

Data Detectives

Choose the data and the method.

GRADE 8 • 8.PS.2.b

8.PS.2.b "Determine the data needed to answer a formulated question and collect the data (or acquire existing data) using various methods (e.g., observations, measurement, surveys, experiments)."

NAME _____

DATE _____

PLAN THE DATA

Start with the question. Name the values or categories you need, then choose a method such as a survey, measurement, observation, experiment, or existing records. Use a relevant group and record each result clearly.

WORKED EXAMPLE

Question: Do students carry heavier backpacks on Fridays than on Mondays?

1. Select 12 students.
2. Measure each student's backpack mass on Monday and Friday.
3. Record 24 masses as 12 matched pairs.
4. Compare each student's two masses.

Answer: Data: paired backpack masses.
Method: measurement.

PRACTICE 5 problems

- 1** Question: Which recess game is most popular? State the data and method.

ANSWER _____

- 2** Question: Does classroom temperature change from first period to last period? State the data and method.

ANSWER _____

- 3** Question: How many minutes do students read at home each week? State the data and method.

ANSWER _____

- 4** Question: Does a phone-free study period change quiz scores? State the data and method.

ANSWER _____

- 5** Question: How many library books were borrowed each month last year? State the data and method.

ANSWER _____

APPLY IT Show your work

- 1** Jordan says the school needs more bike racks because many students bike to school. What data should the school collect, and how can it collect it?

WORK SPACE

ANSWER _____

- 2** An esports club wants to know whether a 10-minute warm-up affects game scores. Plan a fair data collection method.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A class wants to test whether background music changes the number of math problems students complete correctly in 15 minutes. Describe the data, a fair method, and one control. Explain why the control matters.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Question: Which recess game is most popular? State the data and method.	Data: each student's game choice. Method: survey a random sample of students.
2	Question: Does classroom temperature change from first period to last period? State the data and method.	Data: temperature readings at both times on several days. Method: measurement.
3	Question: How many minutes do students read at home each week? State the data and method.	Data: each student's daily reading minutes for one week. Method: reading log or survey.
4	Question: Does a phone-free study period change quiz scores? State the data and method.	Data: quiz scores for students with and without a phone-free study period. Method: experiment with random assignment.
5	Question: How many library books were borrowed each month last year? State the data and method.	Data: monthly borrowing totals. Method: acquire existing library circulation records.

PART 2 • APPLY IT

1. **Collect the number of bicycles arriving and the number of open rack spaces each morning for several days. Observe and count bicycles and rack spaces at arrival time.** Counts over several days show both demand for racks and available space.
2. **Record each player's score after a warm-up and after no warm-up. Randomize the order, and use the same game settings and time limit for both rounds.** Each player is compared under both conditions while other game conditions stay the same.

CHALLENGE

Data: each student's number of correctly completed problems. Randomly assign students to music or no music, give both groups the same problems and 15 minutes, and compare the group results. Control: use the same worksheet, because different worksheets could affect scores.

Accept equivalent data plans that collect the needed variable and use a suitable method. For experiments, accept other valid controls if conditions are kept the same except for the tested factor.