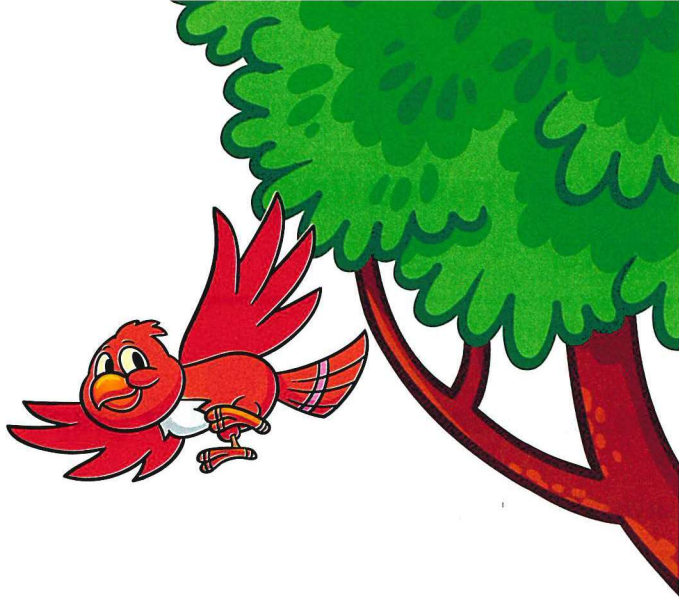




CHAPTER





Outcomes of chapter one :

At the end of chapter one, your child will be able to:

► Lessons 1 to 3 :

- Participate in calendar math activities.
- Collect and interpret data.
- Interpret data in a bar graph.
- Use the symbols $>$, $=$, and $<$ to express comparisons.

► Lessons 4 & 5 :

- Participate in calendar math activities.
- Collect and interpret data in a bar graph.
- Order a set of numbers from least to greatest.
- Solve put-together and take-apart problems about bar graph data.

► Lessons 6 to 8 :

- Participate in calendar math activities.
- Skip count by 2s.
- Interpret a bar graph with a scale of 2.
- Skip count by 10s.
- Interpret a bar graph with a scale of 10.
- Interpret data in a bar graph.

► Lessons 9 & 10 :

- Participate in calendar math activities.
- Solve put-together and take-apart problems about pictograph data.
- Interpret a bar graph with a scale of 2.
- Create a bar graph using data from a pictograph.



Lessons 1 to 3

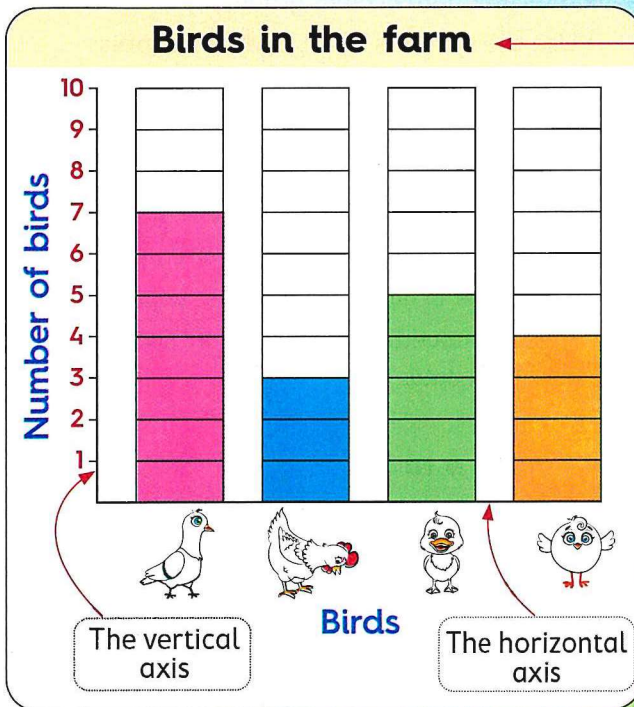
- Reading data
- Collecting and representing data
- Comparing data



Learn 1

Reading, collecting and representing data by a bar graph

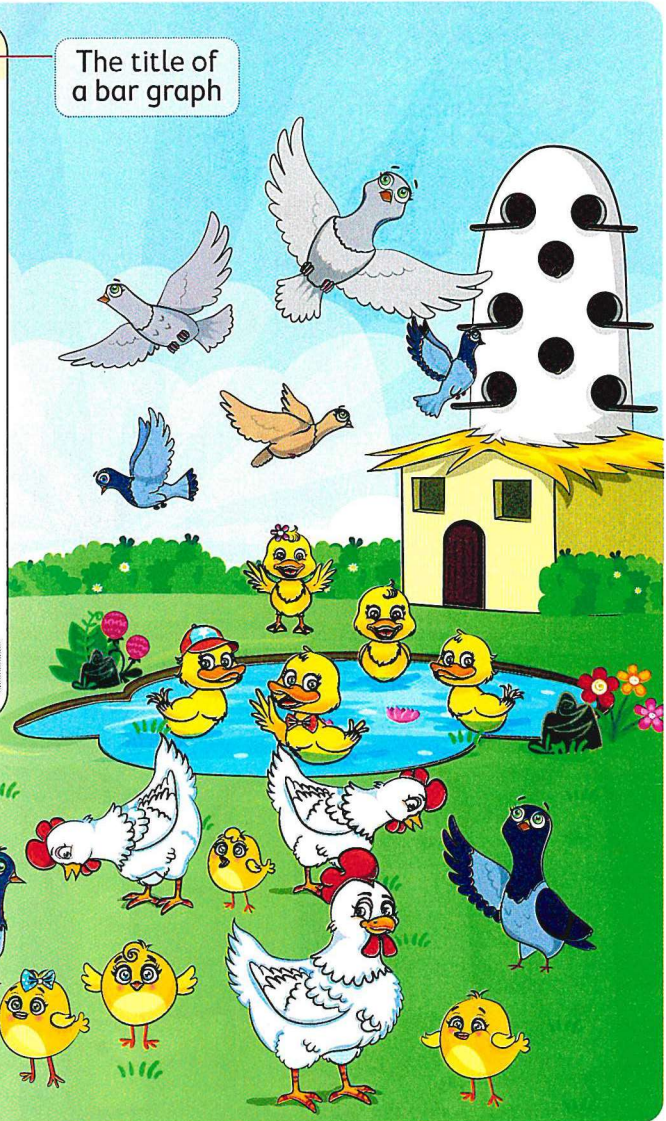
A **bar graph** is a chart uses bars (or columns) to show amounts.



The title of a bar graph

The vertical axis


The horizontal axis




I colored one box for each bird, starting from the bottom.




From the graph

• The number of  = 7

• The number of  = 5

• The number of  = 3

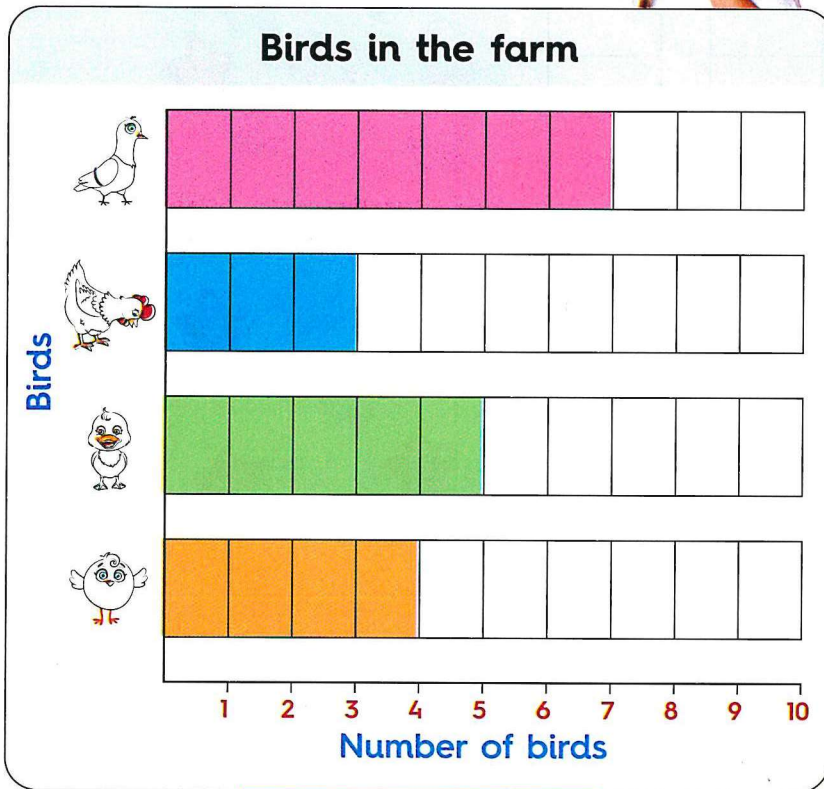
• The number of  = 4

Notes for parents

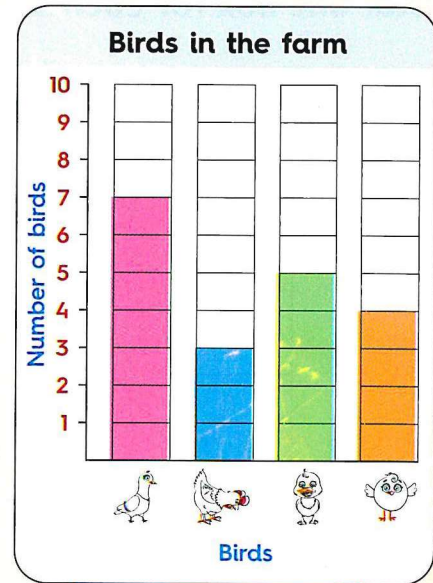
- Help your child understand the bar graph, and then ask him/her to tell you what he/she recognized.
- Make sure that your child starts coloring from the bottom.

Horizontal bar graph is another version of bar graph, the bars are going across the graph instead of up.

I have converted the same information from the vertical format into horizontal format.



Horizontal bar graph



Vertical bar graph





Note :
The graphs look different but the information is the same in both.

Learn 2 Comparing data using a bar graph

By reading the data, you can compare the data.

