






# Chapter 13

## Bar Graphs and Line Plots

### Practice 1 Making Bar Graphs with Scales

The picture graph shows the number of each kind of kite some students made after school.

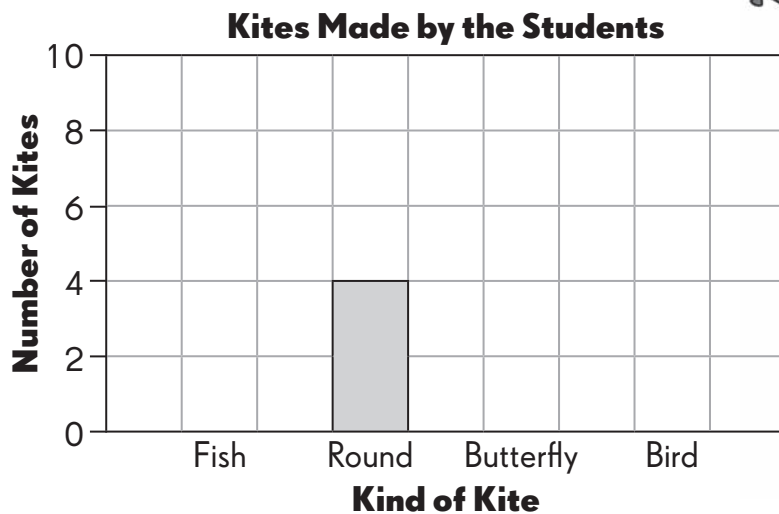
**Kites Made by the Students**

Fish	
Round	
Butterfly	
Bird	
Key: Each  stands for 1 kite.	

Talya used the data from the picture graph to make a bar graph. She used a scale of 2.

Help Talya complete the bar graph.

1.



Count in skips of 2 to make the scale. The scale must include all the data.





Alice went to a bird park and saw 5 kinds of birds.  
She recorded the number of each kind of bird she saw in a tally chart.

**Complete the tally chart.**

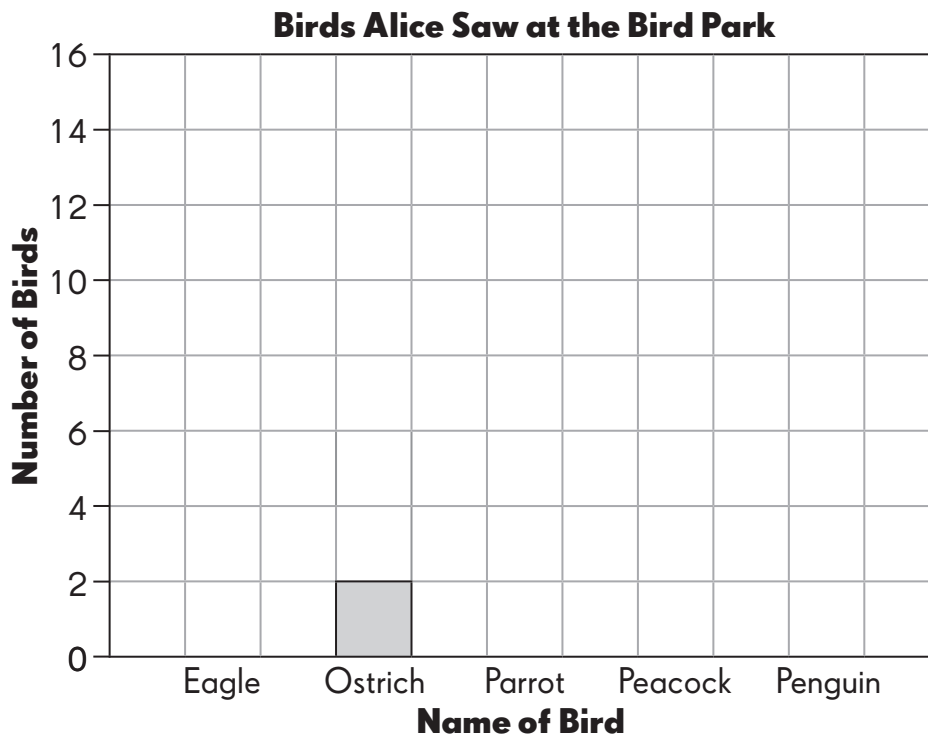
**2.**

**Birds Alice Saw at the Bird Park**

Name of Bird	Tally	Number of Birds
Eagle		
Ostrich		2
Parrot		6
Peacock		
Penguin		14

**Complete the bar graph to show the birds Alice saw.**

**3.**



**Answer each question.**

**Use the data in the bar graph.**

- 4.** The scale shows skip counts of \_\_\_\_\_
- 5.** What is the greatest number on the vertical axis? \_\_\_\_\_  
Explain why.

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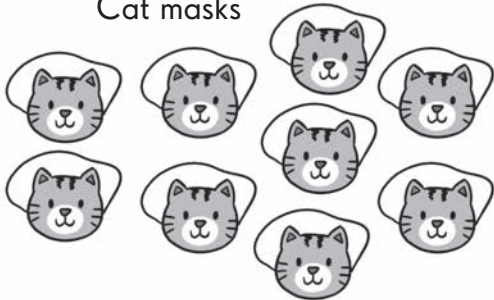
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Joy and her friends are making animal masks.  
Count the number of each type of mask they have made.

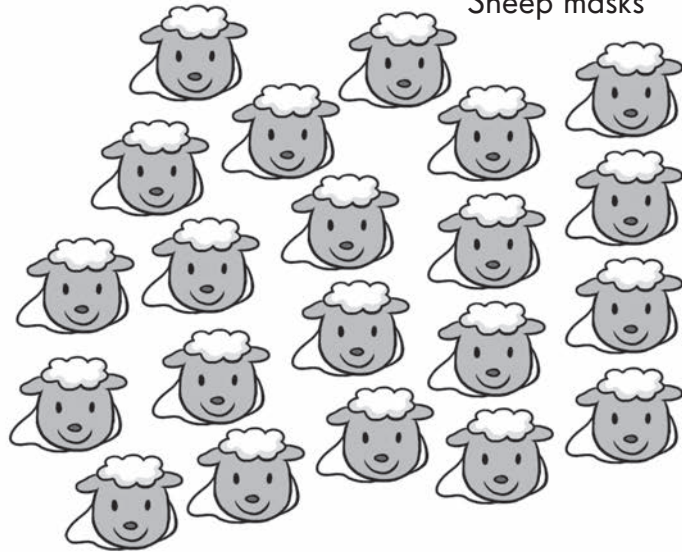
**Complete the tally chart and bar graph on page 65.**



