LESSON MAKER PRO

Data Detective Lab

Choose the data that can answer a question.

GRADE 4 · 4.PS.1.b

4.PS.1.b "Determine the data needed to answer a formulated question and collect or acquire existing data (limited to 10 or fewer data points) using various methods (e.g., observations, measurements, experiments)."

NAME _____ DATE _____

PLAN THE DATA

To answer a data question, decide what information is needed for every person or object in the group. Then collect that information by measuring, observing, experimenting, asking people, or using a record that already exists.

WORKED EXAMPLE

A student asks, "How far does each of 7 toy cars roll?" What data is needed, and how can it be collected?

1. The question asks about distance, so each data point is a distance.
2. There are 7 cars, so collect one distance for each car.
3. Roll each car from the same start line and measure its distance in centimeters.

Answer: 7 rolling distances in centimeters, measured in a fair test.

PRACTICE 6 problems

1 Maya asks, "Which of 4 classroom plants is tallest?" What data should she collect, and how should she collect it?

ANSWER _____

2 A class wants to know whether the morning or afternoon is warmer on 5 school days. What data should they record, and what tool can they use?

ANSWER _____

3 A librarian asks, "How many pages did each of 6 students read last night?" The students have reading logs. What data should you acquire, and where can you find it?

ANSWER _____

4 Which of 8 paper bridges holds the most pennies? What data should be collected, and how should it be collected?

ANSWER _____

5 At recess, which game is chosen most often by 9 students? What data should be collected, and how can it be collected?

ANSWER _____

6 A student asks, "Did my seedling grow taller from Monday to Friday?" What two measurements are needed, and when should they be taken?

ANSWER _____

APPLY IT Show your work

1 The art club wants to answer, "Which warm-up song got the most votes?" The table is existing data from 6 club members. What data from the table should be used? Tally the votes and name the song with the most votes.

ART CLUB SONG VOTES

Member	Song choice
Maya	Beat Bounce
Luis	Sky Jump
Zoe	Beat Bounce
Omar	Loop It
Inez	Sky Jump
Kai	Beat Bounce

ANSWER _____

2 The game club is testing 3 marble ramps. Its question is, "Which ramp lets a marble roll farthest?" Plan an experiment that uses no more than 9 data points. State what to measure, how many measurements to take for each ramp, and how to keep the test fair.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Rina asks, "Which of 4 seedlings grew the most from Monday to Thursday?" She records only each seedling's Thursday height. Explain why this data is not enough. State the 8 measurements she needs and a method for collecting them.

WORK SPACE AND ANSWER

ANSWER KEY

Data Detective Lab

GRADE 4 · 4.PS.1.b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Maya asks, "Which of 4 classroom plants is tallest?" What data should she collect, and how should she collect it?	**The height of each plant in centimeters; measure each plant with a ruler.**
2	A class wants to know whether the morning or afternoon is warmer on 5 school days. What data should they record, and what tool can they use?	**The morning and afternoon temperature for each day; use a thermometer.**
3	A librarian asks, "How many pages did each of 6 students read last night?" The students have reading logs. What data should you acquire, and where can you find it?	**Each student's number of pages read; use the 6 students' reading logs.**
4	Which of 8 paper bridges holds the most pennies? What data should be collected, and how should it be collected?	**The number of pennies each bridge holds before it bends or collapses; test each bridge by adding pennies one at a time.**
5	At recess, which game is chosen most often by 9 students? What data should be collected, and how can it be collected?	**The game choice of each student; ask each of the 9 students.**
6	A student asks, "Did my seedling grow taller from Monday to Friday?" What two measurements are needed, and when should they be taken?	**The seedling's height on Monday and its height on Friday, measured with a ruler.**

PART 2 · APPLY IT

1. **Use the song choice in each row. Beat Bounce has 3 votes, so Beat Bounce got the most votes.** Use the Song choice column because it records each member's vote. Count each song choice to find the largest tally.
2. **Measure rolling distance in centimeters. Roll a marble 3 times on each ramp, for 9 distances total, using the same marble and the same start point each time.** Distance is the needed measurement. Three trials for each of 3 ramps gives 9 data points, and using the same marble and start point makes the comparison fair.

CHALLENGE

Thursday heights alone do not show growth because the starting heights are missing. Measure each of the 4 seedlings' heights in centimeters on Monday and Thursday with the same ruler, for 8 measurements.

Accept equivalent wording that identifies the correct data and a reasonable collection method. For fair tests, accept other valid controlled conditions, such as using the same release point.