For example:

From the previous bar graphs,

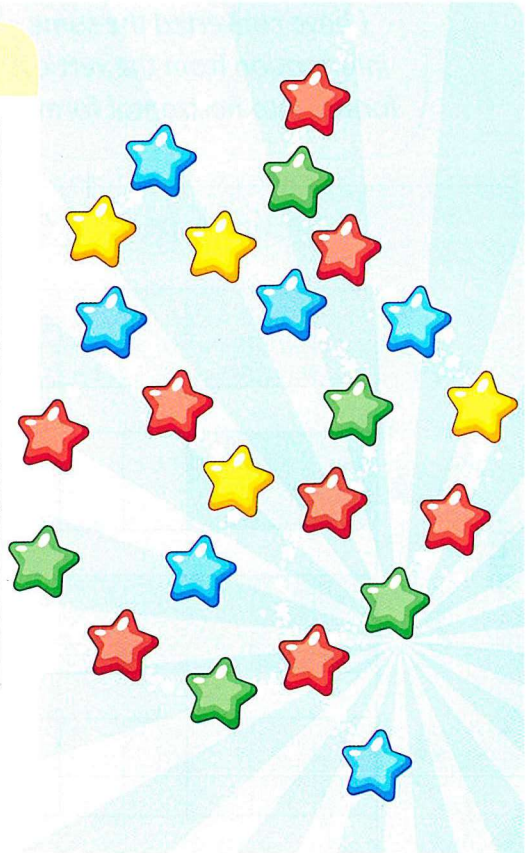
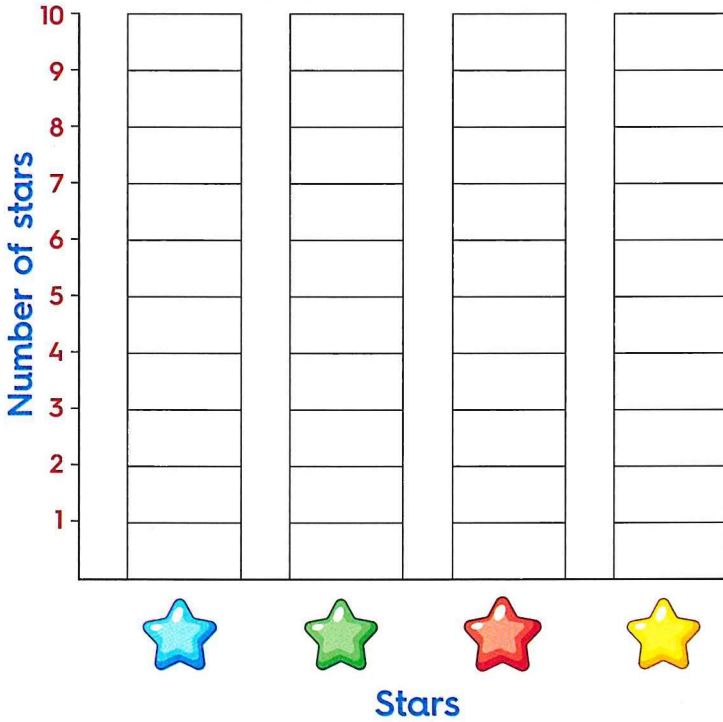
- The number of  is greater than the number of .
- The bird which has the greatest number in the farm is .
- The bird which has the smallest number in the farm is .

- Help your child know that the two bar graphs are the same. Both versions of the graph have bars of the same quantity.

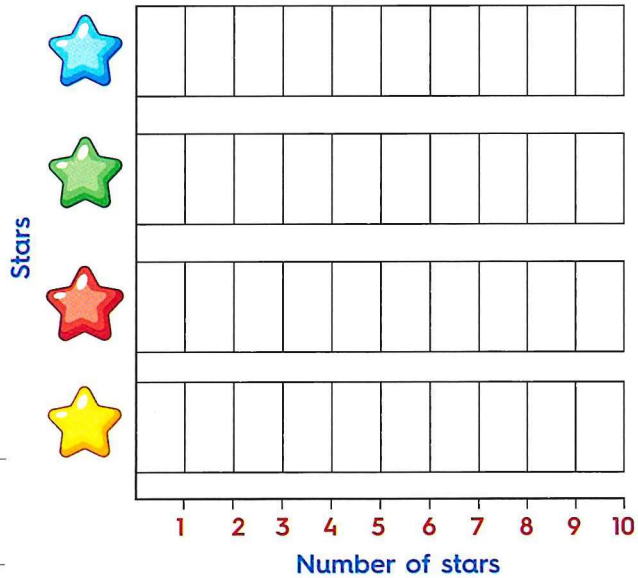
Check





Color one box for each star.

Stars in the sky



Convert the same information from the vertical bar graph into a horizontal bar graph, then complete.



- a. The number of  is _____
- b. The number of  is _____
- c. The number of  The number of  (> or <)

Exercise

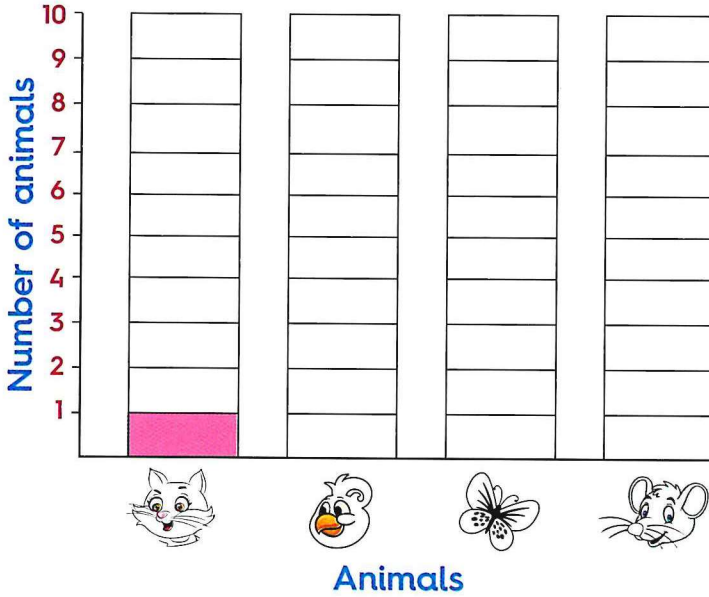
1

On Lessons 1 to 3





- Reading data
- Collecting and representing data
- Comparing data

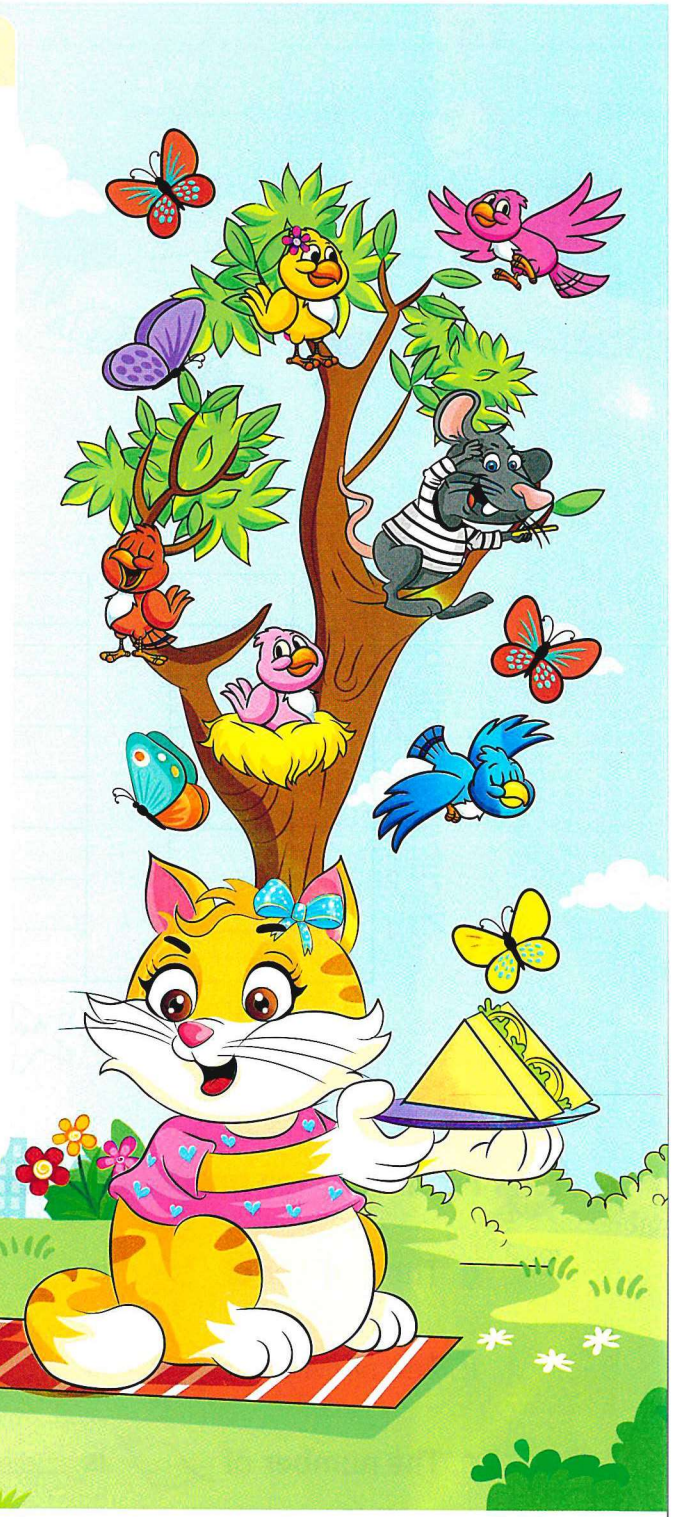
1 Color one box for each animal. The first one is done for you.