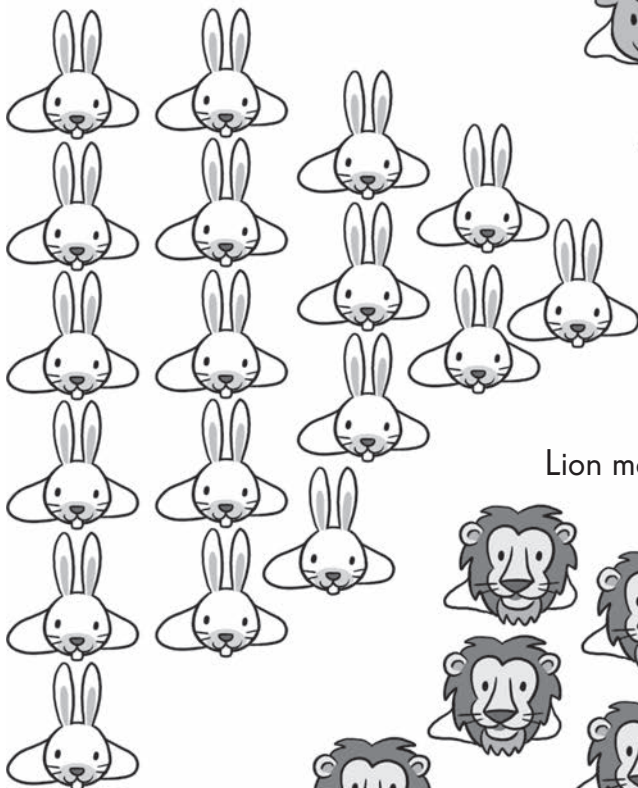
Cat masks



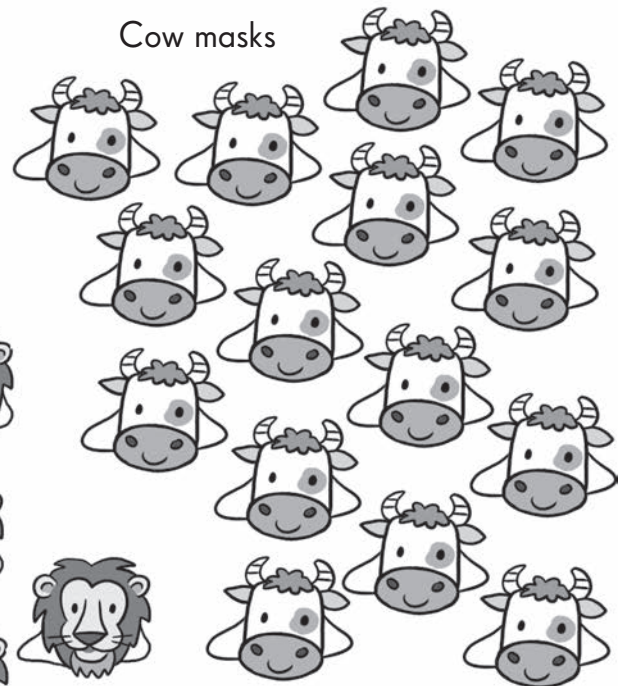
Sheep masks



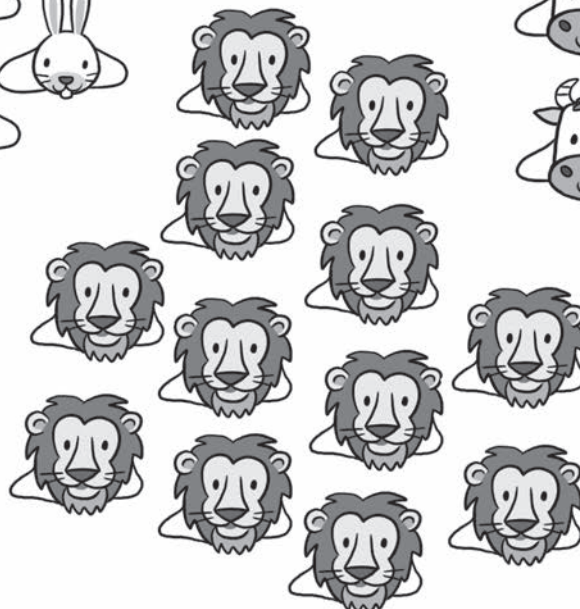
Rabbit masks



Cow masks



Lion masks



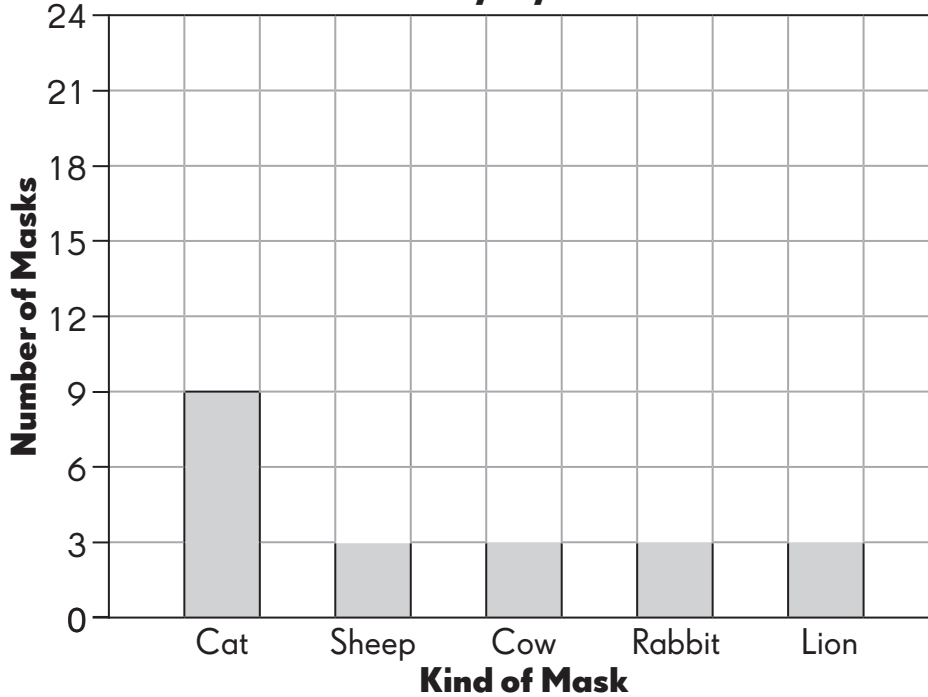
**Complete.**

**6. Masks Made by Joy and Her Friends**

Kind of Mask	Tally	Number of Masks
Cat mask		
Sheep mask		
Cow mask		
Rabbit mask		
Lion mask		

