

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.

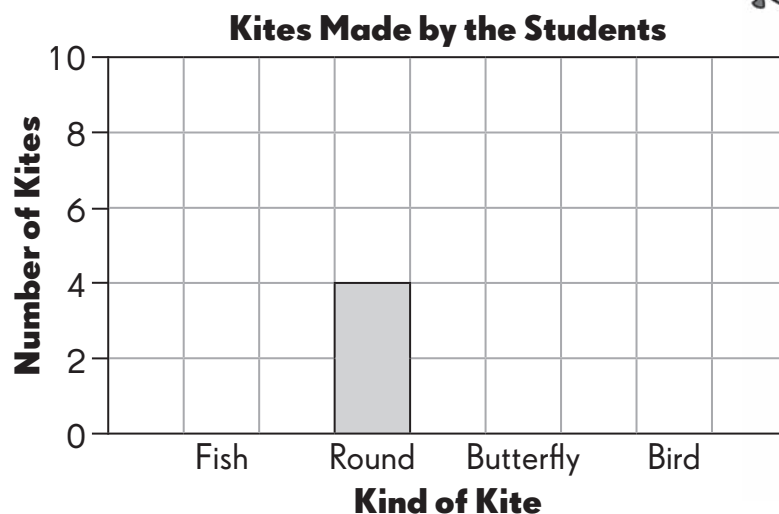
Kites Made by the Students

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.

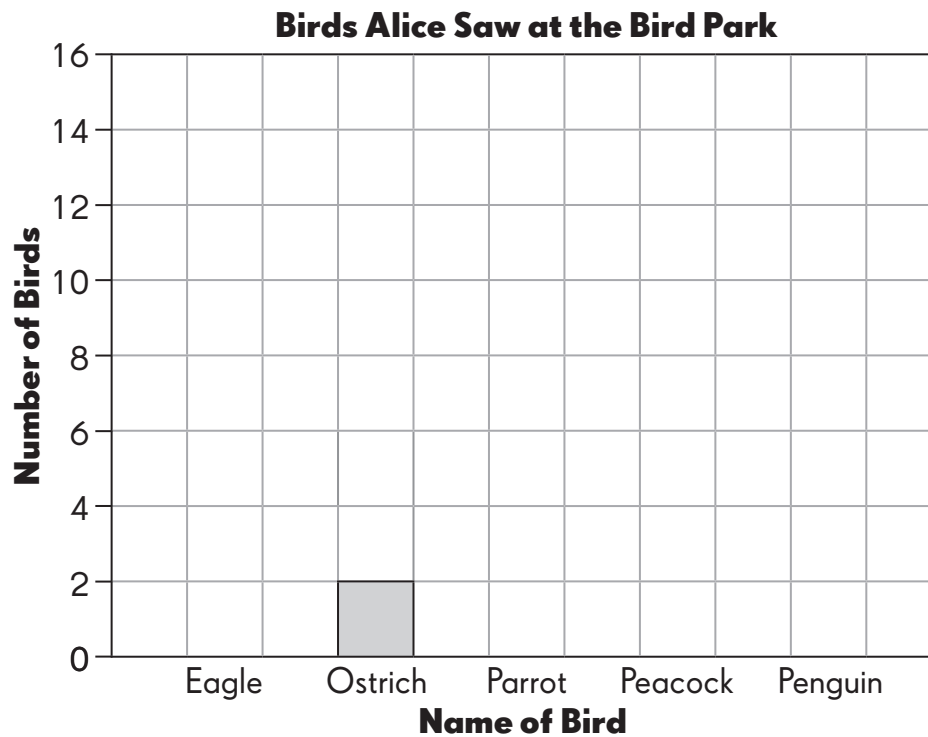
2.

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.

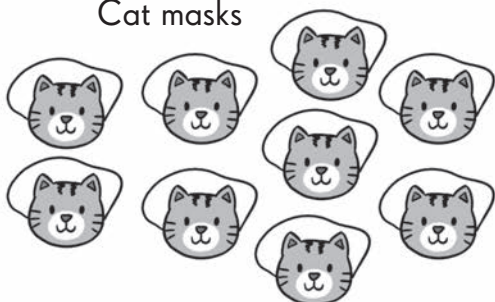
Use the data in the bar graph.

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

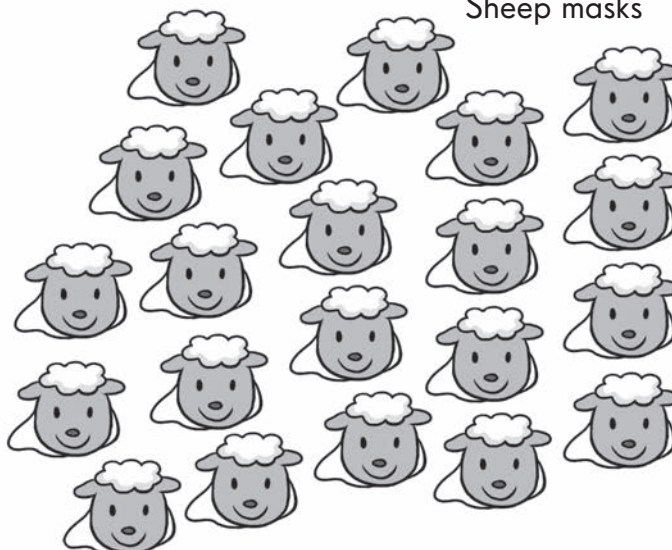
Joy and her friends are making animal masks.
 Count the number of each type of mask they have made.
Complete the tally chart and bar graph on page 65.



