Box Plots & Histograms

BoxPlotsHistograms.tns

Name _____

Class _____

Part 1 – Create a Box Plot

On page 1.3, click on the text **Click to add variable** and choose **weekend** at the bottom of page. Press menu **> Plot Type > Box Plot** to change the dot plot to a box plot. It is actually a modified box plot.

1. How many outliers does the plot show?

Extend the whiskers to make a standard box plot by pressing menu **> Plot Properties > Extend Box Plot Whiskers**. Click on each section of the box plot to view the range. Find each value.

2. Minimum: _____   Q1: _____   Median: _____   Q3: _____   Maximum: _____

3. What does the median value say about the distances traveled? Since this point is the "middle" point in the data, why is the box plot not balanced at this point?

4. Plot **mean(weekend)** by pressing menu **> Analyze > Plot Value**. In the text box that appears, type **mean(weekend)**. Where is the mean located on this plot?

Part 2 – Create a Histogram

On page 1.4, click on the text **Click to add variable** and choose **weekend** at the bottom of page. Press menu **> Plot Type > Histogram** to change the dot plot to a histogram. Press menu **> Plot Properties > Histogram Properties > Bin Settings** to adjust the bin width to answer the following questions.

5. How many weekends did June drive between 20 and 30 miles? _____

6. How many weekends did June drive between 0 and 40 miles? _____

7. How many weekends did June drive between 120 and 160 miles? _____

Plot **mean(weekend)**, then plot **median(weekend)**.

8. Where are the median and mean on this plot?

9. The interval from 40 to 60 should contain the median of 51, but it shows zero entries. How is that possible?

Part 3 – Compare a Box Plot and a Histogram

On page 1.6, create a box plot on the top and a histogram on the bottom using **weekend**.

10. What do you notice about the shape of the histogram? How does it compare to the shape of the box plot?

Click on points to see how they appear in both plots.

11. Does the fact that the first bar is so tall relate to why is the first whisker so short?

12. What do you see now about why the other whisker is so long?

Extension – Changing the Data

13. Drag some of the points on the box plot. How does the box plot change?

14. How does the histogram change?

15. Can you drag points to make the first whisker longer than the second whisker?

16. Can you drag points to make the box plot symmetric?