussels sprouts?" exclaimed Jennifer. "I hear that Brussels sprouts flambé is the best-selling appetizer at that swanky restaurant Le Trend Magnifique. All we have to do is pick the right variety."

The siblings collected data from different area farmers who grew Brussels sprouts last season. "Some farms did well with some varieties and others didn't do so well," lamented Lucas. "How can we make the right choice?"

"Pardon me for eavesdropping, but did you ever hear of measures of central tendency?" asked Priya, one of the siblings' best customers at the farmers' market. "I'm an actuary," she explained. "Among other things, I help businesses analyze data to make good decisions." She set out to teach them how to figure out the "typical" crop yield by considering mean, median, and mode.



WORK THE MATH

Use separate paper to show your work.

Brussels Sprouts Variety	Yield per Acre (in Pounds)
Belgian Boy	200; 0; 1,200; 1,595; 800; 200; 1,500
Green Goddess	700; 1,200; 900; 850; 1,600; 400; 900; 450
Jade Giant	500; 200; 2,600; 1,200; 500; 1,200; 300; 700

1. Calculate **mean, median, mode**, and **range** for each variety of Brussels sprouts.
2. Which variety of Brussels sprouts do you suggest Lucas and Jennifer select? Explain your thinking.

NOW TRY THIS:

Assume an eighth farm reports results for Belgian Boy. If the mean moved up to 800, how many pounds of Brussels sprouts did this farm yield?



Stuck in the Middle

The growing season was coming to a successful end, and Jennifer and Lucas were already starting to plan for next year. “We did this well with ten acres this year—imagine how much better we’ll do if Mom and Dad let us manage additional acreage next year,” said Jennifer enthusiastically. They were getting ready to present their budding business’s first-year results to their parents and wanted to focus on the success of their Internet sales. “We should use this year’s sales to project next year’s results.”

They made a table showing weekly sales for their exotic vegetables, but after they calculated mean, median, and mode sales, they discovered that the results weren’t always easy to interpret. Sometimes, what seemed to be the most successful product using the mean wasn’t the best when the median was calculated.



WORK THE MATH

Use separate paper to show your work.

Weekly Internet Sales

Vegetable	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Daikon Radishes	\$250	\$300	\$200	\$250	\$275	\$225
Sweet Potatoes	\$300	\$450	\$500	\$100	\$500	\$250
Baby Arugula	\$75	\$425	\$125	\$475	\$550	\$600
Heirloom Rutabagas	\$100	\$100	\$100	\$1,200	\$100	\$200

1. Calculate the **mean**, **median**, and **mode** for each vegetable.
2. In week 4, celebrity chef Wunderbar (no last name needed!) hosted a once-in-a-lifetime Rutabaga Fest, a celebration of everything rutabaga, at his exclusive restaurant. He ordered \$1,200 worth of heirloom rutabagas from the farm. Knowing this, would you use the mean, median, or mode to report typical heirloom rutabaga sales for the farm? Explain your thinking.
3. If the farm were to focus on two vegetables next year, what would you suggest? Explain your thinking.

NOW TRY THIS:

Calculate the **range** for sweet potatoes and heirloom rutabagas. What does the difference in the ranges indicate?