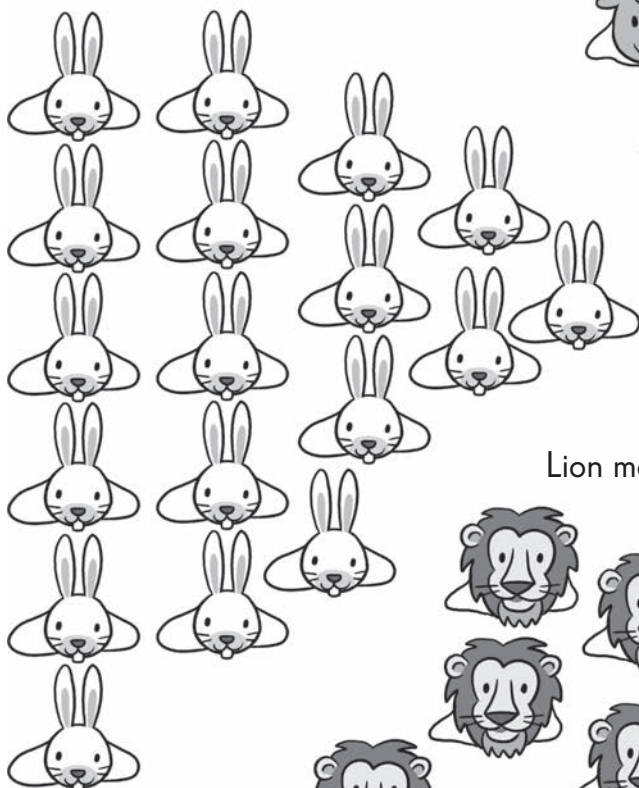
Cat masks



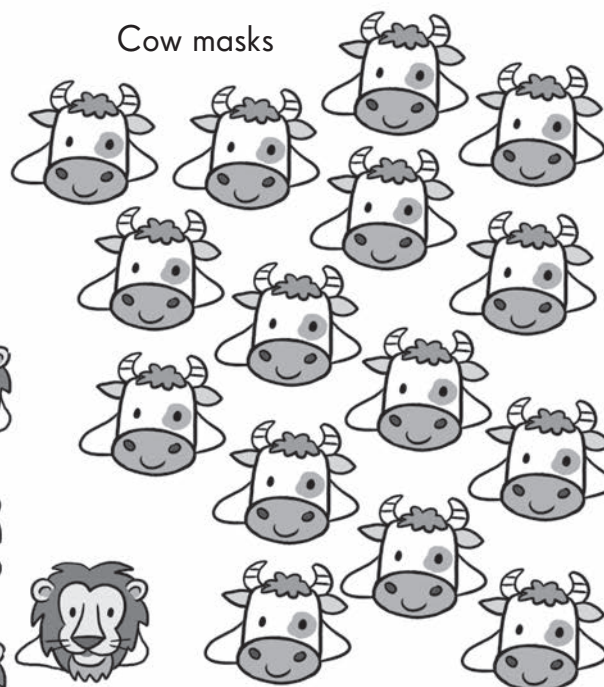
Sheep masks



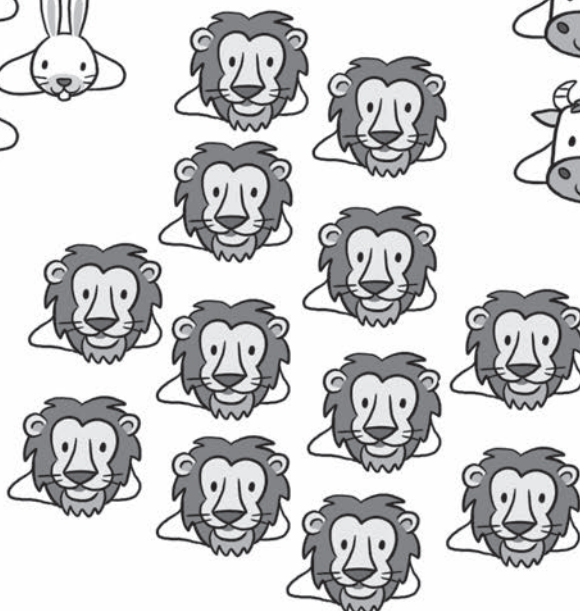
Rabbit masks



Cow masks

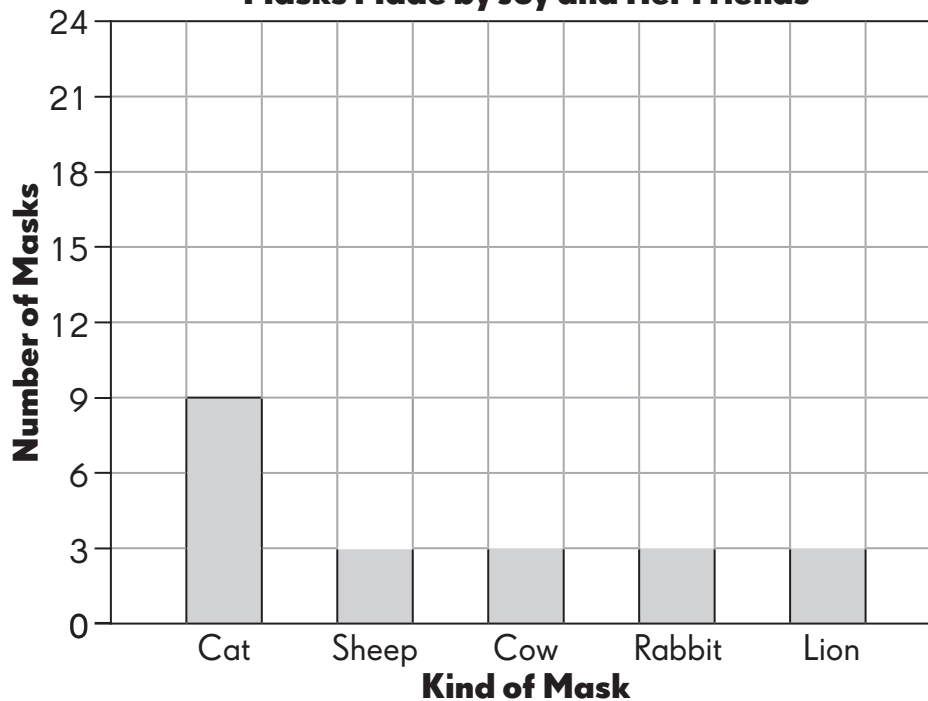


Lion masks



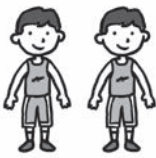
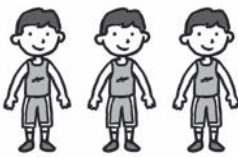

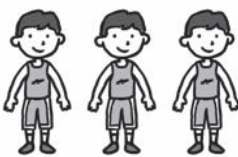


Complete.**6. Masks Made by Joy and Her Friends**

