More Rutabagas, Please!

Middle school students Jennifer and Lucas Harris's 200-acre family farm has grown traditional crops such as corn and wheat for four generations. The siblings are both 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, and put Lucas and Jennifer in charge of ten acres to see how successful they are on a more limited scale.

One of their first steps is to introduce themselves and their excellent produce to local chefs. They make a positive impression on celebrity chef Wunderbar, owner of Le Trend Magnifique, the hottest restaurant in town. "Your rutabagas are *très magnifique*!" he exclaimed. "I will place an order with you daily, so they are at the peak of freshness!"

Jennifer and Lucas receive good publicity from Wunderbar, but his orders are hard to predict. Jennifer created a table (below) to show the rutabagas he ordered each day for four weeks.

WORK THE MATH

Use separate paper to show your work.

Pounds of Rutabagas Ordered by Chef Wunderbar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
4	8	0	1	12	16	20
7	0	0	6	18	20	20
5	9	2	10	5	18	16
8	12	3	16	18	20	20

1. Prepare a **line plot** to display chef Wunderbar's orders for the past 4 weeks.
2. Use the line plot to calculate the **median**, **mode**, and **range** for the data.

NOW TRY THIS:

Using the information in the above table and the line plot you prepared, explain why the mode would be much higher than the mean or median order.

Love Those Leafy Greens!

After operating their farm business for a month, Jennifer and Lucas would like to show their parents how well their farmers' market stand has done. One indicator of success is the number of customers who flock to their produce each day, especially for their fresh greens. They prepared the chart below to display data on the number of customers they served each day for the past month.

"I know the table is accurate, but I'm not sure it tells the whole story," worried Jennifer. She and Lucas were discussing what they might do to make the data more informative as well as professional.

Clarence, the proprietor of the Prince o' Popcorn stand at the market, happened to be strolling by at just that moment. "Kids," he said, as he brushed a few stray kernels from his overalls, "I may not know much about leafy greens, but I do know how to present data. I suggest you use a stem-and-leaf plot. It will keep your data organized, and you and your parents will be able to draw conclusions about the typical number of customers you see each day." Lucas, Jennifer, and Clarence got to work.

WORK THE MATH

Use separate paper to show your work.

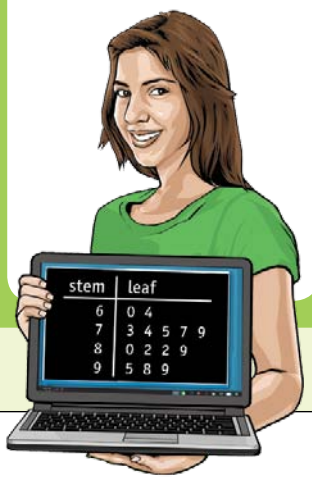
Daily Customers for One Month

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	24	34	24	37	52	56
48	45	40	49	50	55	50
52	46	42	36	54	60	62
50	47	49	50	52	50	60
54	50	56				

1. Prepare a **stem-and-leaf plot** to display data on customers seen during the month.
2. Use the plot to calculate the median, mode, and range.

NOW TRY THIS:

Do you think the median and mode you calculated are representative of the typical number of customers seen each day? Explain your thinking.



Box It Up!

As Lucas and Jennifer closed up shop at the end of the growing season, they started thinking again about next year at the farmers' market. "We have to collect and display our data to show to Mom and Dad," said Lucas. "If we can show them that we did a good job, maybe they'll give us more acres to manage next year," added Jennifer. The siblings kept track of the five vegetables they focused on this past year in the chart below.

"There's no way to make sense out of these numbers!" cried Lucas. "Mom and Dad will think we don't know what we're doing." Just then, the scent of burnt caramel and sea salt wafted into their stand. Clarence said, "I just stopped by to say so long for the season. Looks like you young 'uns have another display problem." Clarence patiently led them through the process of making box-and-whisker plots with their data. Clarence noted, "Not only can you easily find the minimum, maximum, and median sales by week, but you will also know the first and third quartile sales."

WORK THE MATH

Use separate paper to show your work.

Weekly Sales

Crop	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
Daikon Radishes	$100	$400	$700	$300	$500	$200	$450	$150	$400	$600	$200
Sweet Potatoes	$0	$400	$0	$350	$700	$300	$700	$300	$800	$600	$350
Baby Arugula	$100	$400	$0	$400	$1,000	$200	$500	$100	$500	$400	$0
Heirloom Rutabagas	$300	$500	$200	$400	$100	$300	$600	$300	$400	$200	$500
Brussels Sprouts	$450	$600	$450	$600	$300	$500	$0	$500	$700	$600	$300

1. Prepare a **box-and-whisker plot** for each vegetable.
2. If the farm were to focus on two vegetables next year, what would you suggest? Explain your thinking.

NOW TRY THIS:

Select two of the vegetables and prepare a stem-and-leaf plot. Which representation of the data provides better information, the stem-and-leaf plot or the box-and-whisker plot? Explain your thinking.