**Complete the bar graph. Use the data in the tally chart.**

**7. Masks Made by Joy and Her Friends**

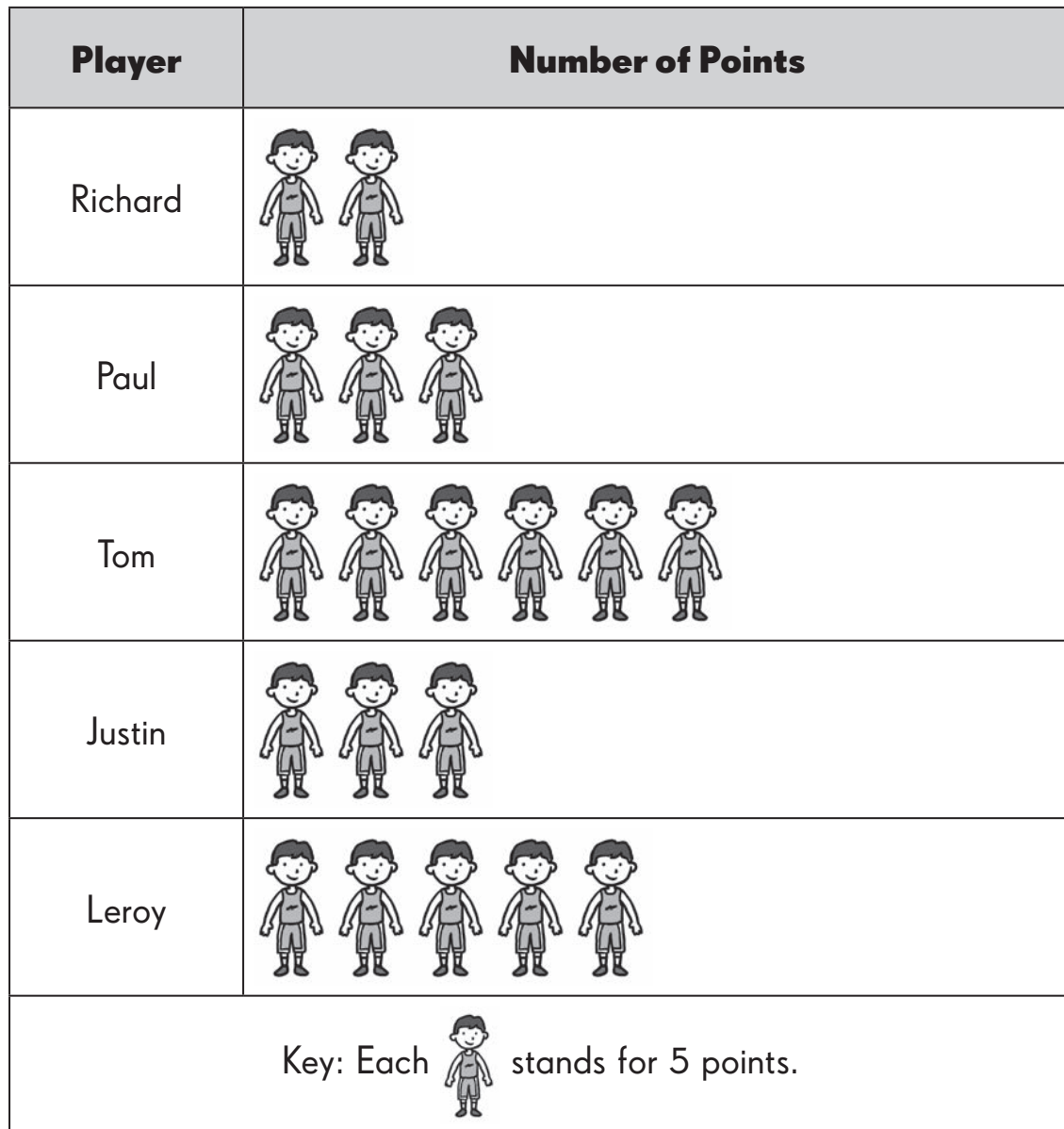


**Answer each question. Use the data in the bar graph.**

- 8.** The scale shows skip counts of \_\_\_\_\_.
- 9.** What is the greatest number on the scale? \_\_\_\_\_

The picture graph shows the number of points five players scored in a basketball game.

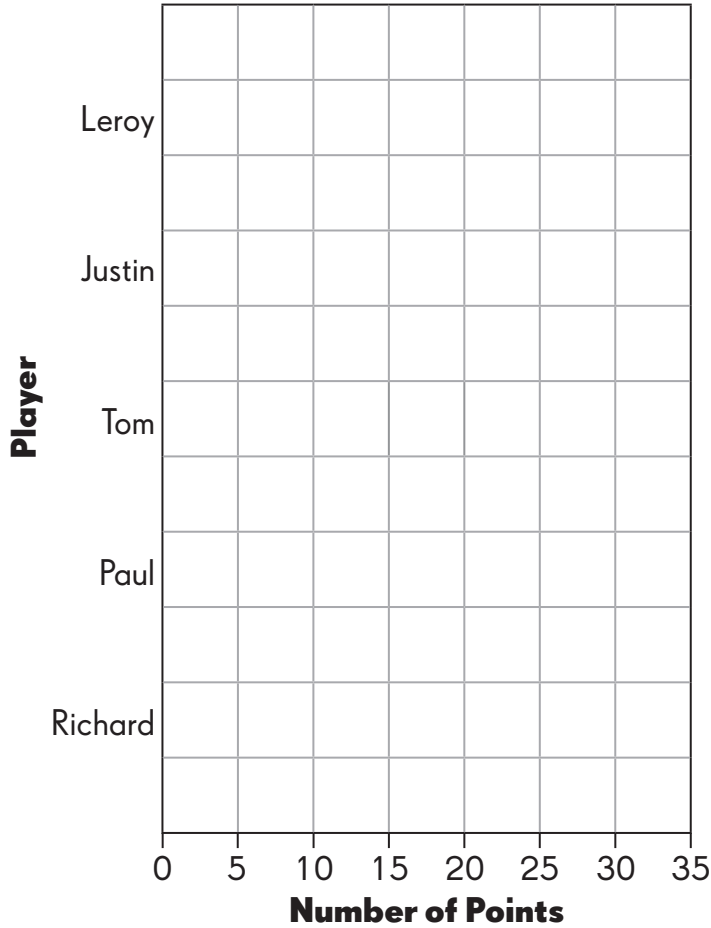
**Points Scored by Five Players**



Use the data in the picture graph to complete the bar graph.

10.

Points Scored by the Players



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Answer each question. Use the data in the bar graph.

- 11. The scale shows skip counts of \_\_\_\_\_.
- 12. What is the greatest number on the scale? \_\_\_\_\_

A survey was carried out to find the favorite activities of third graders.

It was found that ... 10 like to read a book.

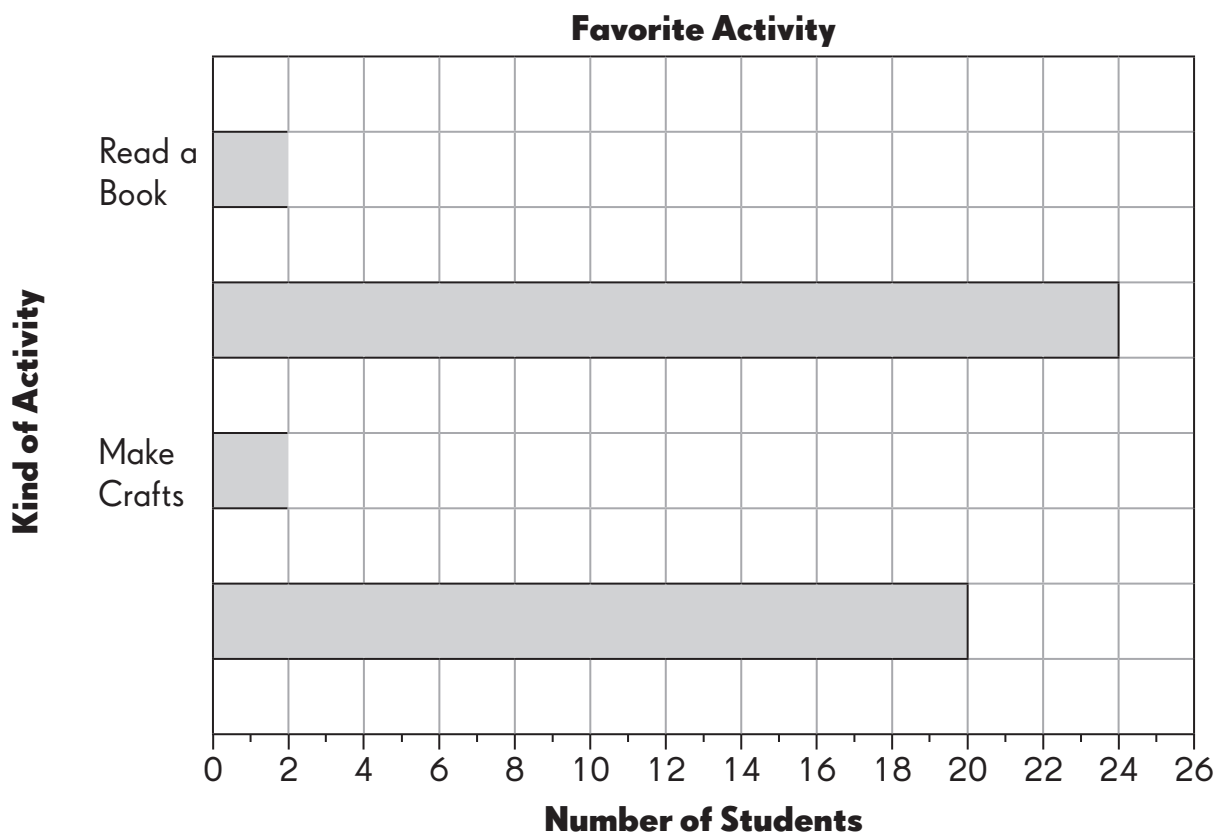
12 like to make crafts.

