

Unit 1: Statistics

1. The longevity of two types of batteries were compared.
 - a. Brand A had a mean longevity of 101 hours. Brand B had a mean longevity of 105 hours. What can you conclude about Brand A and Brand B based on this information?

Brand B lasts longer on average.

- b. Brand C had a mean of 99 hours and a median of 125 hours. What can you conclude about Brand C's distribution based on this information?

Brand C is skewed left.

- c. Brand D had a standard deviation of 11.1 hours. Brand E had a standard deviation of 5.2 hours. What can you conclude about brand D and Brand E based on this information?

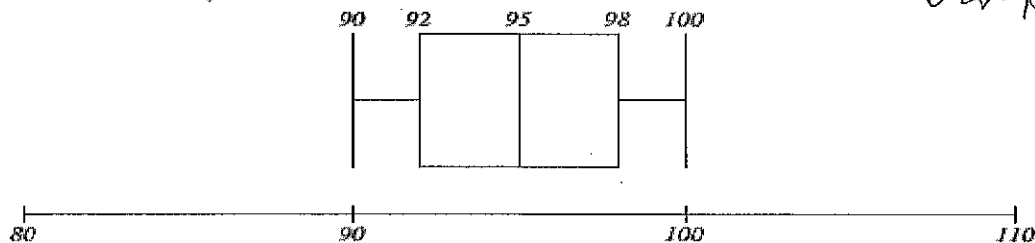
Brand D is more variable, while Brand E is more consistent.

- d. Brand X has a mean of 100 hours and a standard deviation of 9 hours. Brand Y has a mean of 105 hours and a standard deviation of 20 hours. Based on this information, which brand would you be more likely to buy? Justify your answer.

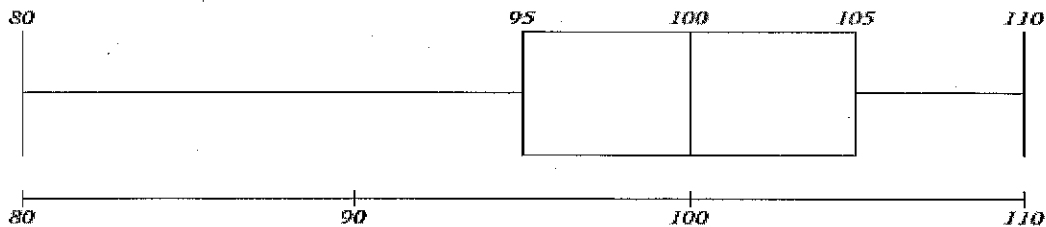
I would buy Brand X because I want consistent batteries. Brand Y lasts longer on average but is really variable.

2. The boxplots below show two additional battery brands, W and Z.

Brand W Battery



Brand Z Battery



- a. Which battery brand would you buy? Justify your conclusion using the information shown on the boxplots.

I would choose Brand Z b/c more than 50% of Z batteries last longer than any Brand W.

3. Charlie's group and Natalie's group compete in a dart throwing competition.
- Charlie's group had a mean distance from the bullseye of 25.3 cm, a median distance from the bullseye of 30 cm and a standard deviation of 10 cm.
 - Natalie's group had a mean distance from the bullseye of 32 cm, a median distance from the bullseye of 33.1 cm and a standard deviation of 3 cm.

What conclusions can you draw about how Natalie's group and Charlie's group did in the competition?

Charlie's group was closer to the bullseye than Natalie's, on average, but Charlie's group was much more variable.

4. During the current basketball season, the Freshmen coach has been emphasizing passing and recognizing players with a high number of assists during games.
- In games this season, Matthew has a mean of 5.3 assists, a median of 5.5 assists and a standard deviation of 1.3.
 - Eli has a mean of 6 assists, a median of 3 assists and a standard deviation of 3.9.

What conclusions can you draw about how Matthew and Eli compare in the assists they have during games?

Matthew is a very good & consistent passer. Eli has some games where he passes well, but other games he is much less consistent.

5. The administration at Cleveland High School wants help understanding how students do in different subjects.

This semester...

- GPAs for all the math classes had a mean of 3.11, a median of 3.15 and a standard deviation of 0.9.
- GPAs for all English classes had a mean of 3.4, a median of 3.33 and a standard deviation of 0.3.

What conclusions can you draw about how students do in math versus English classes at Cleveland?

Students do better in English on average. Students are more variable in math.