Animals in the garden

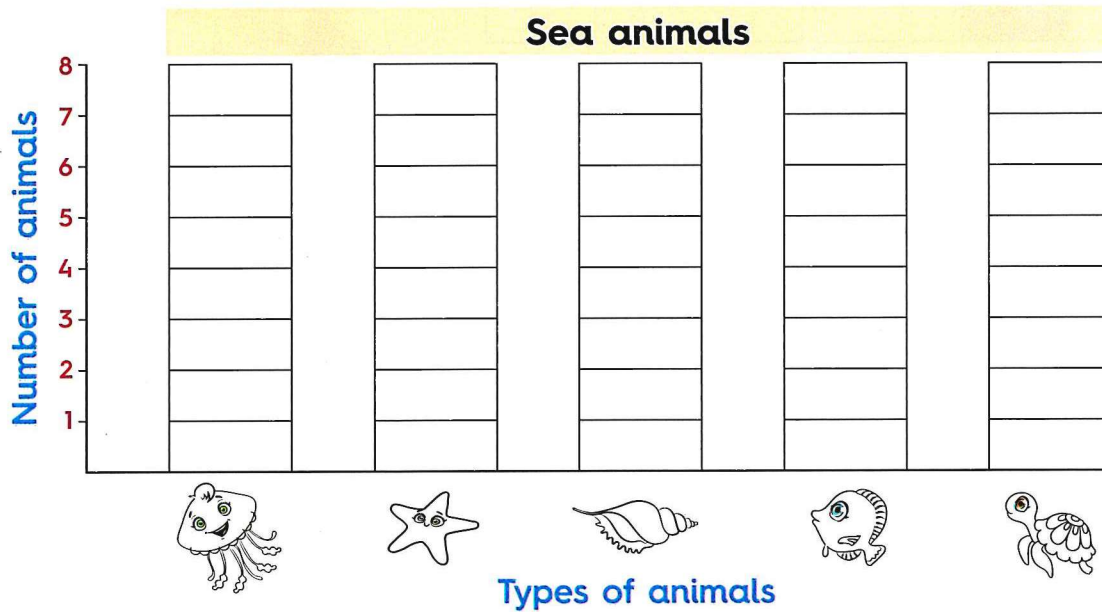
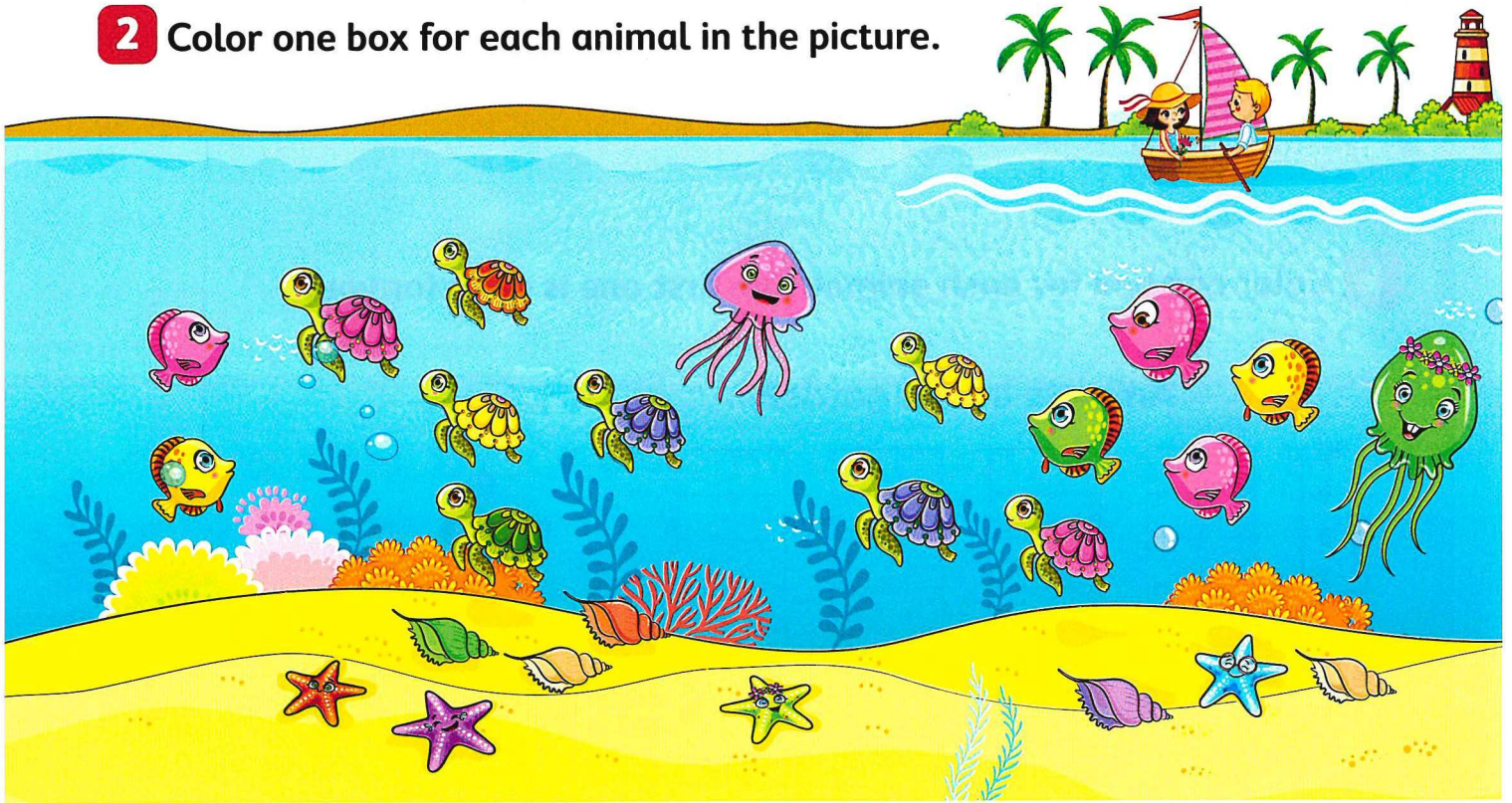


From the bar graph, complete.

- The number of  = _____
- The number of  = _____
- The number of  = _____
- The number of  = _____



2 Color one box for each animal in the picture.



 From the bar graph, complete.

a. The number of  is _____

b. The number of  is _____

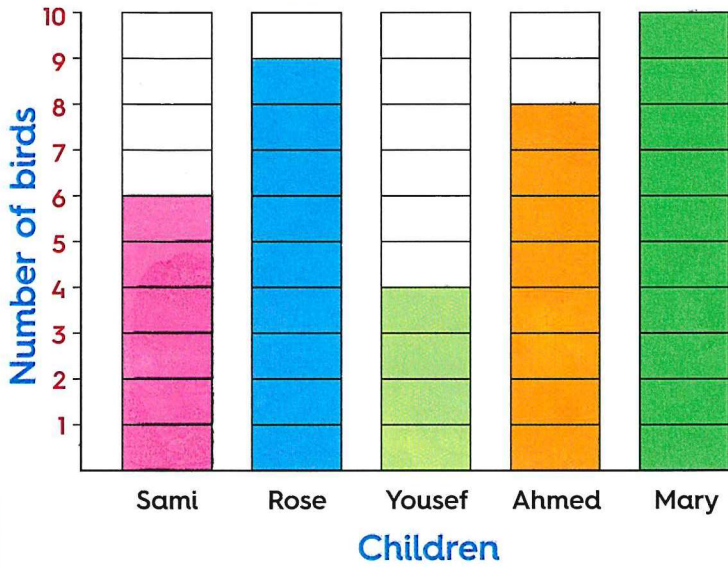
c. The number of  is _____

d. The number of  is _____

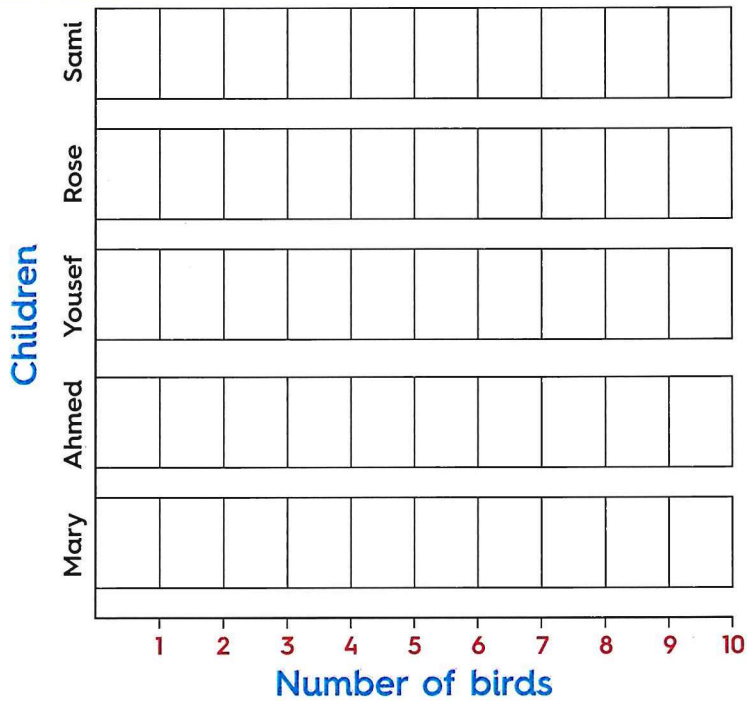
e. The number of  is _____

3 Convert the same information from the vertical bar graph into a horizontal bar graph.

Birds seen at the park



Birds seen at the park





4 In **BOTH** pages :



Color one box for each animal or insect.