2 times as many children like to play sports as make crafts.

4 fewer children like to visit friends than play sports.

**Complete the bar graph to show the favorite activities of third graders. Then fill in the missing activity names in the answer boxes.**

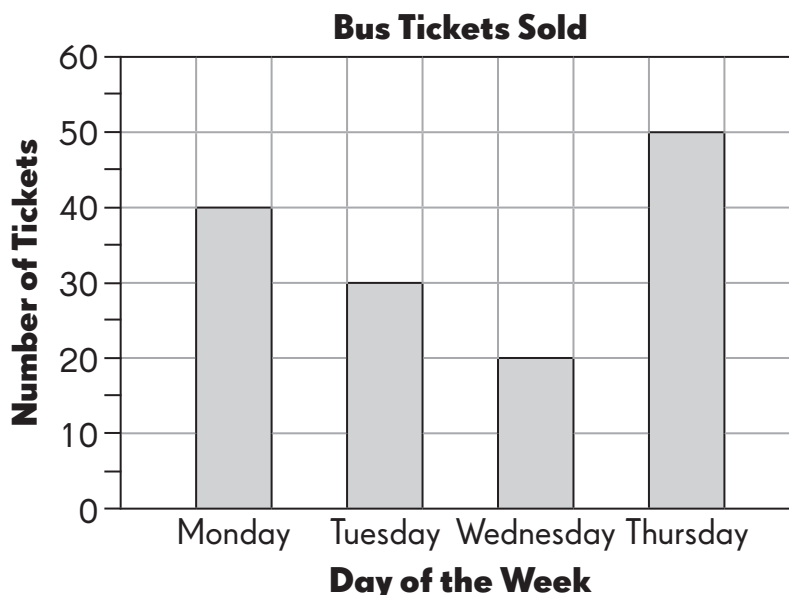
13.





## Practice 2 Reading and Interpreting Bar Graphs

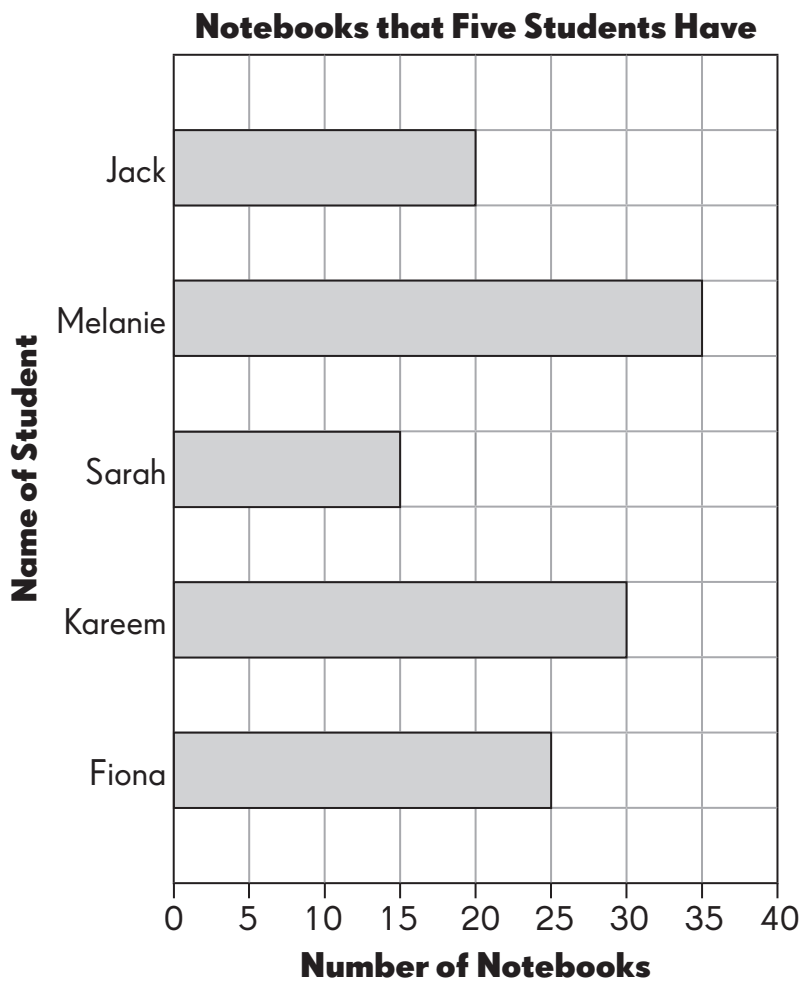
The bar graph shows the bus tickets that were sold on Monday, Tuesday, Wednesday, and Thursday.



**Answer each question. Use the data in the bar graph.**

1. How many more tickets were sold on Thursday than on Wednesday?  
\_\_\_\_\_ tickets
2. On Thursday, 15 of the tickets sold were for children. How many tickets sold were for adults? \_\_\_\_\_ tickets
3. 18 fewer tickets were sold on Friday than on Tuesday. How many tickets were sold on Friday? \_\_\_\_\_ tickets
4. The number of tickets sold on Tuesday can be grouped into fives. How many groups are there? \_\_\_\_\_ groups
5. How many tickets were sold in all during the four days? \_\_\_\_\_ tickets

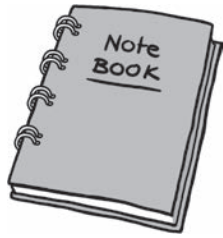
This bar graph shows the number of notebooks that five students have.



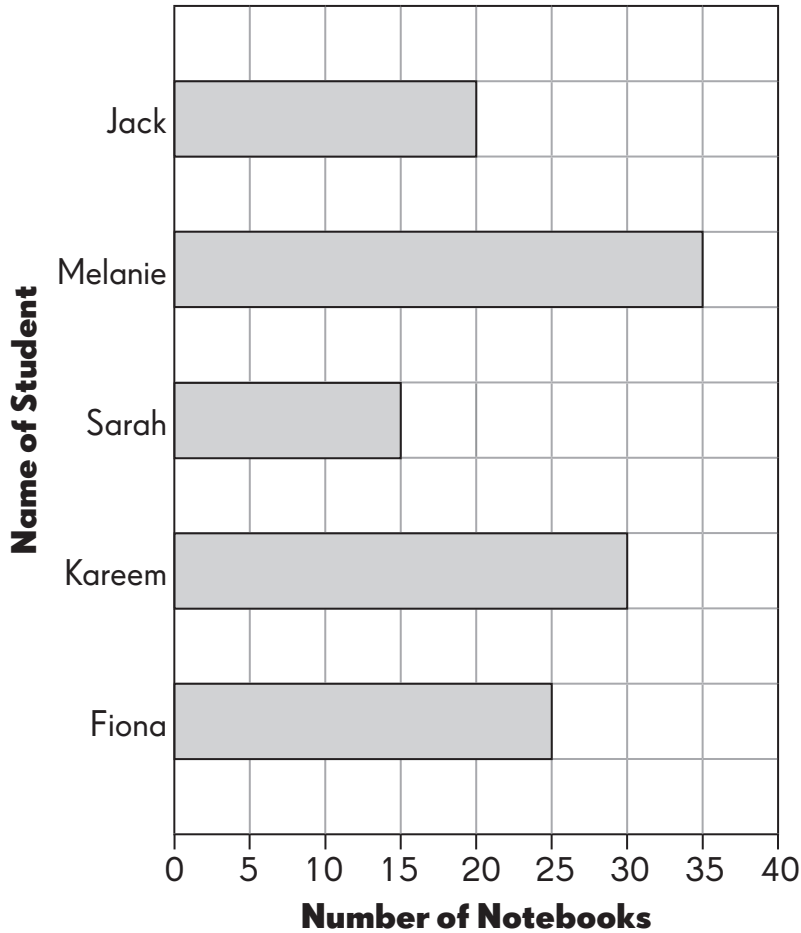
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**Write *T* for true and *F* for false in the boxes.**  
**Use the data in the bar graph.**

6. Jack has 20 notebooks.
7. Fiona has 25 notebooks.
8. Melanie has 40 notebooks.
9. Kareem has 5 fewer notebooks than Fiona.
10. Sarah has the least number of notebooks.

