

Box-and-Whisker Plots

Lesson Overview

In this lesson, students will create survey questions, collect data, and construct box and whisker plots of their data.

Standards Addressed

CCSS 6.SP.4 Display numerical data in plots on a number line, including dot plots histograms, and box plots.

Disciplinary Literacy Best Practices

- Think-Draw-Share
- Gallery Walk
- Volley Ball, Not Ping Pong
- Exit Slips

Lesson Plan

Time required – one 60-minute class period

Disciplinary Vocabulary: number line, box plot, data, median, minimum value, maximum value, lower quartile, upper quartile

Materials needed:

- straight-edge for each student
- Box-and-Whisker Plot Activity sheet (think-draw-share)
- online teacher example (optional) <http://www.showme.com/sh/?h=GfS6B1c>
- index cards for exit slip

Engage

- Focus Question: What is a box-and-whisker plot? How can we construct a box-and-whisker plot?
- The teacher will show the class three or four different plots and ask them which one do they think is a box-and-whisker plot. The teacher will also explain to the class that they will be making their own box-and-whisker plots today from survey questions that they will create.

Explore

- The teacher will explain the construction of a box and whisker plot using the five number summary. Note: Box and whisker plots are used to display numerical data. (Video Explanation of Box Plot Construction: <http://www.showme.com/sh/?h=GfS6B1c>)
- Students will work with a partner to create a survey question. Survey questions should collect numerical data. Student partners should get approval from their teacher before collecting data.
- Students will collect the data for their survey question.
- Key questions: What methods did you use to collect your data? Is there a better way to collect data?
- Think-Draw: Individually, students will calculate the five number summary for their data and construct a box and whisker plot for the data.

Explain

- Share: Elbow partners will share their individually constructed box-and-whisker plots. They will come to consensus and draw the box and whisker plot for their data on chart paper.
- Students will post their box and whisker plots and share their results with the class during a Gallery Walk. During the gallery walk, students should make note of similarities and differences among the box plots.
- Teacher will lead a class discussion using Volley Ball, Not Ping Pong. In Volleyball, Not Ping Pong, the teacher offers a question and students respond to one another's thoughts instead of back and forth with the teacher.
 - *After looking at all of the box-and-whisker plots, what are some similarities you see? What are some differences you see?*
- Exit Slip: What have you learned today about box and whisker plots?

Assessment: Think-Draw-Share and Exit Slips

Teacher Biographical Information

Lesson Author: Audra Hill is an education specialist with S²TEM Centers SC. She has 20 years experience teaching mathematics, five of which were in a middle school mathematics class in Horry County Schools.

Name: _____ Date: _____

Box-and Whisker Plot Activity (think-draw-share)

Survey Question: _____

Teacher approval: Yes, continue or No, chose another question

<u>name</u>	<u>answer</u>	<u>name</u>	<u>answer</u>	<u>name</u>	<u>answer</u>	<u>name</u>	<u>answer</u>

List your data in order from least to greatest.

Find the following 5 values (the five number summary):

Minimum value =

Lower Quartile =

Median =

Upper Quartile =

Maximum value =

Now, draw a number line with your ruler. Be sure to leave a little space above the number line for the box-and-whisker plot. Using those 5 values, construct your box-and-whisker plot. After you finish, you may compare with your elbow partner and discuss any differences you may have.