Types of animals or insects

In the farm										
Cow										
Hen										
Horse										
Rabbit										
Bee										
	1	2	3	4	5	6	7	8	9	10

Number of animals or insects



Use the bar graph. Complete using $>$, $<$ or $=$.

a. Number of bees _____ _____ Number of hens

b. Number of rabbits _____ _____ Number of cows

c. Number of horses _____ _____ Number of bees

d. Number of hens _____ _____ Number of rabbits

e. Number of cows _____ _____ Number of horses

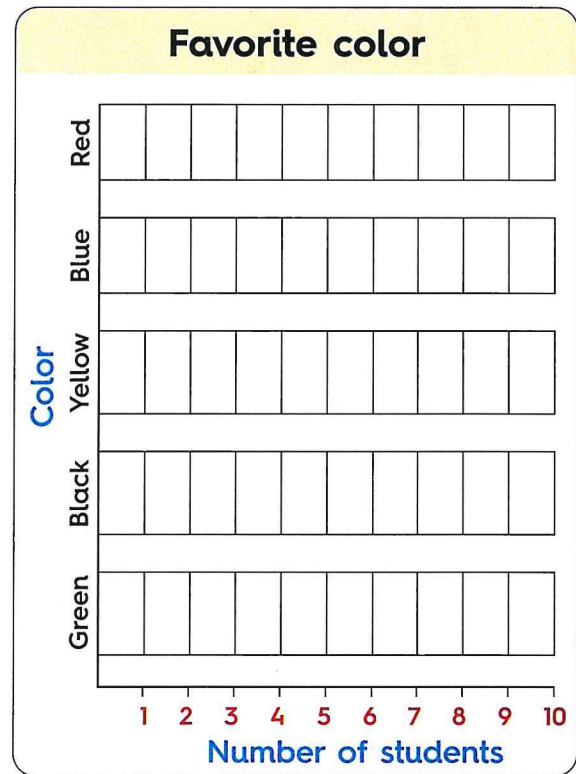
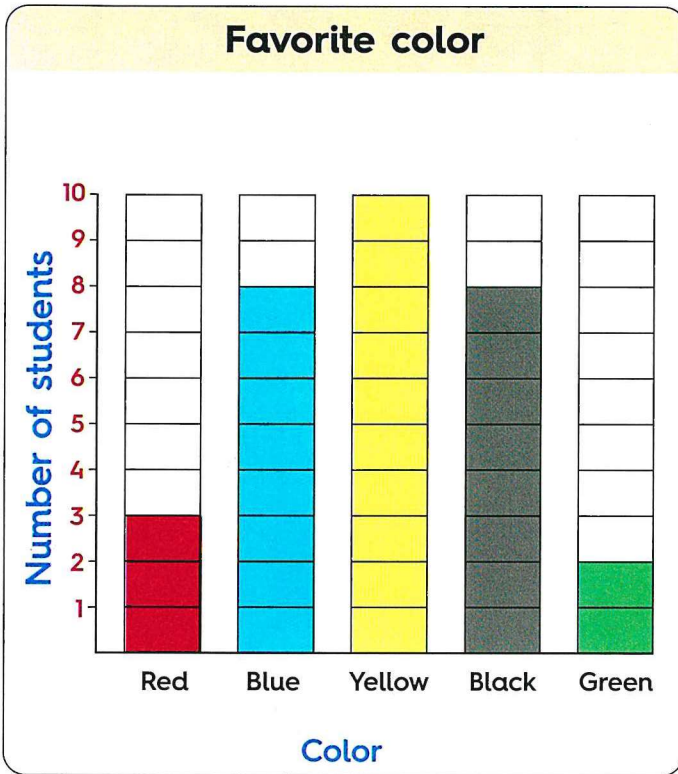
Remember that

" $>$ " means greater than
For example : $15 > 7$

" $<$ " means less than
For example : $5 < 7$

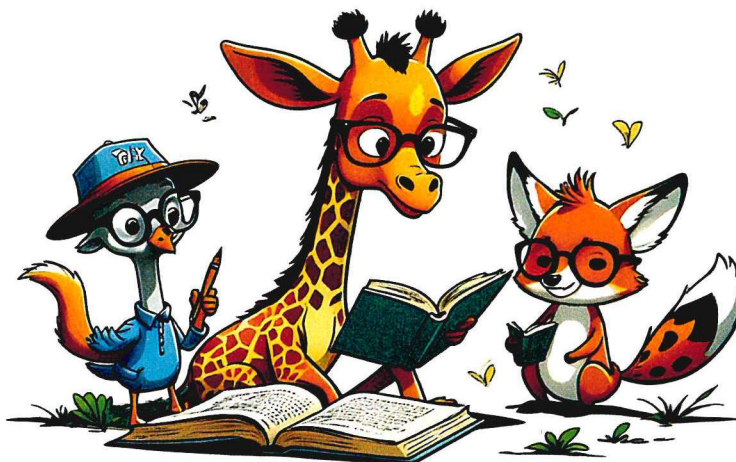
" $=$ " means is equal to
For example : $7 = 7$

5 Convert the same information from the vertical bar graph into a horizontal bar graph.

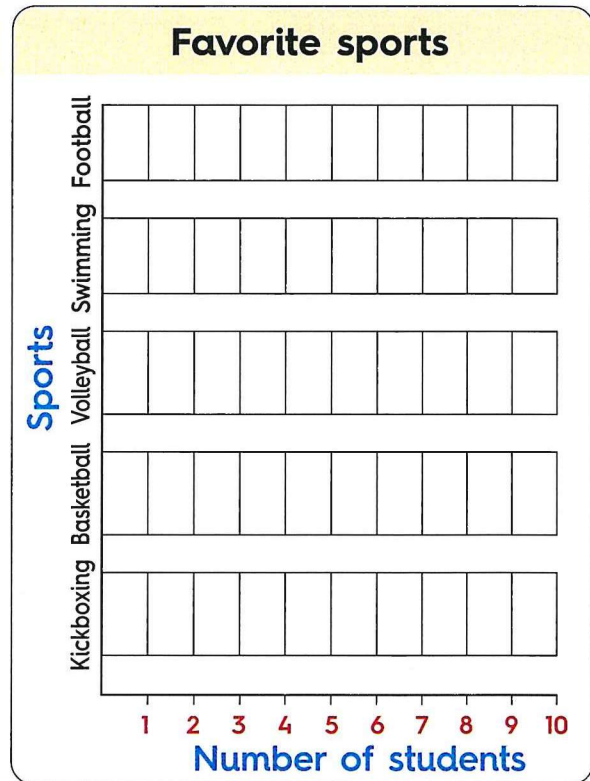
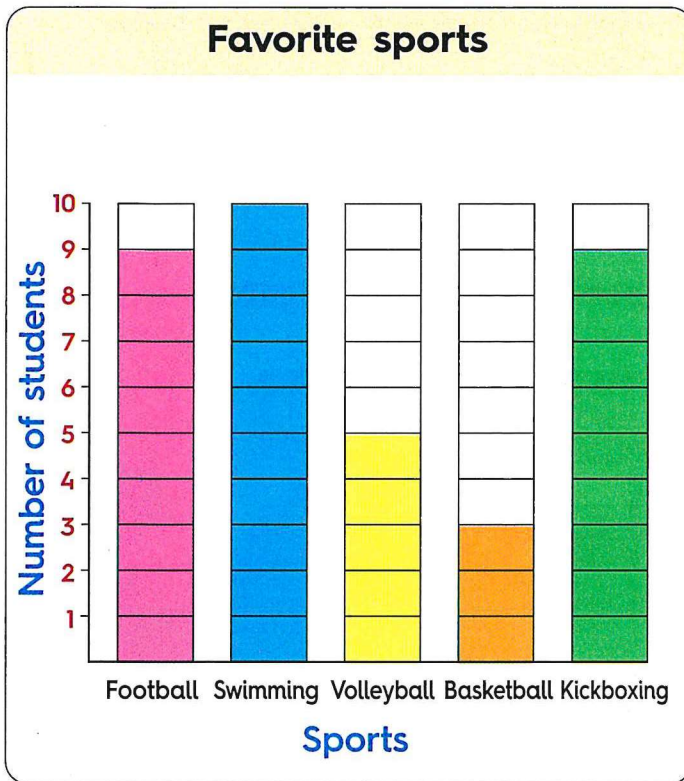


Use the bar graph. Complete using $>$, $<$ or $=$.

- a. Number of students who liked green Number of students who liked blue
- b. Number of students who liked yellow Number of students who liked black
- c. Number of students who liked red Number of students who liked yellow
- d. Number of students who liked blue Number of students who liked black

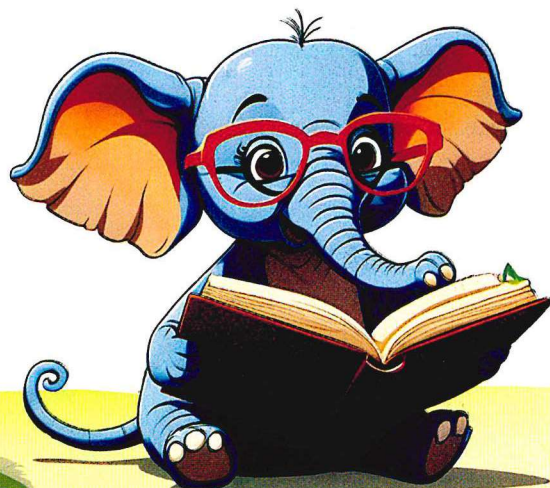


6 Convert the same information from the vertical bar graph into a horizontal bar graph.



Use the bar graph. Complete using $>$, $<$ or $=$.

- a. Number of students who liked football Number of students who liked kickboxing
- b. Number of students who liked swimming Number of students who liked volleyball
- c. Number of students who liked basketball Number of students who liked football
- d. Number of students who liked football Number of students who liked swimming



Place a smiley face

Lessons 4 & 5

- Representing and interpreting data
- Representing data with a scale of 1

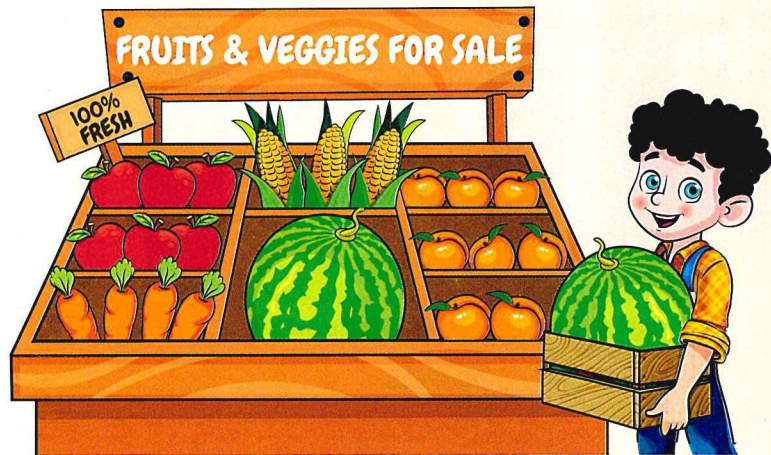


Learn 1 Representing data from a table with a scale of 1

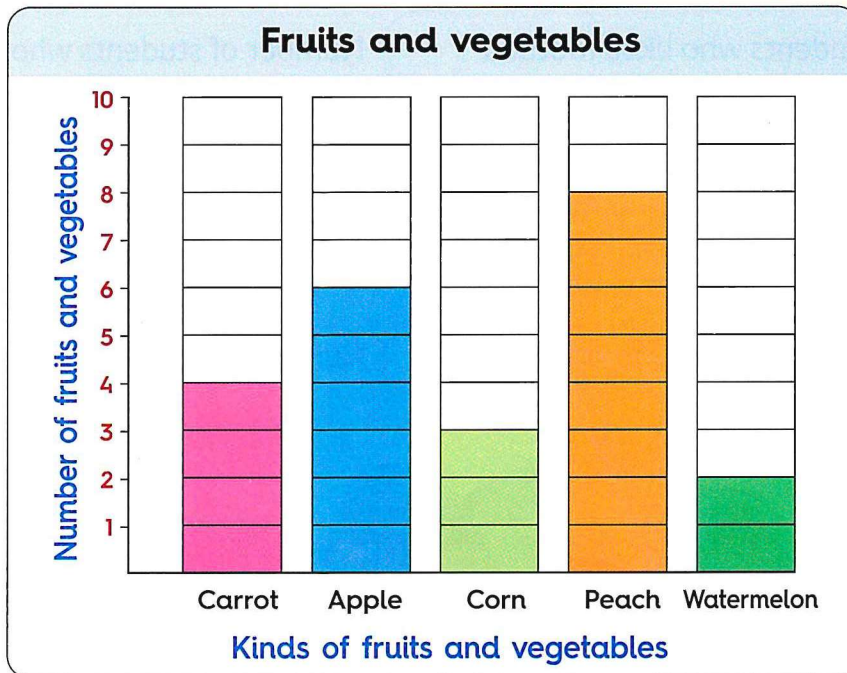
A **bar graph** is a way to represent data visually.

