

## Jump Learning Task

Name \_\_\_\_\_ Class Period \_\_\_\_\_

Welcome to CSI at School! Over the weekend, a student entered the school grounds without permission. Even though it appears that the culprit was just looking for a quiet place to study, undisturbed by friends, school administrators are anxious to identify the offender and have asked for your help. The only available evidence is a suspicious jump-print outside in the mud in the parking lot.

After the incident, school administrators arranged for the data in the table below to be obtained from a random sample of this high school's students. The table shows the jump-print length (inches) and gender for each individual in the sample.

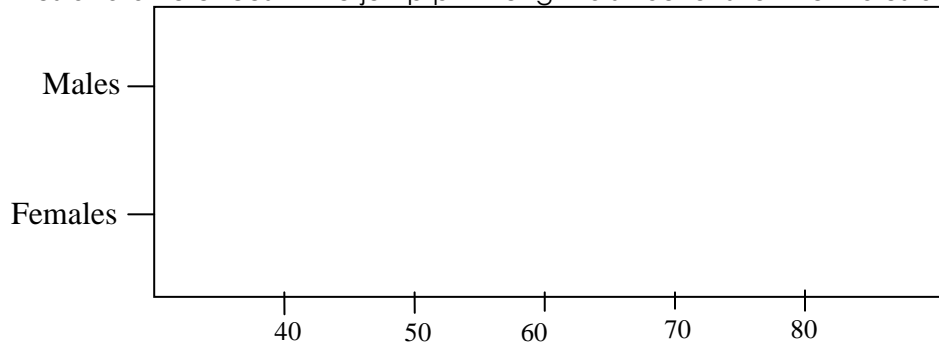
Jump Length Male	Jump Length Female

1. Explain why this study was an observational study and not an experiment.
2. Why do you think the school's administrators chose to collect data on a random sample of students? What benefit might a random sample offer?
3. Suggest a graph that might be used to compare the jump print length data distributions for females and males.
4. Describe one advantage of using comparative box plots instead of comparative dot plots to display this data.

5. For each gender calculate the five-number summary for the jump print lengths. Additionally, for each gender, determine if there are any outlying jump print length values.

	Minimum	Quartile 1 (Q1)	Median (Q2)	Quartile 3 (Q3)	Maximum
<b>Male</b>					
<b>Female</b>					

6. Construct comparative box plots for the jump print lengths of males and females. Discuss the similarities and differences in the jump print length distributions for the males and females in this sample.



7. For each gender, calculate the mean jump-print length. What information does the mean jump-print length provide?
8. The mean will give us an indication of a typical jump-print length. In addition to knowing a typical length we would also like to know how much variability to expect around this length. For each gender calculate the **Range**; **Interquartile Range**; and **Mean Absolute Deviation** of the jump-print lengths.

	Range	IQR	M.A.D.
<b>Male</b>			
<b>Female</b>			

9. If the length of a student's jump-print length was 66 inches...

A. Would you think that the print was made by a male or a female?

B. How sure are you that you are correct? Explain your reasoning. Use results from Questions 5 through 8 in your explanation.

10. How would you answer Question 9 if the suspect's jump-print length was 52 inches?