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? _____

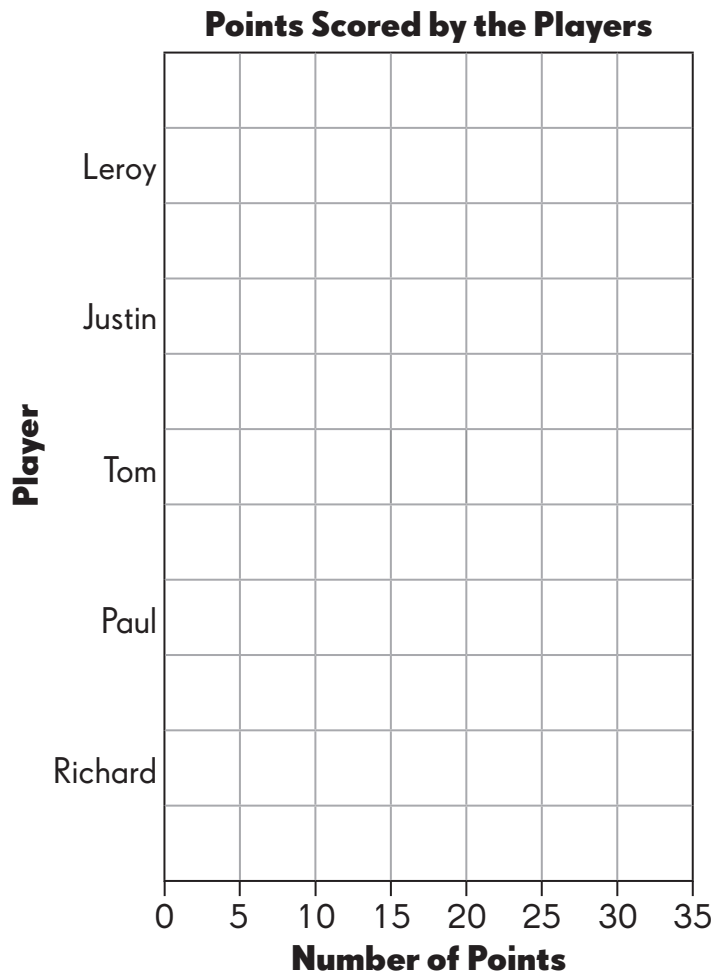
The picture graph shows the number of points five players scored in a basketball game.

Points Scored by Five Players

Player	Number of Points
Richard	
Paul	
Tom	
Justin	
Leroy	
Key: Each  stands for 5 points.	

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

10.



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.