- The following table shows the numbers of fruits and vegetables at the farm stand.

Fruits and vegetables	
Kind	Number
Carrot	4
Apple	6
Corn	3
Peach	8
Watermelon	2



- The following bar graph represents the same data with a scale of 1.



- Ask your child to explain how to convert the table to bar graph.
- Ask him/her to find the most and the least kind of fruits and vegetables in the bar graph.

Learn 2 Interpreting data

Reading a bar graph gives you information.

Here are some information from the opposite bar graph :

- The subject which liked the least is *science*.
- The subject which liked the most is *Arabic*.
- The number of students who liked math and English is *14*.

Think

You can add to solve a problem.

$$8 + 6 = 14$$

- The number of students who liked more Arabic than science is *7*.

Think

You can subtract to solve a problem.

$$10 - 3 = 7$$

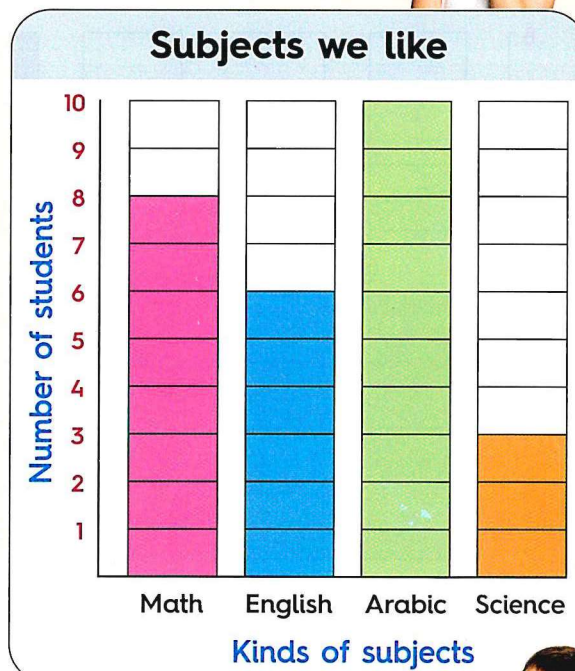
- The number of students who liked math , English and Science is *17*.

Think

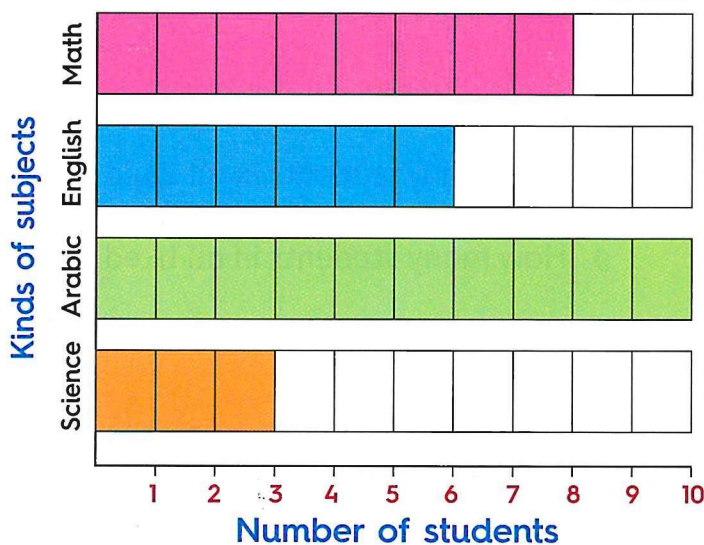
You can add to solve a problem.

$$8 + 6 + 3 = 17$$

You read this bar graph from bottom to top.



This is another way to represent data visually. You read this bar graph from left to right.

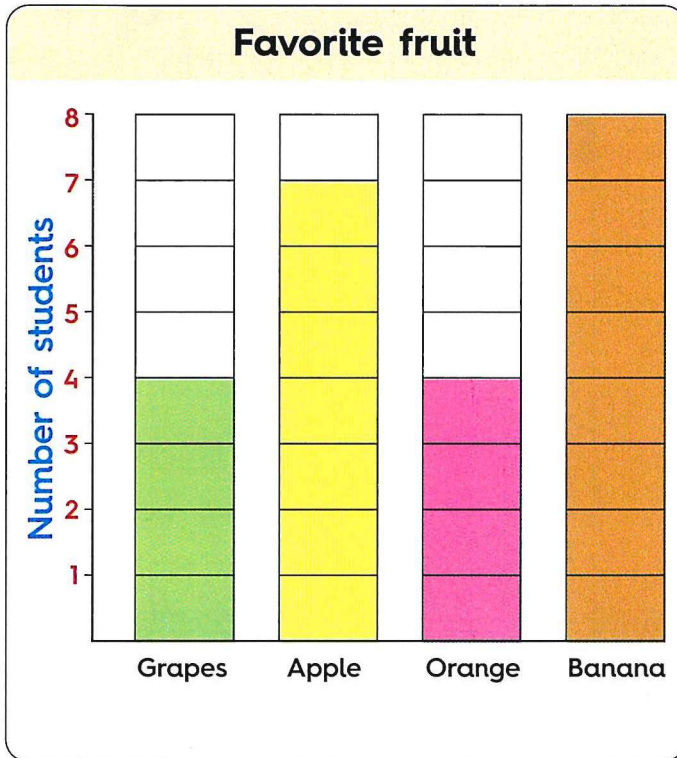


- To find the number of students who liked more Arabic than science, your child may count the rows between Arabic and science, or count up from 3 to 10 or subtract the smaller number 3 from the bigger number 10.

Check



Use the bar graph to complete the table.



Favorite fruit				
Fruit	Grapes	Apple	Orange	Banana
Number of students				



Answer the following questions.

- How many students liked grapes ? _____
- How many students liked apple ? _____
- Which fruit is liked the most ? _____
- How many students in all liked apple and orange ? _____
- How many students in all liked grapes and banana ? _____
- How many students liked banana more than grapes ? _____
- How many students in all liked orange and grapes ? _____
- How many students liked apple more than orange ? _____

- Help your child describe the information in the bar graph and answer the questions about data.
- Let your child decide the operation of addition or subtraction in this page to answer the questions.

Exercise

2

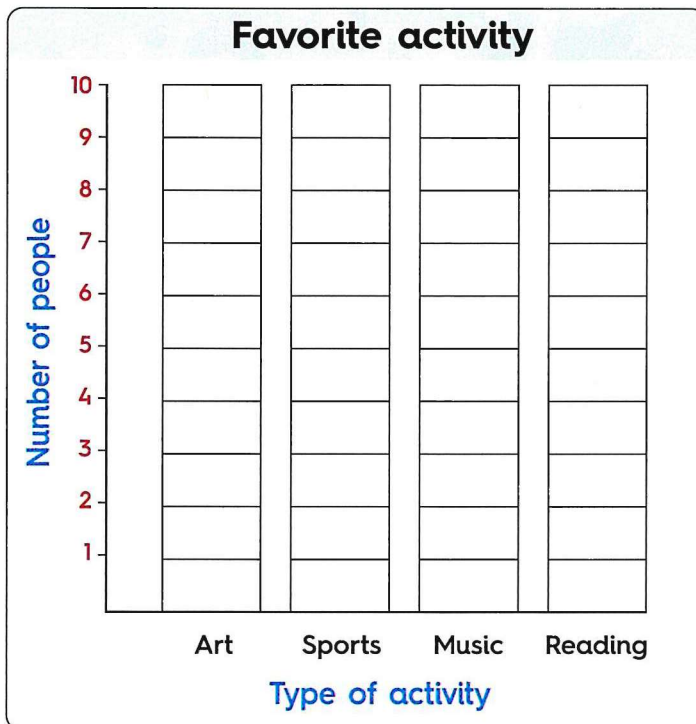
On Lessons 4 & 5

- Representing and interpreting data
- Representing data with a scale of 1

From the school book

1 Read the table. Shade in the graph to show the same data.

Favorite activity				
Type	Art	Sports	Music	Reading
Number	4	7	5	10



 Use the graph to answer the questions.

