Page 1.2 displays 15 data points. Using this data, study how the mean and standard deviation behave. The mean of the data is indicated by μ and the vertical line. The standard deviation is indicated by σ and the horizontal line. Dragging the points will change the shape of the distribution, μ and σ.

1. What does it appear that σ measures?
2. After dragging points in **many** different ways to create a variety of data sets, create a list of conjectures that describe relationships between the mean, standard deviation, and shape of a data set. The following sentence structure is often useful in formulating conjectures: If \_\_\_\_\_, then \_\_\_\_.

Page 2.2 displays the amount of snowfall for one winter month in a given year for the six largest cities in a Midwestern state.

1. Drag points in the bottom window to change the distribution, and carefully observe the changes in BOTH windows. After exploring, create a list of observations below. Include in your observations what you believe a residual is and how we might find the value of a "typical" residual.

On Page 3.2, drag the data set values to explore the relationships that exist on the page.

1. How is studying the absolute residuals (AR) different from studying the residuals? How does the mean AR compare to the standard deviation?
2. Return to your conjectures in Question 2 above. Does it appear your conjectures hold true? If not, revise your conjectures here. Write any new conjectures you may have here.