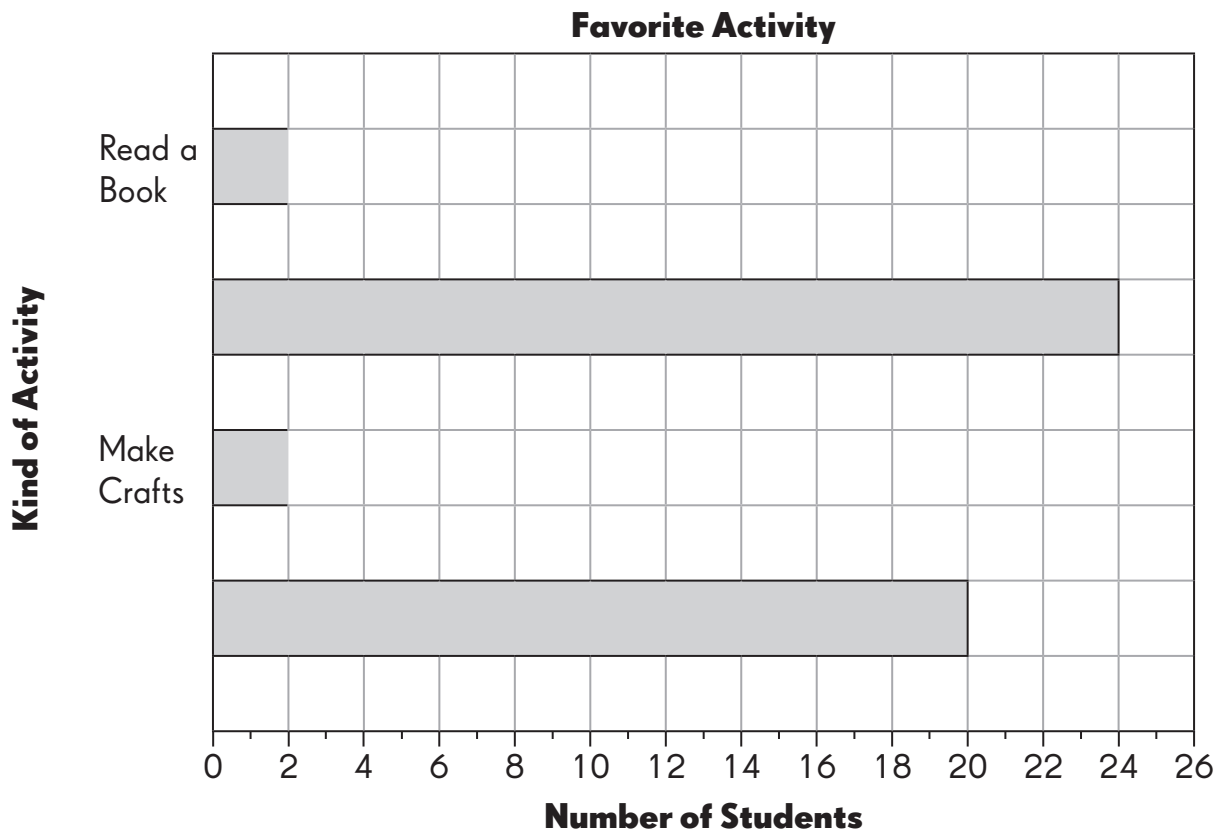
12 like to make crafts.

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

4 fewer children like to visit friends than play sports.

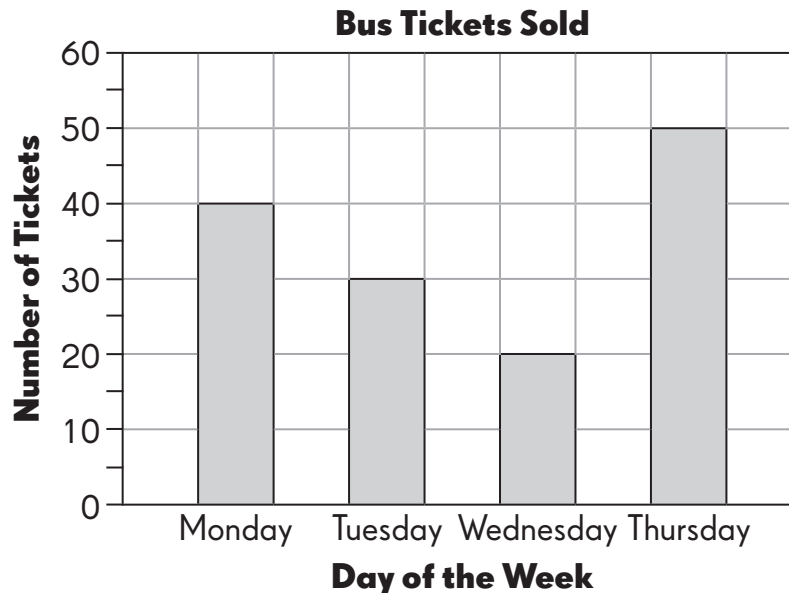
Complete the bar graph to show the favorite activities of third graders. Then fill in the missing activity names in the answer boxes.

13.



Practice 2 Reading and Interpreting Bar Graphs

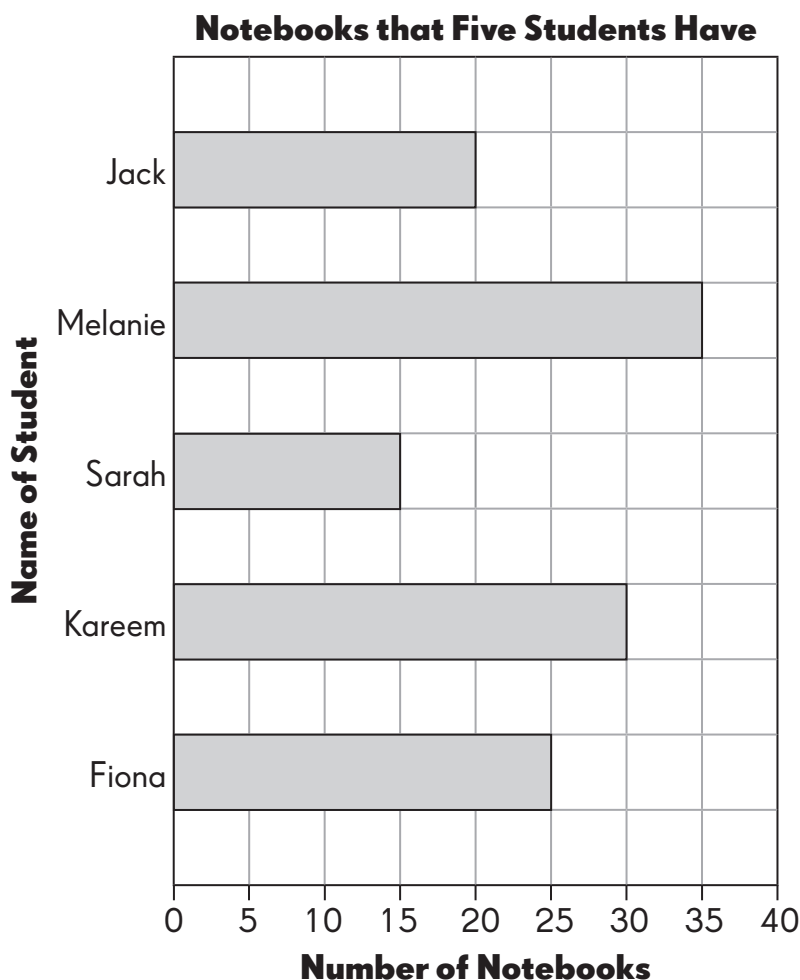
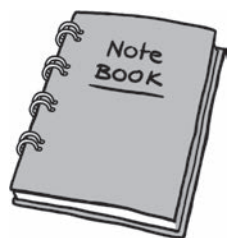
The bar graph shows the bus tickets that were sold on Monday, Tuesday, Wednesday, and Thursday.