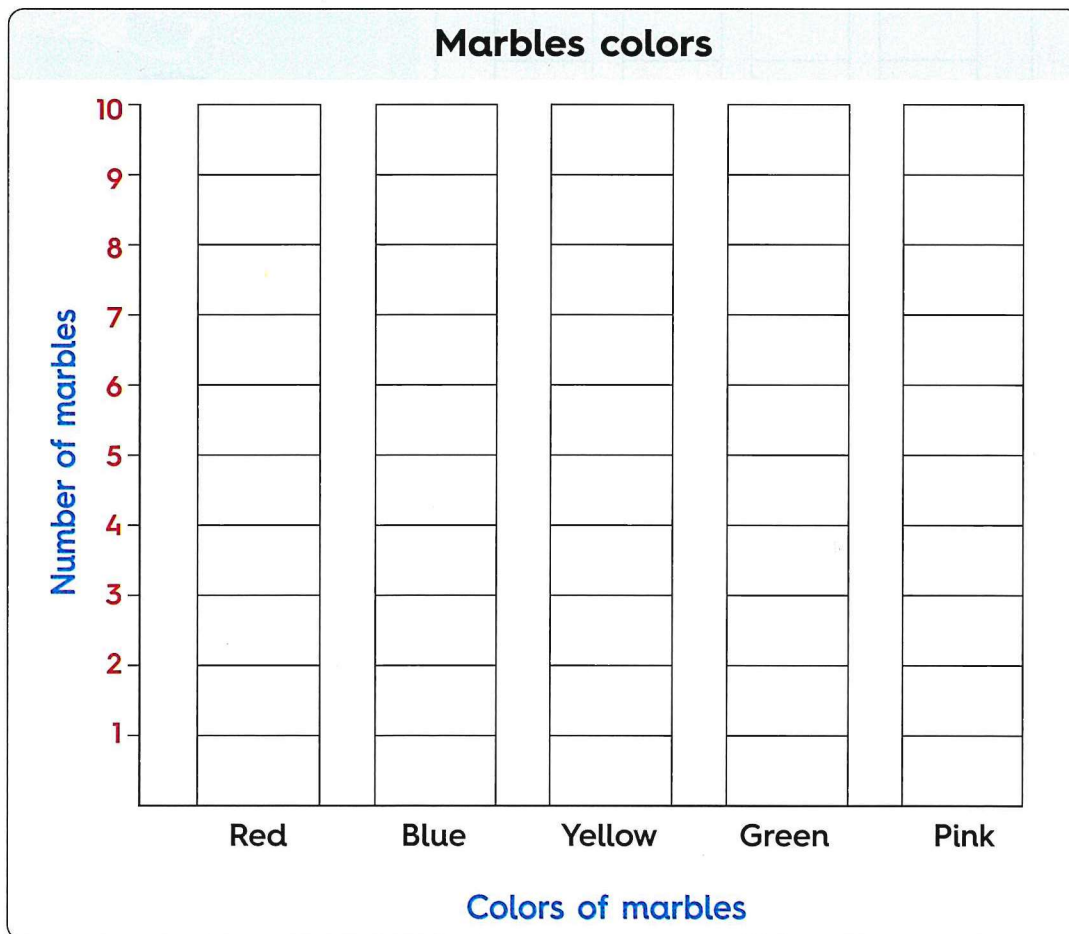
- Which activity is the most favorite? _____
- Which activity is the fewest favorite? _____
- How many students in all liked art and music? _____
- How many students in all liked sports and reading? _____
- How many students liked sports more than music? _____
- How many students in all liked sports and music? _____

2 Look at the picture, then complete the table.

Marbles colors	
Color	Number
Red	_____
Blue	_____
Yellow	_____
Green	_____
Pink	_____



 From the table color the bar graph.





Use the previous bar graph to complete the sentences from a to d.

a. The color of the most marbles is _____

b. The color of the least marbles is _____

c. The number of yellow marbles is _____

d. The number of pink marbles is _____



Use the previous bar graph to answer the questions from e to k.

e. How many red and yellow marbles are there? _____

f. How many blue and green marbles are there? _____

g. How many pink and red marbles are there? _____

h. How many blue marbles more than green marbles? _____

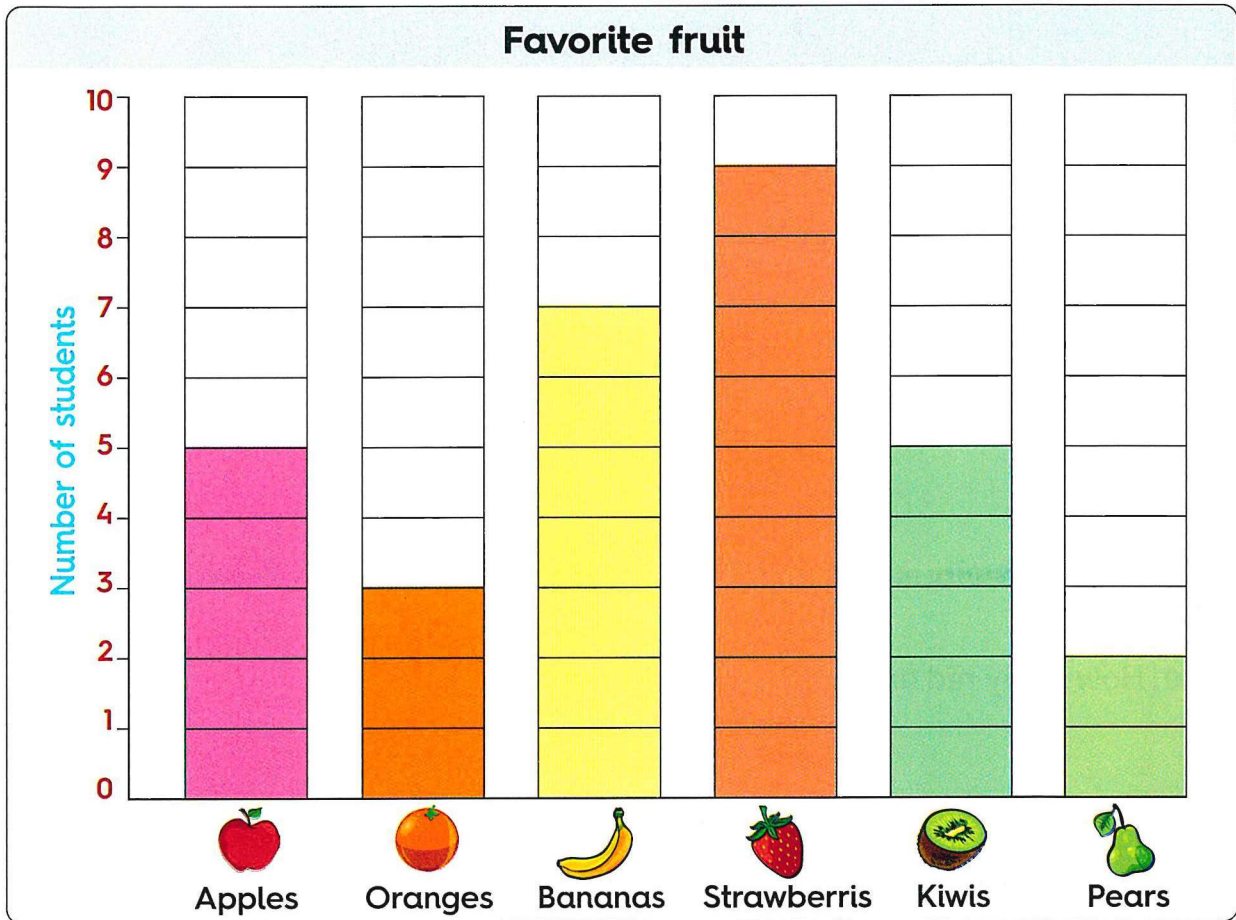
i. How many red marbles more than yellow marbles? _____

j. How many pink marbles more than red marbles? _____

k. List the marbles color data from the least to the greatest.

_____ , _____ , _____ , _____ , _____

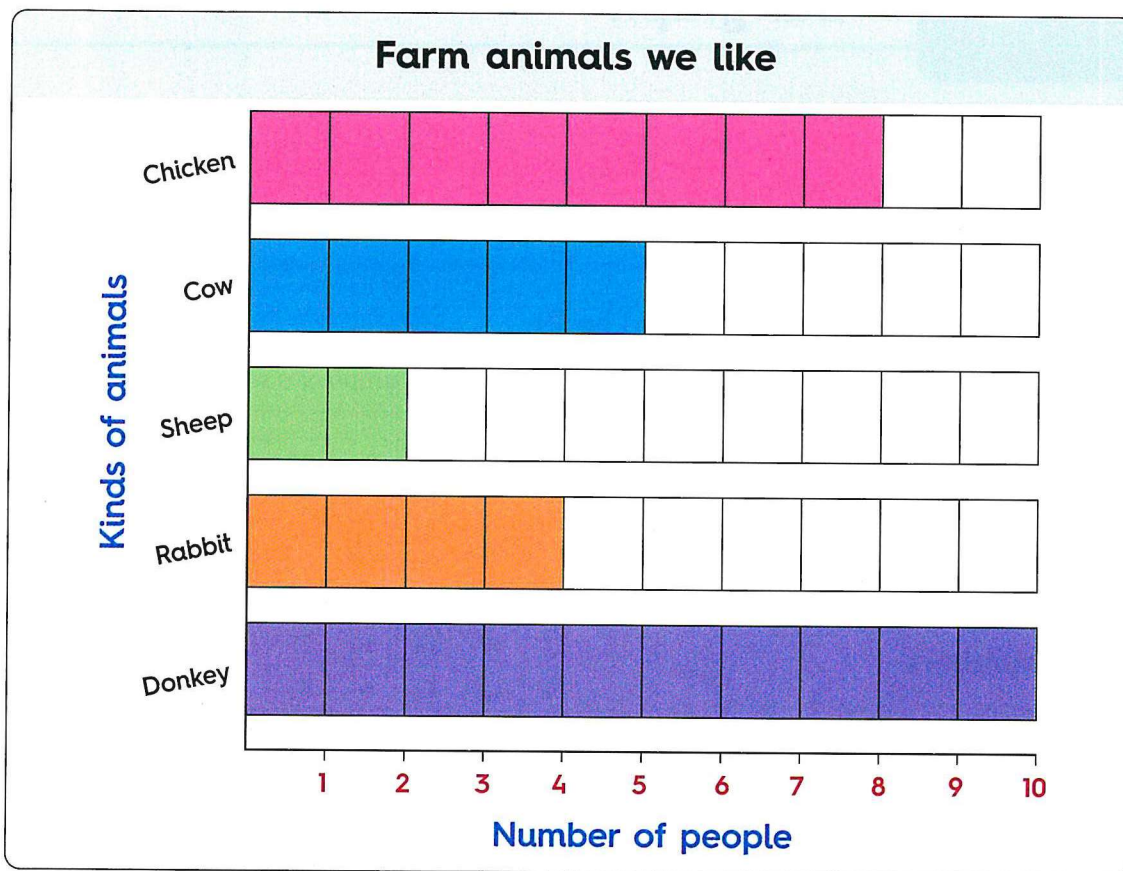
3  Look at the Favorite fruit graph and then answer questions about the data.