**Notebooks that Five Students Have**

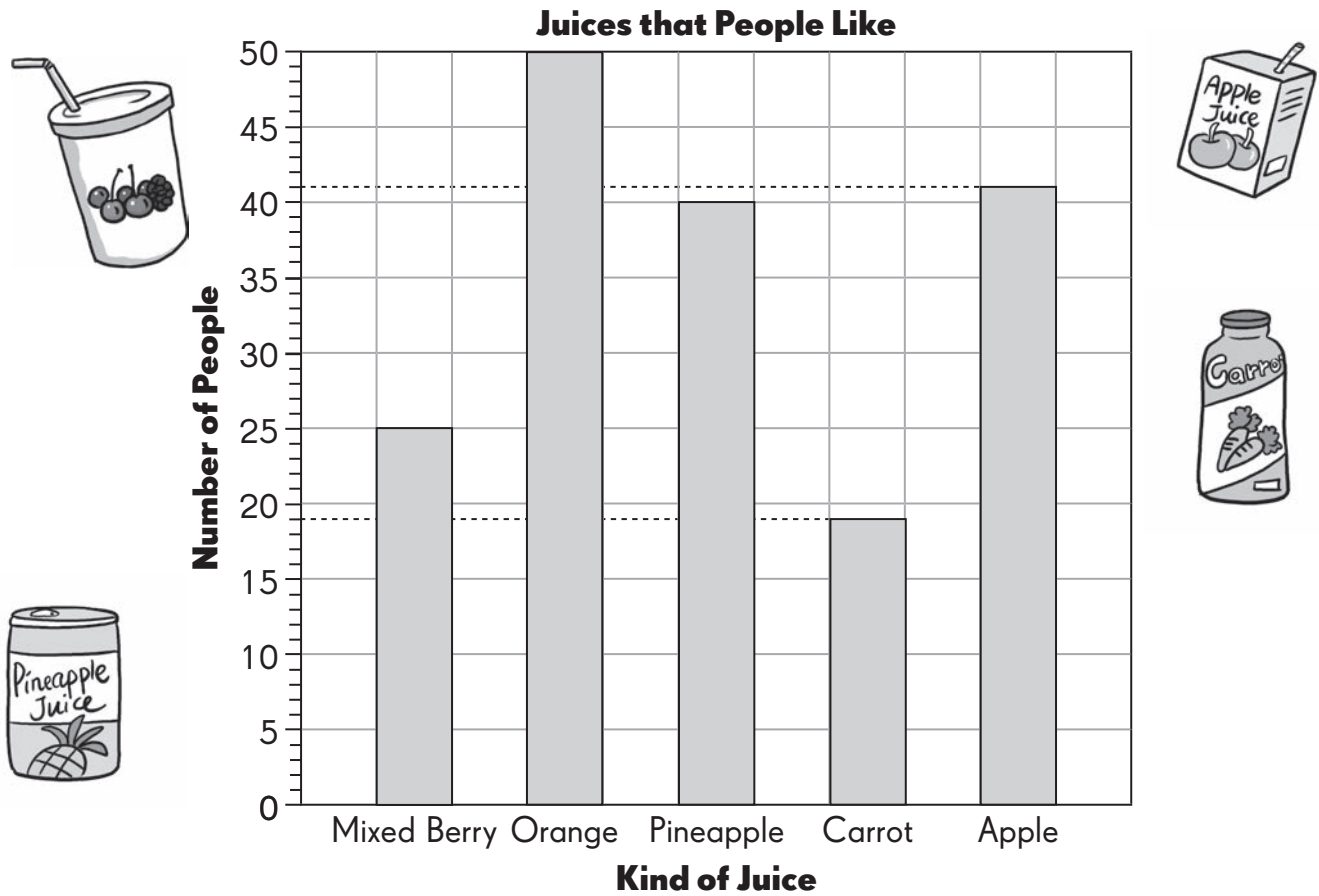


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**Answer each question.  
Use the data in the bar graph.**

11. How many more notebooks does Kareem have than Fiona? \_\_\_\_\_
12. How many fewer notebooks does Sarah have than Melanie? \_\_\_\_\_
13. How many notebooks do Melanie and Sarah have altogether? \_\_\_\_\_
14. Who has twice as many notebooks as Sarah? \_\_\_\_\_
15. Which two students have a total of 65 notebooks? \_\_\_\_\_

This bar graph shows the kinds of juices that people like.



**Fill in the blanks.**  
**Use the data in the bar graph.**

16. \_\_\_\_\_ people like mixed berry juice.
17. 19 people like \_\_\_\_\_ juice.
18. The most popular juice is \_\_\_\_\_.
19. 16 more people like apple juice than \_\_\_\_\_ juice.
20. 10 fewer people like \_\_\_\_\_ juice than the most popular juice.
21. What can you say about orange juice and carrot juice?