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

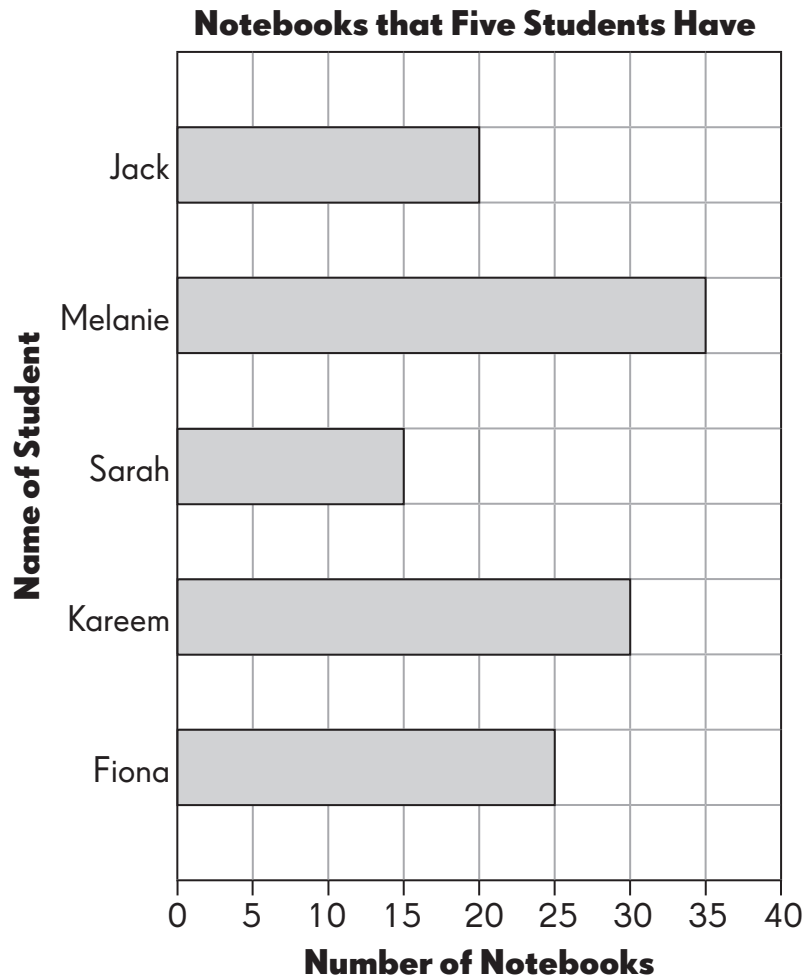
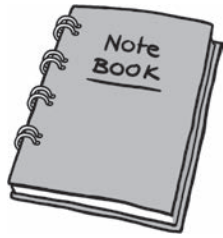
1. How many more tickets were sold on Thursday than on Wednesday?
_____ tickets
2. On Thursday, 15 of the tickets sold were for children. How many tickets sold were for adults? _____ tickets
3. 18 fewer tickets were sold on Friday than on Tuesday. How many tickets were sold on Friday? _____ tickets
4. 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.



