

# Understand Statistical Questions

Name: \_\_\_\_\_

**Prerequisite: How can you use a line plot to interpret data?**



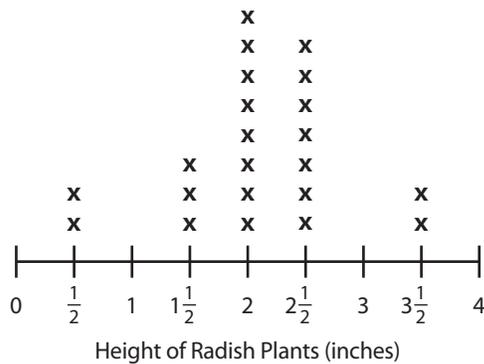
**Study the example problem showing how to make a line plot. Then solve problems 1–7.**

### Example

Anna planted radish seeds in her vegetable garden. At the end of two weeks, she measured the height of each radish plant to the nearest  $\frac{1}{2}$  inch and recorded her data in a table. How can Anna show this data in a line plot?

Make an X to stand for each plant in the table. For example, the line plot below shows that two plants were  $\frac{1}{2}$  inch tall.

| Height (inches) | Number of Plants |
|-----------------|------------------|
| $\frac{1}{2}$   | 2                |
| $1\frac{1}{2}$  | 3                |
| 2               | 8                |
| $2\frac{1}{2}$  | 7                |
| $3\frac{1}{2}$  | 2                |



**1** How can you use the line plot to tell how many plants are 2 inches tall?

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**2** Consider how the data in the line plot is clustered. What does the line plot say about the plant heights?

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### Vocabulary

**line plot** a graph that uses Xs above a number line, or part of a number line, to show data. Line plots are useful for showing how data are grouped.



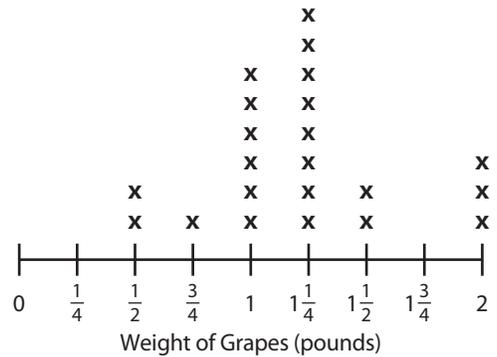
**Solve.**

**Use this situation and the line plot for problems 3–6.**

Colton puts grapes in plastic bags to sell at the farmer’s market. He weighs each bag and records the weights in a line plot.

- 3 What is the difference in weight between the heaviest bag and the lightest bag of grapes?

**Show your work.**



Solution: \_\_\_\_\_

- 4 How many bags of grapes weigh more than 1 pound and less than 2 pounds?

\_\_\_\_\_

- 5 Describe two different ways that a customer could buy  $4 \frac{1}{4}$  pounds of grapes.

\_\_\_\_\_  
\_\_\_\_\_

- 6 Greg wants to buy two bags of grapes that have a total weight of  $3 \frac{3}{4}$  pounds. Is there a way that he can do this? Explain how you know.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- 7 Describe a different set of data that you could display on a line plot.

\_\_\_\_\_  
\_\_\_\_\_

## Identify Statistical and Non-statistical Questions

**Study the example showing how to determine whether a question is statistical or not. Then solve problems 1–7.**

### Example

Abigail asked her classmates two questions. Are the questions statistical or not? Explain your answer.

What is your favorite after-school activity?

This is a statistical question because you can expect a variety of answers. You can use the answers to make a prediction about a larger group.

On what day does the computer club meet?

This is not a statistical question because no matter who you ask, the answer is always the same.

- 1** Explain how you can tell whether a question is statistical or non-statistical.

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- 2** Maxwell asked 20 classmates these questions. Determine whether each question is statistical or non-statistical. Explain your answer.

**a.** How do you travel to school?

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**b.** How many students in the class ride the bus to school?

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**c.** What time do you get up on school mornings?

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### Vocabulary

**statistical question** a question that can have a variety of answers and can be used to make a prediction about a larger group.



**Solve.**

**Use the following situation and table to solve problems 3–5.**

Paulo asked 20 sixth graders a question and then displayed the results in this table.

|                           |   |   |   |   |   |             |
|---------------------------|---|---|---|---|---|-------------|
| <b>Number of Pets</b>     | 0 | 1 | 2 | 3 | 4 | more than 4 |
| <b>Number of Students</b> | 2 | 8 | 5 | 2 | 1 | 2           |

**3** What question could Paulo have asked?

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**4** If Paulo asked 20 different sixth graders the same question, would he most likely get exactly the same results? Explain your thinking.

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**5** Based on Paulo’s results, what prediction could Paulo make about the sixth graders in his school?

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**6** Write a statistical question and a non-statistical question that you could ask your classmates about computer games.

statistical: \_\_\_\_\_

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non-statistical: \_\_\_\_\_

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**7** Ariel wanted to ask her classmates a statistical question. She decided to ask them “How many books have you read this month?” Is Ariel’s question statistical? Explain.

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## Reason and Write

**Study the example. Underline two parts that you think make it a particularly good answer and a helpful example.**

**Example**

Rebecca wants to collect statistical data about the amount of time that sixth graders in her school spend doing homework each school night.

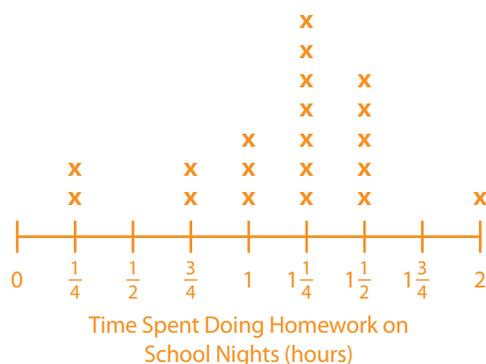
What question could she ask? How many students might she ask? Describe the data she might collect, and draw a line plot to show an example of that data. Then explain how Rebecca can use this data to predict the results for all sixth graders in her school.

**Show your work.** Use a table or line plot, words, and numbers to explain your answer.

**Possible answer is shown.**

**Rebecca could ask a group of 20 sixth graders a statistical question like: About how many hours do you spend doing homework each school night?**

**A line plot of data that she collects might look like this:**



**Then she could see how the data clustered in the line plot and use that information to predict the number of hours that most sixth graders spend doing homework each school night. Based on this line plot, most sixth graders in my school spend  $1\frac{1}{4}$  hours or  $1\frac{1}{2}$  hours each school night doing homework.**

Where does the example...

- answer all parts of the problem?
- use a table or line plot?
- use words?
- use numbers?
- explain how to use the data to make a prediction?



**Solve the problem. Use what you learned from the model.**

Dexter wants to collect statistical data about the weight of backpacks that sixth graders carry to school. Which is the better statistical question for Dexter to ask? Why?

- How much does your backpack weigh to the nearest half pound?
- Does your backpack weigh more than or less than 5 pounds?

How many students might he ask? Describe the data he might collect, and display the data in a table. Then explain how Dexter can use this data to predict the results for all sixth graders in his school.

**Show your work.** Use a table or line plot, words, and numbers to explain your answer.

Did you ...

- answer all parts of the problem?
- use a table or line plot?
- use words?
- use numbers?
- explain how to use the data to make a prediction?

