

Boxplot Detectives

Ask questions that create useful number data.

GRADE 8 • 8.PS.2.a

8.PS.2.a "Formulate questions that require the collection or acquisition of data with a focus on boxplots."

NAME _____

DATE _____

ASK FOR NUMBERS

A boxplot uses many numerical values, not categories or yes-or-no answers. State who you will ask, what number you will record, and, when needed, which groups you will compare.

WORKED EXAMPLE

Write a question a hiking club could answer with a boxplot.

1. Choose people: hiking-club members.
2. Choose a number: miles walked last month.
3. Ask: How many miles did each hiking-club member walk last month?

Answer: How many miles did each hiking-club member walk last month?

PRACTICE 5 problems

- 1** Which question fits a boxplot? A. Which snack is most popular? B. How many minutes did each student wait for the bus this morning?

ANSWER _____

- 2** Rewrite this as a boxplot question: "Do students bring lunch from home?"

ANSWER _____

- 3** A class asks, "What is each student's shoe size?" Can it make a boxplot? Name the variable.

ANSWER _____

- 4** Write a question that compares seventh and eighth graders' reading time on Tuesday.

ANSWER _____

- 5** Why is "What is your favorite music genre?" not a boxplot question?

ANSWER _____

APPLY IT Show your work

- 1** The robotics team wants to compare practice time for new and returning members. Write a question for two boxplots. State the data to record.

WORK SPACE

ANSWER _____

- 2** Two friends want to compare the lengths of songs on their workout playlists. Write a question for two boxplots. State the data to record.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

The art club and drama club want a fair comparison of practice outside meetings. Write a question for two boxplots that names one shared time period. Explain why it is fair.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Which question fits a boxplot? A. Which snack is most popular? B. How many minutes did each student wait for the bus this morning?	B. How many minutes did each student wait for the bus this morning?
2	Rewrite this as a boxplot question: "Do students bring lunch from home?"	How many days per week does each student bring lunch from home?
3	A class asks, "What is each student's shoe size?" Can it make a boxplot? Name the variable.	Yes. The variable is each student's shoe size.
4	Write a question that compares seventh and eighth graders' reading time on Tuesday.	How many minutes did each seventh grader and each eighth grader spend reading on Tuesday?
5	Why is "What is your favorite music genre?" not a boxplot question?	Music genre is category data, not numerical data.

PART 2 • APPLY IT

- 1. Question: During one week, how many minutes did each new robotics member and each returning member practice outside meetings? Data: Record each member's total outside-meeting practice minutes for that week.** Use two groups and one numerical measure over the same time period. Each student contributes one total number of minutes.
- 2. Question: How many seconds long is each song on Maya's workout playlist and each song on Jordan's workout playlist? Data: Record the length in seconds of every song on each playlist.** The groups are Maya's playlist and Jordan's playlist. Song length in seconds is numerical data.

CHALLENGE

Question: During the same 4-week period, how many total minutes did each art-club member and each drama-club member practice outside meetings? It is fair because both groups report the same numerical measure for the same time period.

Accept equivalent questions that name a population, a numerical variable, and both groups when comparing. For open responses, accept any clear shared time period and measure.