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

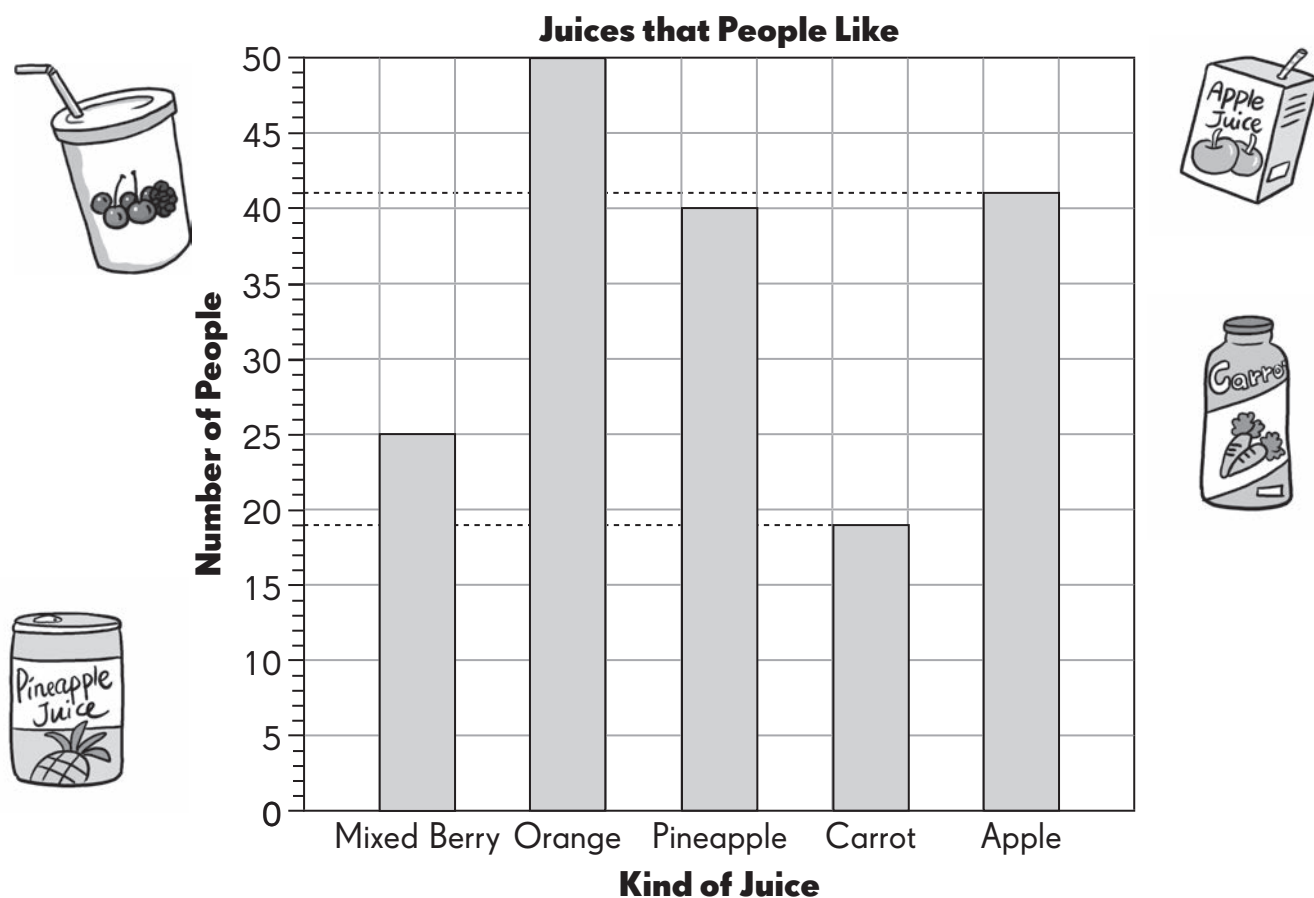
6. Jack has 20 notebooks.
7. Fiona has 25 notebooks.
8. Melanie has 40 notebooks.
9. Kareem has 5 fewer notebooks than Fiona.
10. Sarah has the least number of notebooks.



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.

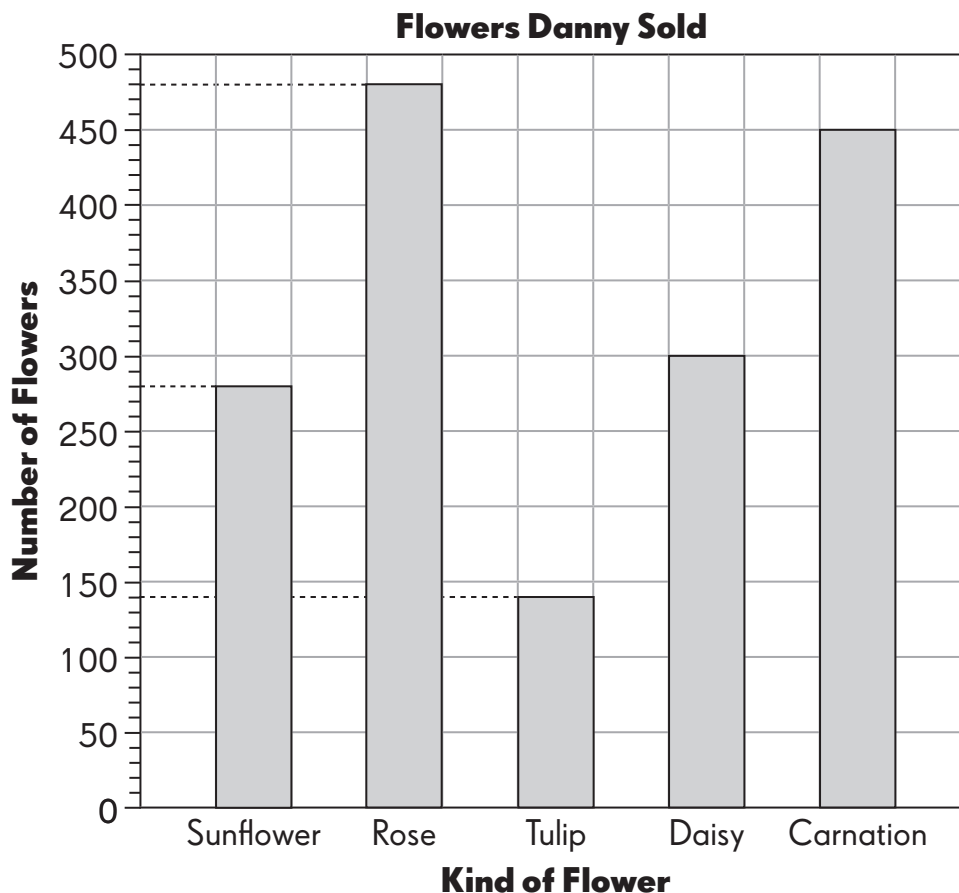


Fill in the blanks.

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?

