

Activity 7: The Weather Report

PURPOSE Apply the concepts of data analysis, evaluate statements based on data, and analyze the advantages and disadvantages of using different displays of data.

MATERIALS A calculator and graph paper

GROUPING Work individually or in pairs.

Normal Daily Temperature for Some U.S. Cities

Based on the Period 1950–1980

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Los Angeles, CA	56	57	57	60	62	66	69	70	70	66	61	57
San Francisco, CA	49	52	53	55	58	61	62	63	64	61	55	49
Wichita, KS	30	35	44	56	66	76	81	80	71	59	44	34
Portland, ME	22	23	32	43	53	62	68	67	59	48	38	26
Portland, OR	39	43	46	50	57	63	68	67	63	54	46	41
Charlotte, NC	41	43	50	60	68	75	79	78	72	61	51	43
Seattle, WA	39	43	44	49	55	60	65	64	60	53	45	41
Spokane, WA	26	32	38	46	54	62	70	69	59	48	35	29

SOURCE: U.S. National Oceanic and Atmospheric Administration.

- Construct a stem-and-leaf plot for the weather data given for San Francisco and Wichita.

San Francisco

4
5
6

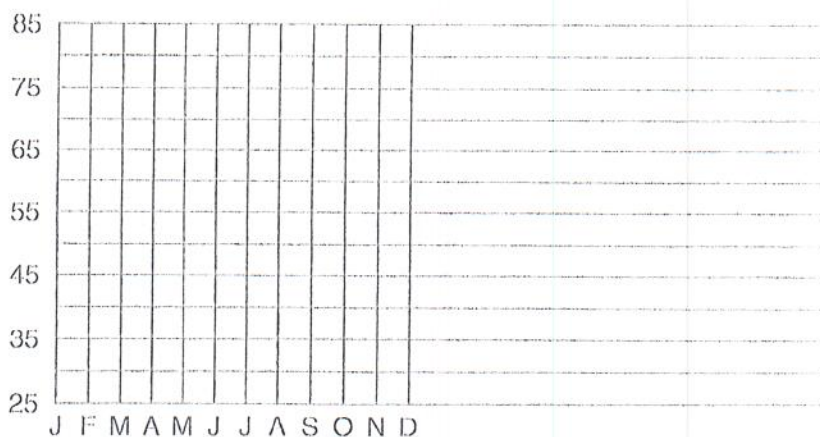
Wichita

2
3
4
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6
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8

2. Compute the mean, median, and mode for the data given for San Francisco and Wichita.

	San Francisco	Wichita
Mean		
Median		
Mode		

3. Construct line graphs for the temperatures for San Francisco and Wichita on the grid below.



4. Using the scale on the grid above, construct vertical box-and-whisker plots for the temperatures for San Francisco and Wichita to the right of the line graphs.
5. Draw a horizontal line through the graphs to show the median for each set of data.
6. For how many months of the year is the temperature in Wichita within the range of the temperatures in San Francisco?

7. Which display of data can most easily be used to answer Exercise 6? Explain why or why not for each display.

8. The Wichita Chamber of Commerce could advertise that “the average annual temperature in Wichita is the same as that in *balmy* San Francisco.” Evaluate this claim on the basis of the actual temperature data.

9. The mean and median annual temperatures for these two cities are nearly the same. Compare how accurately the mean and the median describe the climate in each city.

10. What other information do you need in addition to the medians or means to accurately describe the annual temperatures?

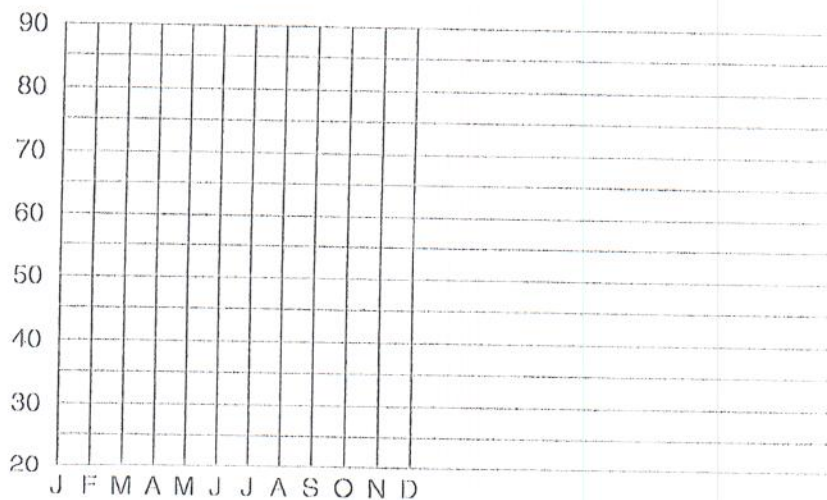
11. Find the latitude of Wichita: _____; and of San Francisco: _____.
Which city is farther north?

12. If the difference in latitude is not significant, explain how the geographical location of each city affects its annual temperature.

13. Construct a back-to-back stem-and-leaf plot for Portland, ME, and Portland, OR.

Portland, ME		Portland, OR
	2	
	3	
	4	
	5	
	6	
	7	
	8	

14. On the grid below, construct line graphs and accompanying vertical box-and-whisker plots for the weather data for the two cities. Then draw the median lines. Explore questions similar to Exercises 6–12 for these two sets of data.



15. Choose other pairs of cities from the table and construct various displays for the weather data. Explore similarities and differences in the data. Determine the latitude and geographical location of each city. Explain how these affect the similarities or differences in the climates of the chosen cities.