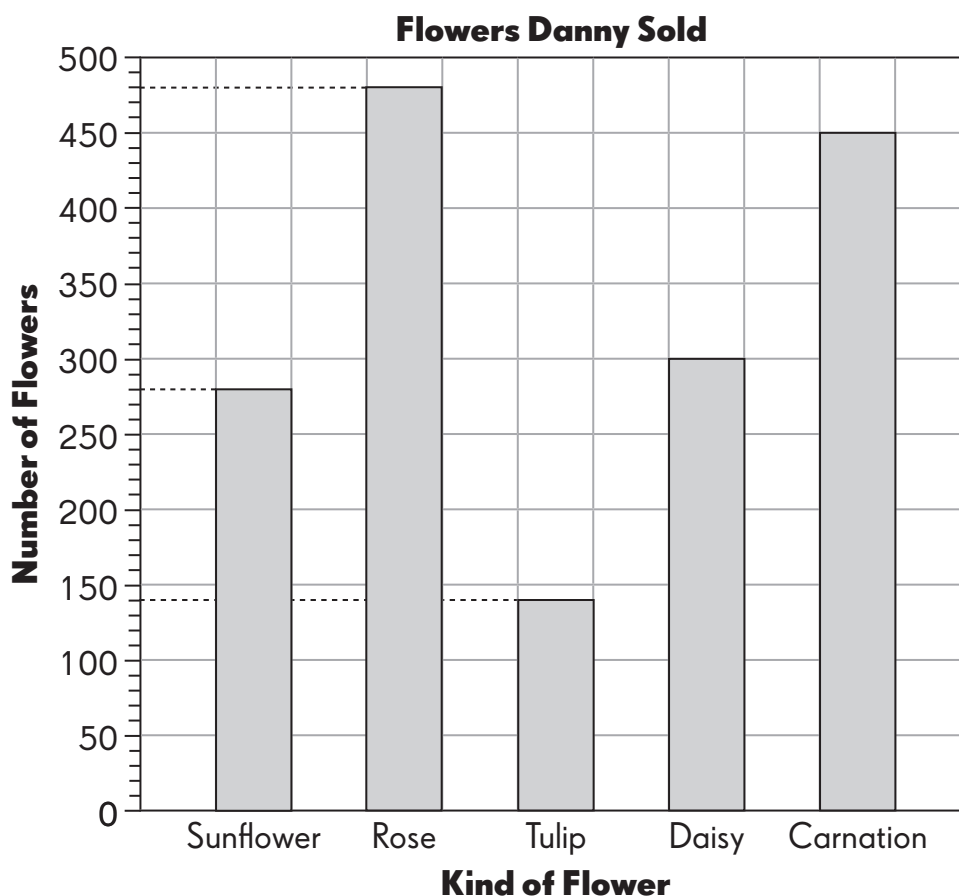
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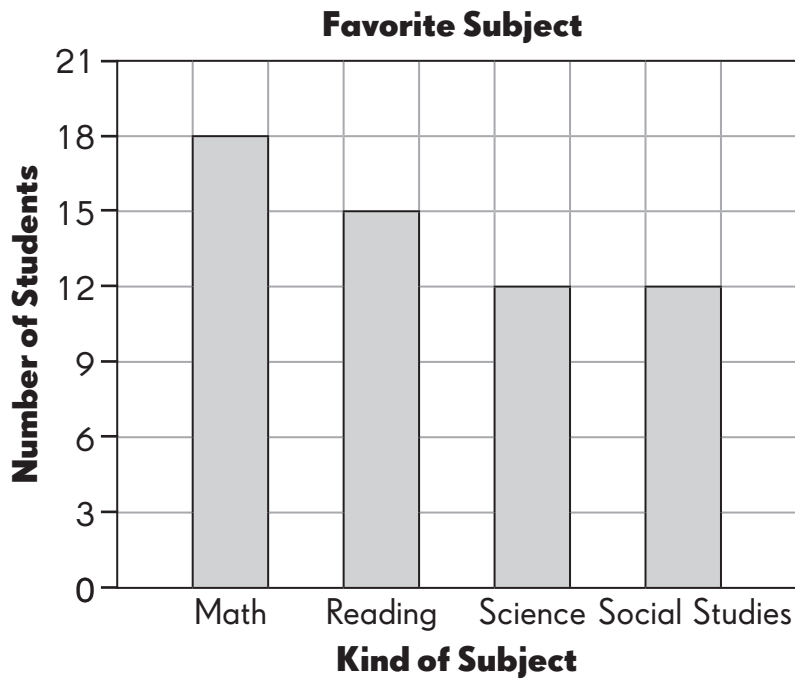
Danny sold flowers at the farmer's market.  
The bar graph shows the number of flowers he sold.



**Answer each question.**  
**Use the data in the bar graph.**

- 22.** How many daisies did Danny sell? \_\_\_\_\_
- 23.** He sold 150 more carnations than another flower.  
Which kind of flower? \_\_\_\_\_
- 24.** He sold twice as many sunflowers as another kind of flower.  
Which kind of flower? \_\_\_\_\_
- 25.** How many fewer sunflowers than roses were sold? \_\_\_\_\_
- 26.** He sold a total of 750 of two kinds of flowers.  
Which two kinds of flowers could they be? \_\_\_\_\_

This bar graph shows the subjects that a number of students like.



**Fill in the blanks.**

**Use the data in the bar graph.**

- 27.** \_\_\_\_\_ students like math.
- 28.** 3 fewer students like \_\_\_\_\_ than reading.
- 29.** The number of students who like \_\_\_\_\_ is equal to the number of students who like \_\_\_\_\_.
- 30.** A total number of 39 students like three kinds of subjects. Which three kinds of subjects could they be?  
\_\_\_\_\_

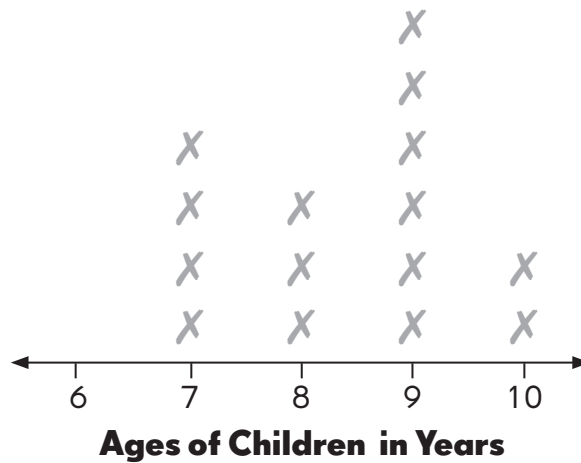
## Practice 3 Line Plots

Amanda surveyed a group of children in a Nature Club to find out their ages. The table below shows the results of her survey.

**Ages of Children in Years**

Name of Child	Age
José	7
Roger	8
Alex	7
Liza	10
Suki	9
Christy	7
Allie	9
Jeremy	9
Valerie	9
Vilma	8
Jacob	7
Emily	9
Ethan	8
Emma	9
Kayla	10

Amanda made a line plot to show the results of her survey.



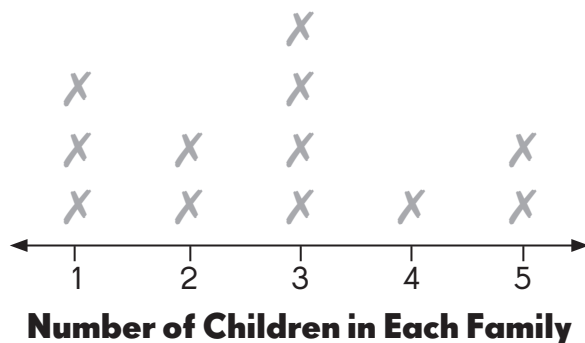
**Answer each question.**  
**Use the data in the line plot.**

1. What does each  $X$  on the line plot stand for? \_\_\_\_\_
2. What do the numbers on the number line stand for? \_\_\_\_\_
3. What is the age of the greatest number of children? \_\_\_\_\_ years old
4. How many children are aged 6? \_\_\_\_\_ children
5. What is the age of the oldest child surveyed? \_\_\_\_\_ years
6. How many children were surveyed in all? \_\_\_\_\_ children





Third graders carried out a survey. They wanted to find the number of children in each of their families. They displayed their results in this line plot.



**Answer each question.**

**Use the data in the line plot.**

7. What does each  $X$  on the line plot stand for? \_\_\_\_\_
8. What do the numbers on the number line stand for? \_\_\_\_\_
9. How many families have 2 children? \_\_\_\_\_ families
10. How many families have fewer than 4 children? \_\_\_\_\_ families
11. What is the greatest number of children in the families surveyed?  
\_\_\_\_\_ children
12. How many families took part in the survey? \_\_\_\_\_ families
13. Did all the families surveyed have children? Answer yes or no. \_\_\_\_\_



A survey was carried out to find the number of rides a group of children took at Happy Theme Park. The tally chart shows the results of the survey.