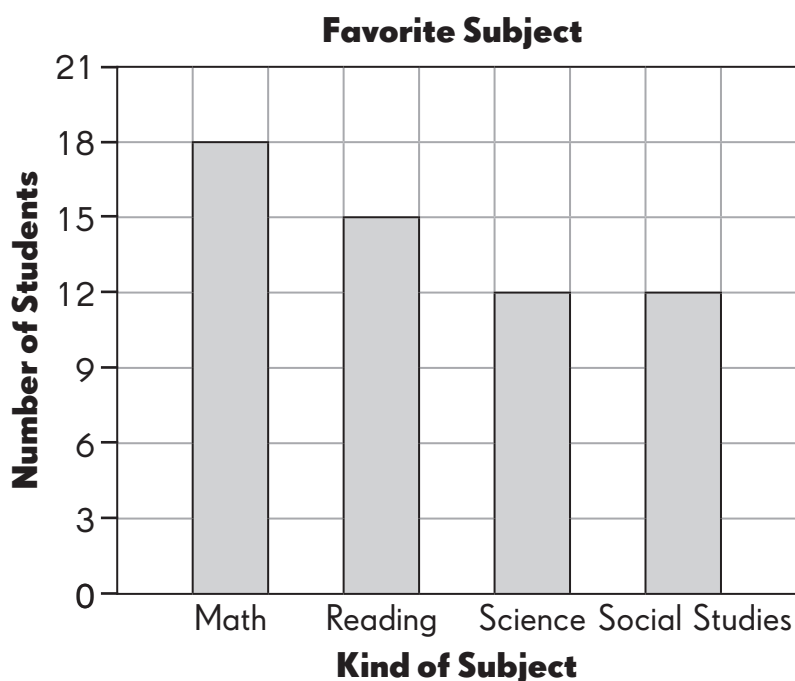
Danny sold flowers at the farmer's market.
The bar graph shows the number of flowers he sold.



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?

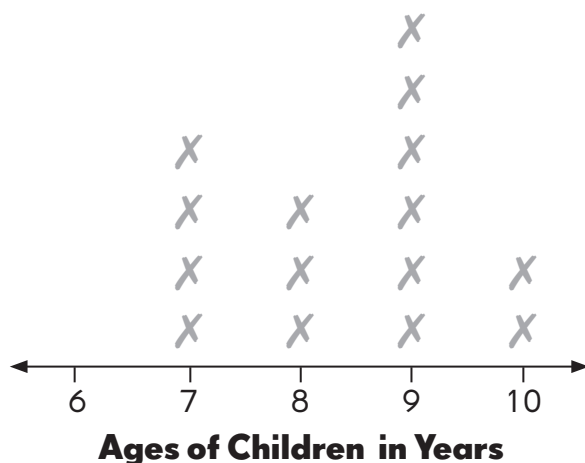
Practice 3 Line Plots

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.



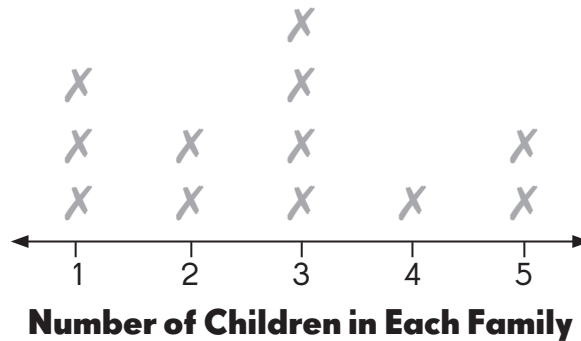
Answer each question.

Use the data in the line plot.

1. What does each \times 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.

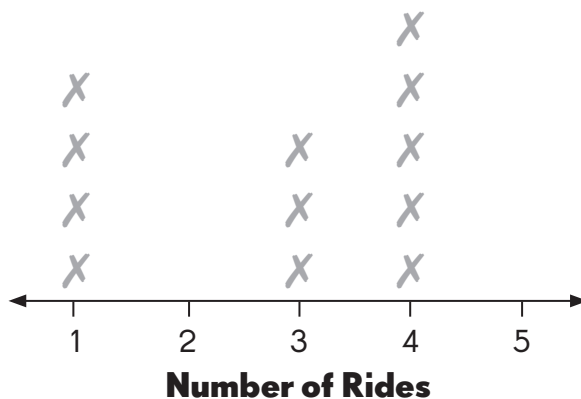
14.

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.

Number of Home Runs	0	1	2	3	4
Number of Players	1	2	1	2	3

Complete the table.

21. Number of Home Runs

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

Fill in the blanks.

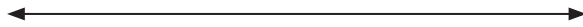
Use the data in the table.

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

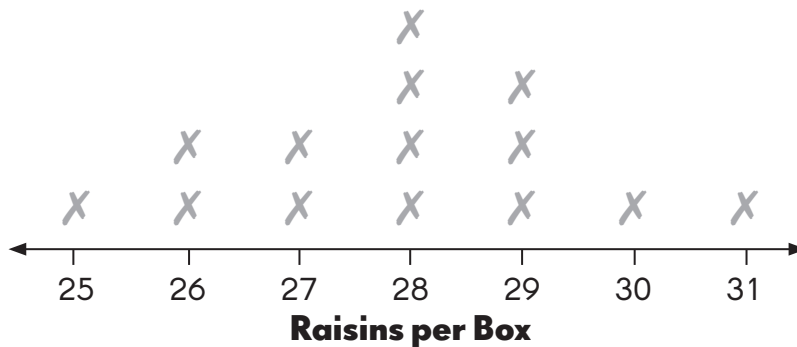
Answer each question.
Use the data in the line plot.