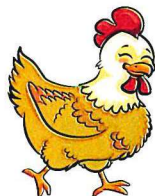
- How many more people liked strawberries than pears? _____
- How many people all together liked kiwis, apples, and oranges? _____
- How many more people liked strawberries than oranges? _____
- How many people in all liked apples, bananas, and pears? _____
- How many people in total shared which fruit they liked best? _____



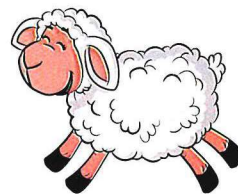
4 Use the following bar graph to answer the questions.



a. Which animal is liked the most ? _____



b. Which animal is liked the least ? _____



c. How many people in total liked cows and sheep ? _____

d. How many people in total liked chicken and rabbits ? _____

e. How many more people liked chicken than rabbits ? _____

f. How many more people liked donkey than cows ? _____

g. How many people in all liked cows, rabbits and donkeys ? _____

h. How many people in all liked chicken, sheep and cows ? _____

Place
a smiley
face

Lessons 6 to 8

- Representing data with a scale of 2
- Representing data with a scale of 10
- Bar graph

Pre-study

Skip counting by 2s

Start on **2** on the chart. Count forward by **2s**.

2 , **4** , **6** , **8** , **10** , **12** , ...

You skipped 3 , 5 , 7 , 9 , 11 , ...

Practice:

- Start on 6. Skip count by 2s.
Write the numbers

, , ,
 , ,

Skip counting by 2s will help you when working with a bar graph of a scale of 2.



91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

Skip counting by 10s

Start on **10** on the chart. Count forward by **10s**.

10 , **20** , **30** , **40** , **50** , **60** , ...

You simply move down one row each time.

Practice:

- Start on 4. Skip count by 10s.
Write the numbers

, , ,
 , ,

Skip counting by 10s will help you when working with a bar graph of a scale of 10.



91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10



Learn 1 Representing data with a scale of 2

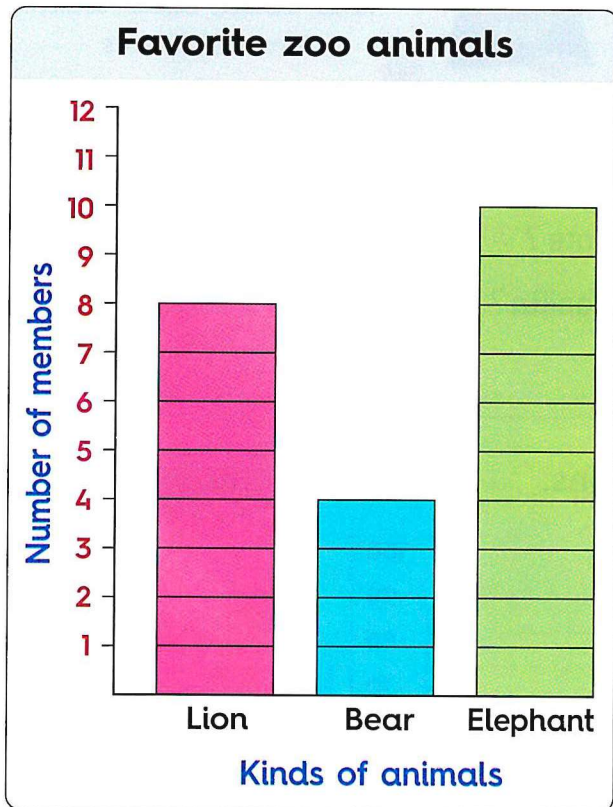
You can use any scale for a bar graph. Here are two bar graphs that show the same data with different scales.



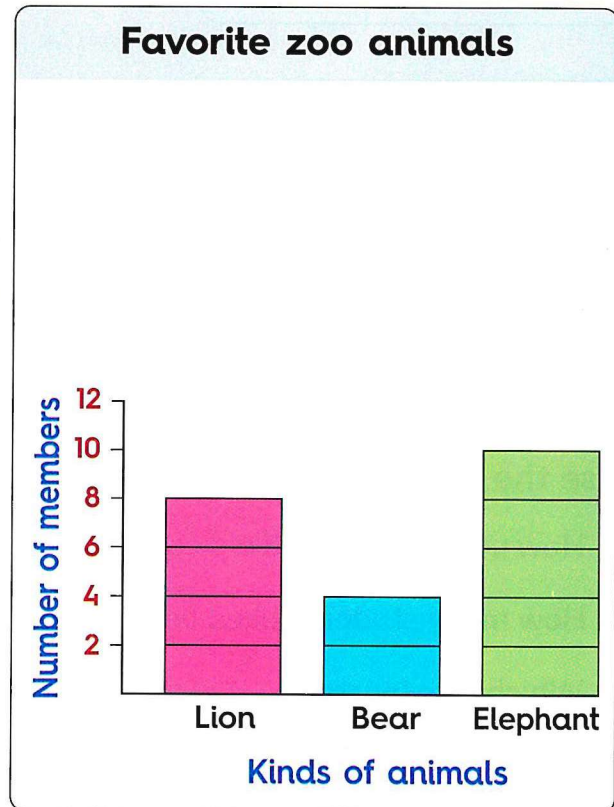
Each box in the bar graph of scale 1 represents 1 member.

Each box in the bar graph of scale 2 represents 2 members.

Mark uses a **scale of 1**



Sarah uses a **scale of 2**



- Which animal is liked the least? Bear
- Which animal is liked the most? Elephant
- How many people liked lion and bear? $8 + 4 = 12$
- How many people liked elephant more than bear? $10 - 4 = 6$



- Train your child to skip counting by 2s.
- Tell your child that two boxes of bar graph with a scale of 1 equals 5 one box of bar graph with a scale of 2.



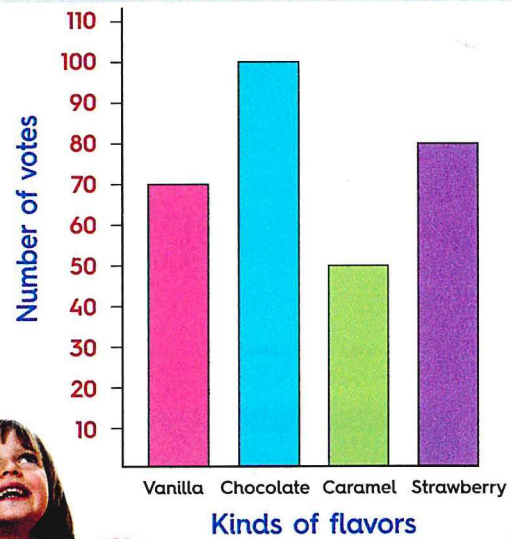
Learn 2 Representing data with a scale of 10

The following table is a voted table of 300 people for their favorite ice cream flavor.

Favorite ice cream flavor	
Flavor	Number
Vanilla	70
Chocolate	100
Caramel	50
Strawberry	80

The data on the table is represented on bar graph with a scale of 10 because the number of people is big.

Favorite ice cream flavor



- Which ice cream flavor is liked the least ? Caramel
- Which ice cream flavor is liked the most ? Chocolate
- How many votes in all liked vanilla and chocolate ? $70 + 100 = 170$
- How many more votes liked strawberry than vanilla ? $80 - 70 = 10$

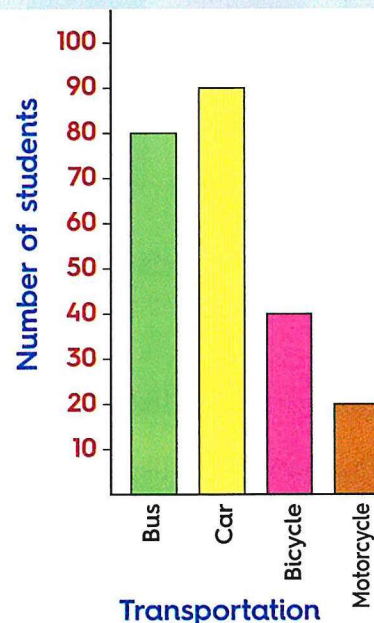


Check

Use the bar graph to answer the questions.

- How many students liked car best ? _____
- How many students liked bicycle best ? _____
- Which transportation is liked the most ? _____
- Which transportation is liked the least ? _____
- How many students liked bus and car ? _____
- How many more students liked bicycle than motorcycle ? _____
- How many students liked bus, bicycle and car ? _____

Favorite transportation



Notes for parents


- Train your child to skip counting by 10s.
- Ask your child why might we need to count by 10s instead of 1s when making a graph.
- Help your child solve the problems using the numbers chart.