**Complete the tally chart.**

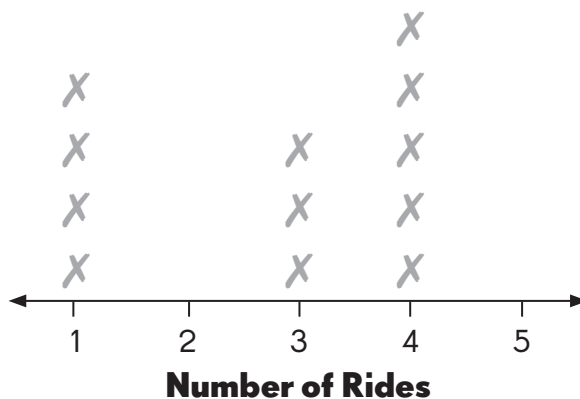
**14.**

**Number of Rides**

Number of Rides	Tally	Number of Children
1	////	4
2	//	<input type="text"/>
3	///	<input type="text"/>
4	####	<input type="text"/>
5	///	<input type="text"/>

**Complete the line plot.**  
**Use the data in the tally chart.**

**15.**



**Answer each question.**  
**Use the data in the line plot.**

- 16. What does each  $\times$  on the line plot stand for? \_\_\_\_\_
- 17. What does each number on the number line stand for? \_\_\_\_\_
- 18. How many children take 5 rides? \_\_\_\_\_ children
- 19. How many children take 4 or more rides? \_\_\_\_\_ children
- 20. Which number of rides are taken by the same number of children?  
\_\_\_\_\_



A baseball team counted the number of home runs each player hit. The results are shown in this table.

<b>Number of Home Runs</b>	0	1	2	3	4
<b>Number of Players</b>	1	2	1	2	3

**Complete the table.**

**21. Number of Home Runs**

<b>Number of Home Runs</b>	<b>Number of Players</b>
0	<input type="text"/>
1	2
2	<input type="text"/>
3	2
4	3

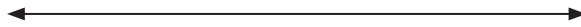
**Fill in the blanks.**  
**Use the data in the table.**

**22.** The greatest number of home runs hit by any player was \_\_\_\_\_.

**23.** The least number of home runs hit by any player was \_\_\_\_\_.

**Complete the line plot.  
Use the data in the table.**

**24.**



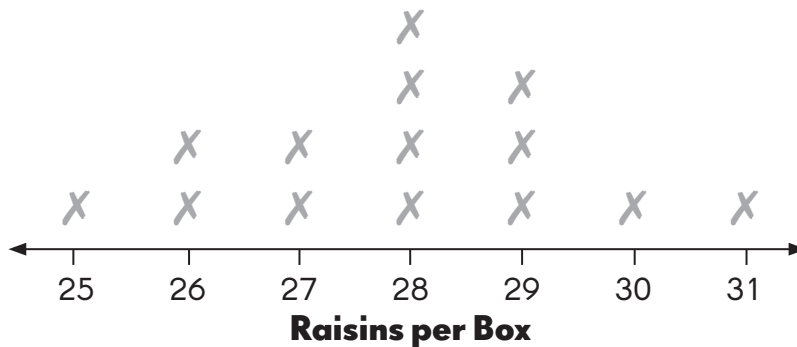
**Number of Home Runs**

**Answer each question.  
Use the data in the line plot.**

- 25.** What does each  $\times$  on the line plot stand for? \_\_\_\_\_
- 26.** How many players had 2 home runs? \_\_\_\_\_ player
- 27.** How many players had more than 1 home run? \_\_\_\_\_ players
- 28.** What is the greatest number of home runs scored by a single player?  
\_\_\_\_\_ home runs
- 29.** How many players were surveyed in total? \_\_\_\_\_ players

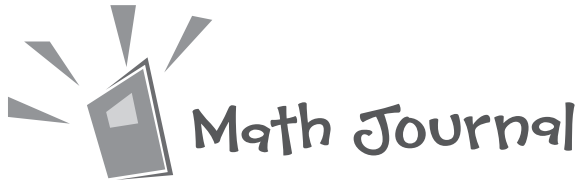


Tom carried out a survey to find how many raisins there are in boxes of different brands. He made a line plot to show the results of his survey.



**Answer each question.**  
**Use the data in the line plot.**

- 30.** What is the least number of raisins in a box? \_\_\_\_\_ raisins
- 31.** What is the greatest number of raisins in a box? \_\_\_\_\_ raisins
- 32.** Which number of raisins occurs most often? \_\_\_\_\_ raisins
- 33.** How many boxes contain 28 or more raisins? \_\_\_\_\_ boxes
- 34.** How many boxes contain fewer than 27 raisins? \_\_\_\_\_ boxes
- 35.** How many boxes were used in the survey in all? \_\_\_\_\_ boxes



A survey was carried out to find the scores of students on a 20-minute math quiz.

### Number of Questions Right

Name of Student	Number
Sophie	2
Rachel	1
Mimi	1
Kyle	3
Jessica	4
Alex	1
Maria	4
Sue	1
Jane	3

**Work in groups to make a line plot.**  
**Use the data in the table.**  
**Follow the steps to help you.**

**Step 1** Give the line plot a title.

Draw and label the horizontal number line.

**Step 2** Draw an  $\times$  for each student above one number.

**Step 3** Check that the number of  $\times$ s shows the data in the table.

**Answer each question.**  
**Use the data in the line plot.**

1. How did you get the least and greatest number on the number line?

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2. A survey asks 100 people how many children are in their families. All the people answer 0, 1, 2, 3, or 4. Would a line plot be a good way to show this data? Explain your thinking.

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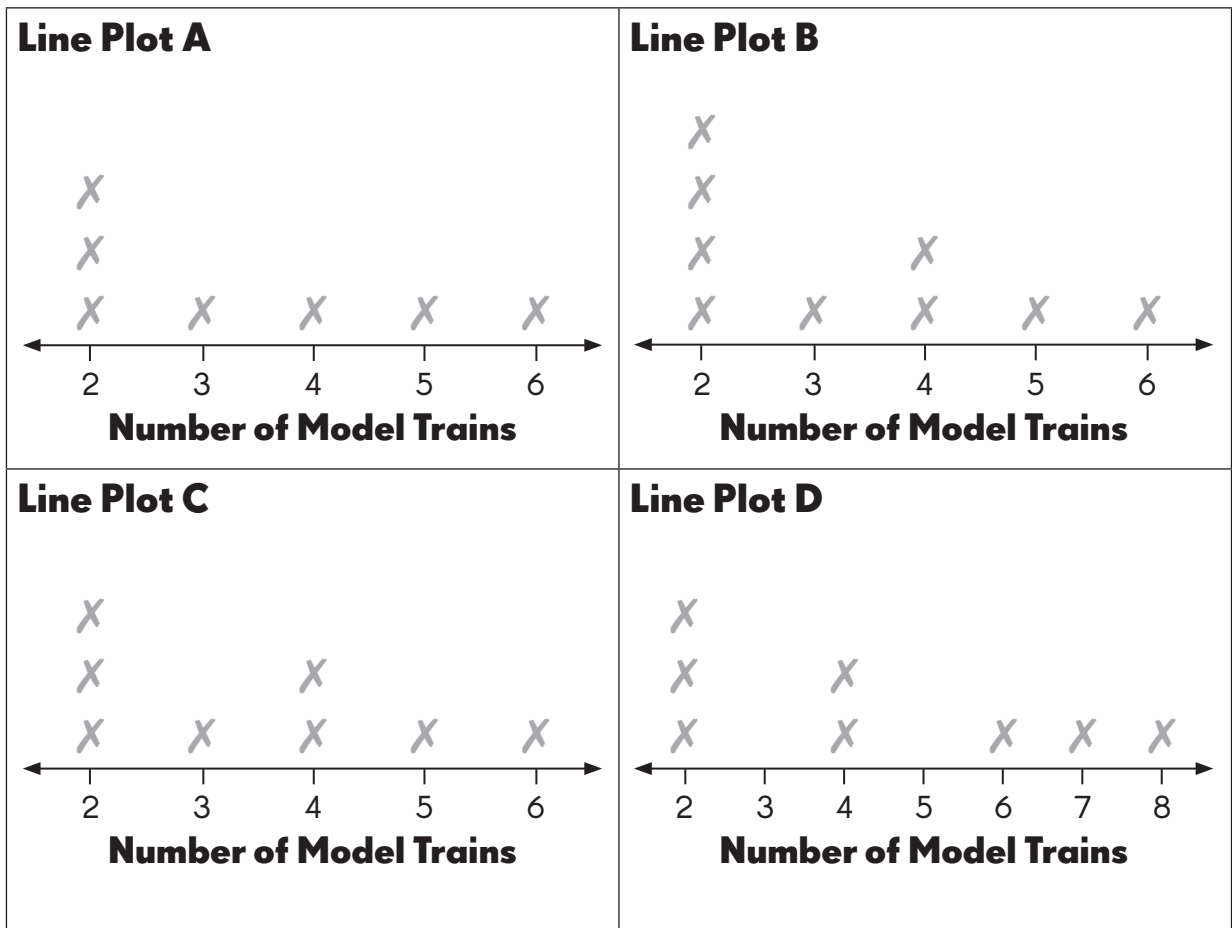
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The table shows the number of model trains that 8 children have.  
Choose which line plot matches the data.