- 25.** What does each **X** 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



Math Journal

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 **X** for each student above one number.

Step 3 Check that the number of **X**s shows the data in the table.

Answer each question.

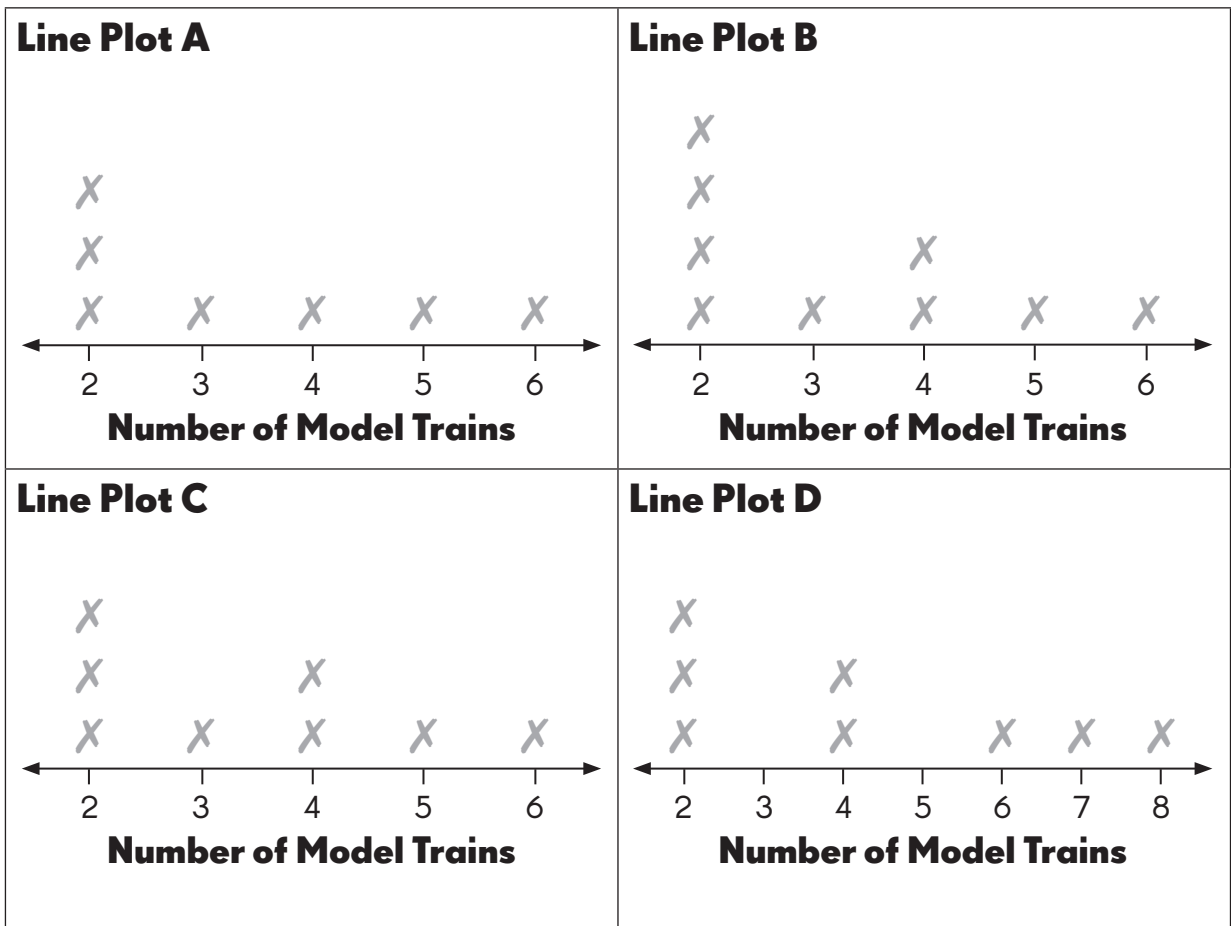
Use the data in the line plot.

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

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.

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



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.

5.

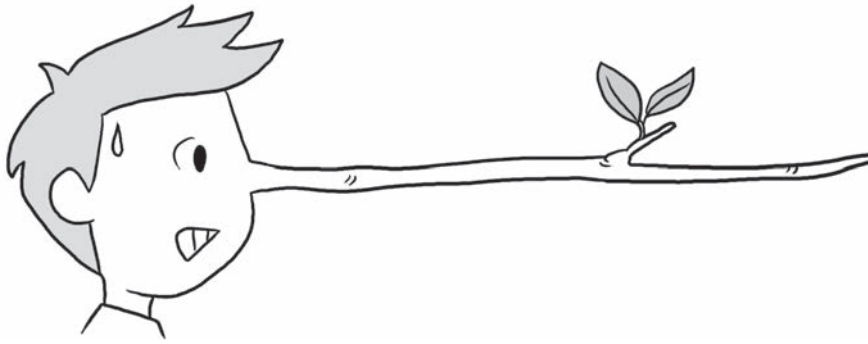
6.



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.	

Fill in the boxes to show the length his nose grew on...

- Complete the bar graph for Friday.

-
- | Day of the Week | Length Pinocchio's Nose Grew (cm) |
|-----------------|-----------------------------------|
| Monday | 36 |
| Tuesday | 24 |
| Wednesday | 24 |
| Thursday | 20 |
| Friday | 4 |

Use the data in the bar graph.

-



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.

Number of Games Won	Number of Students
0	2
1	6
2	4
3	3
4	1