LESSON MAKER PRO

Data Detective Plans

Choose the data and method that answer a question.

GRADE 7 · 7.PS.2.b

7.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)."

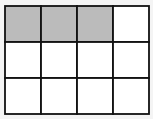
NAME _____ DATE _____

PLAN BEFORE YOU COLLECT

Start with the question. Decide exactly what information is needed, then choose a fair way to get it, such as a survey, measurement, observation, experiment, or existing record.

WORKED EXAMPLE

A club wants to estimate the usual number of songs its members listen to each day. The array shows 12 member cards. Three shaded cards were chosen at random. What data should the club collect, and how should it collect it?



1. The question asks for a number of songs in one day.
2. Collect one song count from each selected member.
3. Survey the 3 shaded members and record their counts.

Answer: Collect each selected member's number of songs listened to in one day. Survey the 3 selected members.

PRACTICE 4 problems

1 Which fruit is most popular in your class? State the data needed and a collection method.

ANSWER _____

_____

2 Does the classroom temperature change during the school day? State the data needed and a collection method.

ANSWER _____

_____

3 Which paper-airplane design travels farthest? State the data needed and a collection method.

ANSWER _____

_____

4 How many days did your town have rain last month? State the data needed and a collection method.

ANSWER _____

_____

APPLY IT Show your work

1 Sam asks, “Do more students bike to school on sunny days than on rainy days?” The table is existing data from the school. Can it answer Sam's question? If not, state the missing data and how to get it.

BIKE RACK CHECK

Day	Student bikes at 7:45
Monday	16
Tuesday	21
Wednesday	14
Thursday	19

ANSWER _____

2 A gaming club wants to know which controller layout helps players finish a maze fastest. State the data needed and a fair collection method.

WORK SPACE

ANSWER _____

3 Collect real data now. The teacher arranges five willing participants, who may include you. Ask each person, “How many pencils are you carrying right now?” Record one nonnegative whole-number count per person in a five-row table here or on extra paper. Label the rows A–E instead of names; zero is a valid count. Record the date and your survey question. Add the five counts, then write a one-sentence answer about the total for these five participants only. Show the teacher your actual data and explain how you collected them.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A student wants to know whether the school bus is late more often on Mondays than on Fridays. The student records the arrival time on one Monday and one Friday. Explain why this is not enough, then state a better data plan.

WORK SPACE AND ANSWER

ANSWER KEY # Data Detective Plans

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Which fruit is most popular in your class? State the data needed and a collection method.	**Each student's favorite fruit, survey every student in the class.**
2	Does the classroom temperature change during the school day? State the data needed and a collection method.	**Temperature at the same times during the day, measure it with a thermometer at those times.**
3	Which paper-airplane design travels farthest? State the data needed and a collection method.	**Flight distance for several trials of each design, run an experiment and measure each flight with a tape measure.**
4	How many days did your town have rain last month? State the data needed and a collection method.	**Daily rain information for last month, acquire it from official local weather records.**

PART 2 · APPLY IT

1. **No. Sam needs the weather for each listed day. Acquire weather records for those same days, then compare the bike counts on sunny days with the counts on rainy days.** The table gives bike counts but does not label days as sunny or rainy. Weather records provide the missing information.
2. **Each player's maze-completion time with each controller layout. Run an experiment using the same maze, have each player use both layouts, and vary which layout is used first.** Completion time is the needed measurement. Letting each player try both layouts makes the comparison fairer.
3. **Answers vary: five actual pencil counts, their correct total, and a statement restricted to those five participants.** Check that five real responses were collected and recorded once each with A–E labels, date and the given question. Recompute the total from the recorded nonnegative whole numbers and check the conclusion refers only to these five participants. An invented sample or collection plan alone is incomplete; arrange the supported survey before accepting the response.

CHALLENGE

One day of each type might be unusual. Record the scheduled and actual arrival times for several Mondays and Fridays, label each arrival late or on time, and compare the number or percent of late arrivals.

Accept equivalent descriptions of the needed data and a reasonable matching method. For the challenge, accept plans that use multiple Mondays and Fridays and compare lateness using scheduled and actual times. For Apply 3, arrange five participants and check the actual recorded survey responses, method, sum and limited conclusion. No particular total is required, and no claim about the whole class is justified by this small group.