



Multiple Boxplots

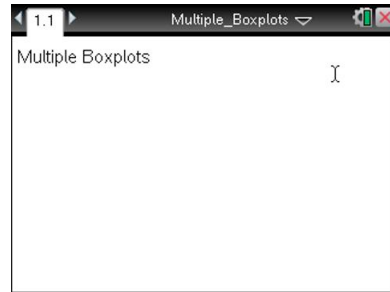
Student Activity

Name _____

Class _____

Open the TI-Nspire document *Multiple_Boxplots.tns*, or use the Create Document to create a new .tns file.

In this activity, you will explore boxplots. Given the test scores of three students, you will compare the distributions using boxplots.



Move to page 1.3.

Press **ctrl** **▶** and **ctrl** **◀** to navigate through the lesson.

1. Which student seems to have the best grades? Explain your reasoning.

2. a. Which student is most consistent in his or her grades? Explain your reasoning.

b. If the boxplot whiskers had been extended so you were unaware that Brown's minimum score, 60, was an outlier, would your answer to part a. change? Explain your reasoning.

3. Write a paragraph comparing the grades for each of the three students using the information you can obtain about their scores from the box plots.

4. a. Make an estimate of the mean as compared to the median for each of the three students. Explain your reasoning based on the boxplots.



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- b. To find the actual values of the means to test your estimates in part 4a, select **MENU > Analyze > Plot Value**. The screen will display **v1:=**. Use the alphabet keys to type **mean(harris)**, and then press **enter**.
- The value of the mean of the scores for Harris will be displayed, and the vertical line indicates the location of the mean in the boxplot.
 - How did the mean compare to the median? How well did your estimate in 4a match the actual value of the mean?

- c. Repeat the steps to find the mean for both Smith and Brown. How did the mean compare to the median? How well did your estimate in 4a match the actual value of the mean?

5. a. Record the 5-number summary from the boxplots for each of the three students into the columns labeled original in the table below.

	Original					New				
	Min	1 st Quartile	Med	3 rd Quartile	Max	Min	1 st Quartile	Med	3 rd Quartile	Max
Harris										
Smith										
Brown										

- b. Suppose all three students scored 100 on the next test. Press **ctrl** **←** to return to the spreadsheet on Page 1.2. Scroll down, and add 100 in the tenth row for all three students. Record the new values in the table above as well. How did adding 100 change the distributions of the scores for the three students? Explain.
- c. In part b, Brown's median score did not change. What does this tell you about Brown's test scores that fall near the middle? Explain your reasoning.