Name of Student	Katy	Ryan	Noah	Sylvia	Riya	James	Evan	Luke
Number of Model Trains	2	6	3	4	2	5	2	4



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**Fill in the blank.**  
**Use the data in the table.**

3. Line plot \_\_\_\_\_ matches the given data.

## Explain the mistakes in the other line plots.

4.

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5.

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6.

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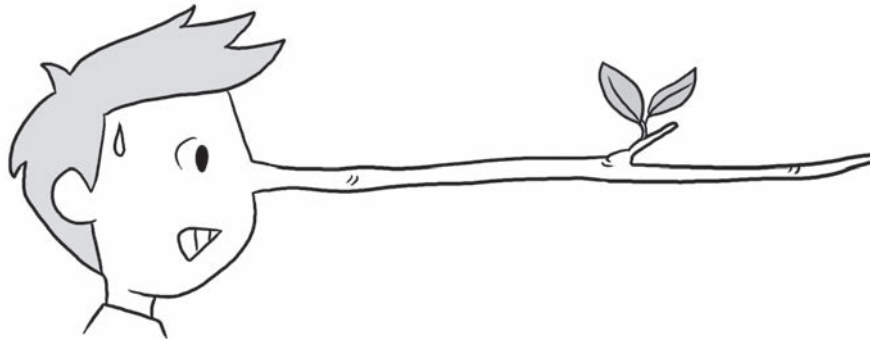
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# Put On Your Thinking Cap!

## Challenging Practice

Pinocchio's nose grew 2 centimeters longer every time he told a lie. He wanted to stop telling lies and be an honest boy. He drew a picture graph and a bar graph to check how many fewer lies he was telling every day.



The picture graph below and the bar graph on page 88 show the length his nose grew over five days.

**Length Pinocchio's Nose Grew over Five Days**

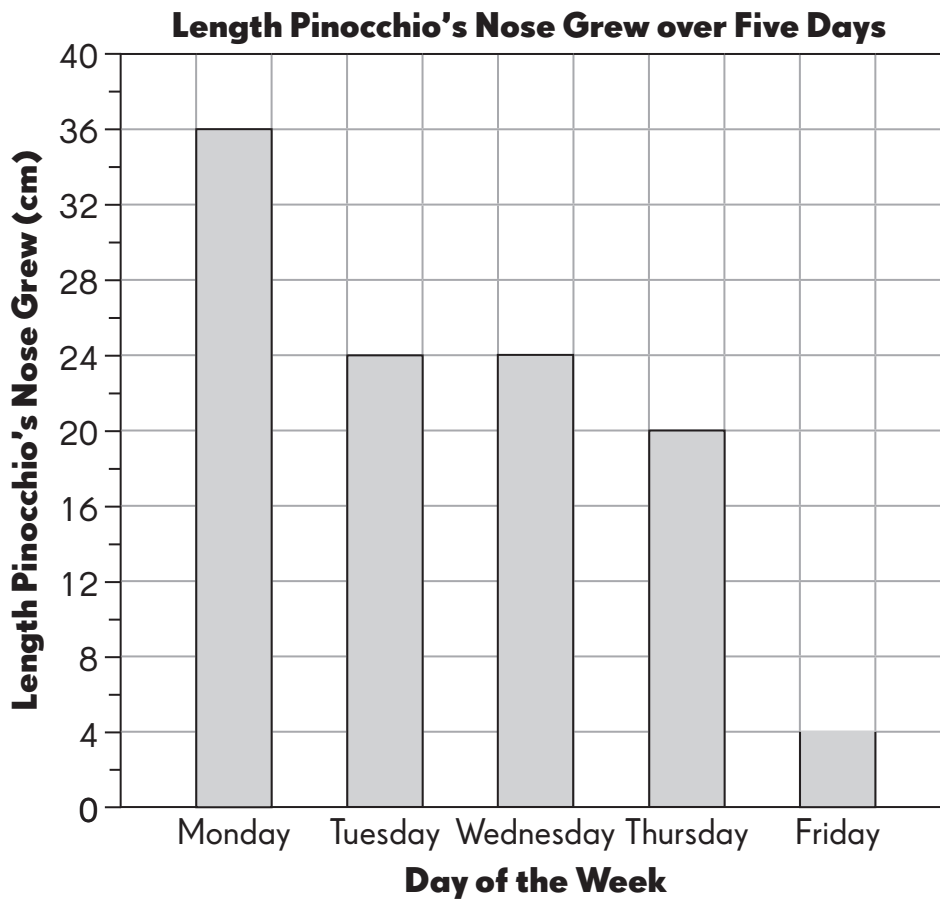
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Key: Each  stands for 2 centimeters.	

Use the information in the picture graph on page 87.  
 Fill in the boxes to show the length his nose grew on...

1.      Monday              Tuesday              Wednesday              Thursday              Friday
- cm       cm       cm       cm       cm

Complete the bar graph for Friday.

2.



**Answer each question.**

**Use the data in the bar graph.**

3.      On which day did his nose grow by 24 centimeters? \_\_\_\_\_
4.      For which day is the bar graph incorrectly drawn? \_\_\_\_\_
5.      How much longer does his nose grow on Tuesday than on Friday?  
 \_\_\_\_\_



# Put On Your Thinking Cap!



## Problem Solving

**Study each set of data carefully.**

**Decide which graph would best represent each data.**

**Fill in the blanks with *Picture Graph*, *Bar Graph*, or *Line Plot*.**

The table below shows the number of visitors at the art museum during six months.

Erin wants to show the difference in the number of visitors for the months of February and April.

Month	Number of Visitors
January	230
February	80
March	340
April	400
May	420
June	540

The sample is large.  
Erin wants to compare the data.



Alisha wants to know which snack is most popular with third graders. She asks some of the third graders and records the data in this table.

Snack	Number of Students
Granola Bar	12
Strawberry Yogurt	18
Fruit Cup	24
Raisins	30

A group of students took part in a math competition. At the end of the competition, Mr. Stephenson wanted to show how many games his students won. He recorded his findings in this table.

<b>Number of Games Won</b>	<b>Number of Students</b>
0	2
1	6
2	4
3	3
4	1