Exercise

3

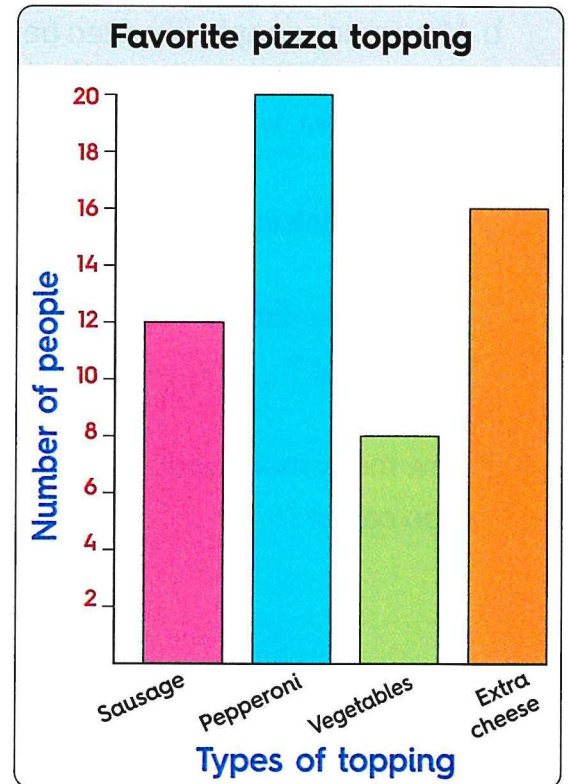
On Lessons 6 to 8

- Representing data with a scale of 2
- Representing data with a scale of 10
- Bar graph

 From the school book

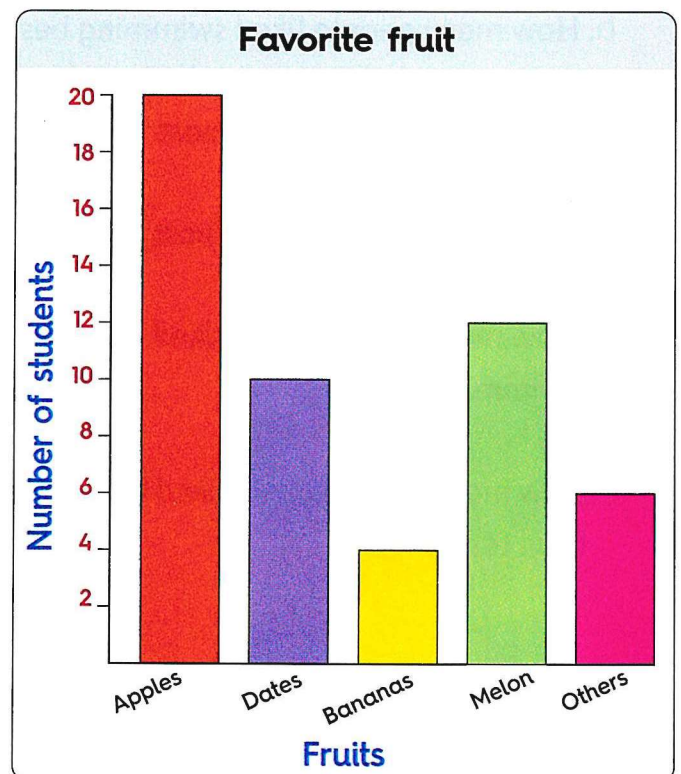
1 Use the bar graph to answer the questions.

- How many people liked sausage best? _____
- How many people liked extra cheese best? _____
- Which pizza topping is liked the least? _____
- Which pizza topping is liked the most? _____
- How many people in all liked sausage and vegetables pizza? _____
- How many more people liked pepperoni than extra cheese? _____



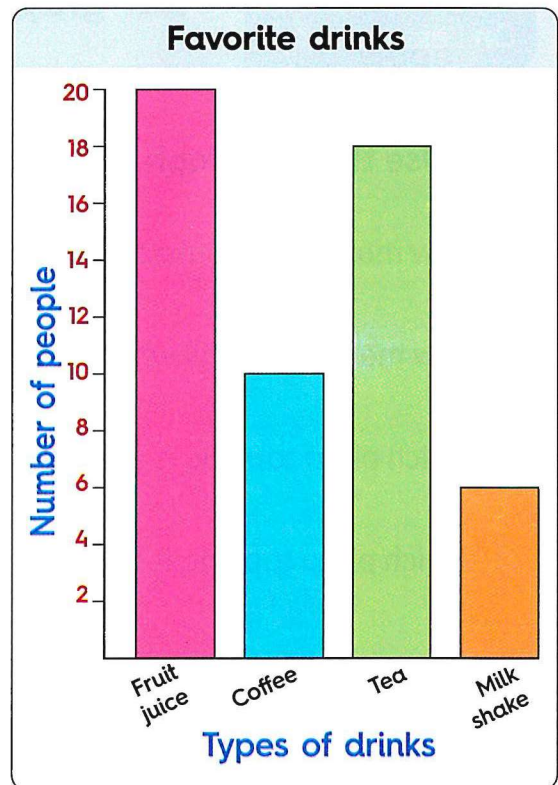
2  Look at the favorite fruit graph and the answer questions about the data.

- How many students liked apples best? _____
- How many students liked dates best? _____
- Which fruit is liked the least? _____
- Which two fruits did people like the best? _____
- How many people liked some other kind of fruit that was not listed? _____
- How many more students liked apples than dates? _____



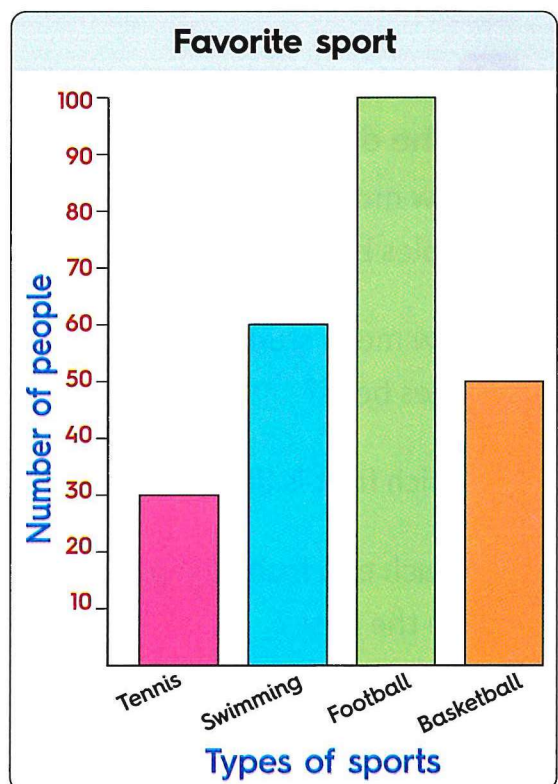
3 Use the bar graph to answer the questions.

- a. How many people liked fruit juice best ? _____
- b. How many people liked tea best ? _____
- c. Which drink is liked the least ? _____
- d. Which drink is liked the most ? _____
- e. How many people in all liked tea and milk shake ? _____
- f. How many more people liked fruit juice than coffee ? _____

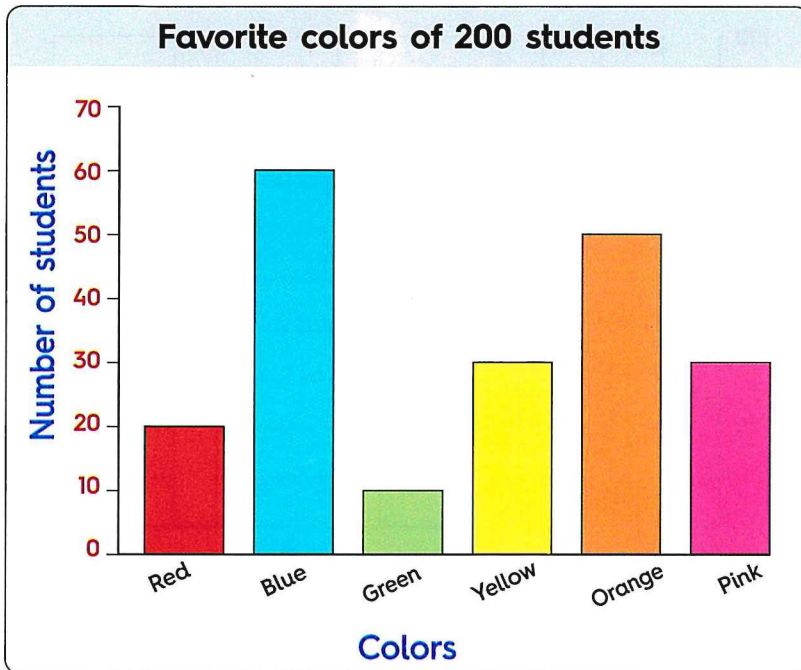


4 Use the bar graph to answer the questions.

- a. How many people liked basketball best ? _____
- b. How many people liked swimming best ? _____
- c. Which sport is liked the least ? _____
- d. Which sport is liked the most ? _____
- e. How many people in all liked football and swimming ? _____
- f. How many more people liked basketball than tennis ? _____



5  Look at the favorite colors graph and then answer questions about the data.

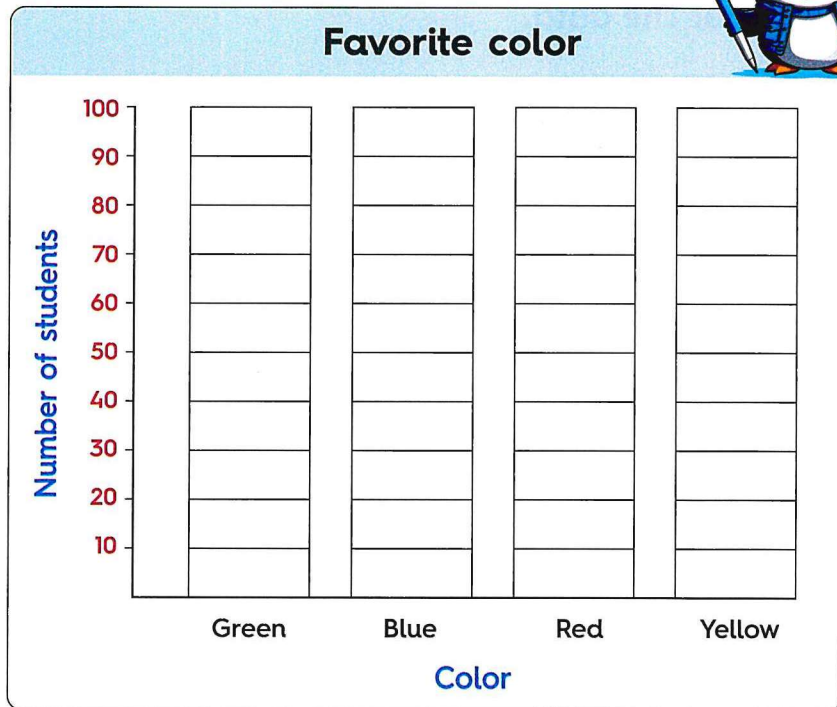


- a. How many people liked red best ? _____
- b. How many people liked blue best ? _____
- c. How many people liked green best ? _____
- d. How many people liked yellow best ? _____
- e. How many people liked orange best ? _____
- f. How many people liked pink best ? _____
- g. How many people liked pink and blue (pink + blue) ? _____
- h. How many more people liked yellow than green (yellow – green) ? _____
- i. How many people liked red and blue (red + blue) ? _____
- j. How many more people liked blue than orange (blue – orange) ? _____

6 Use the following table to color the bar graph.



Favorite color	
Favorite color	Number of students
Green	70
Blue	50
Red	90
Yellow	70



Use the bar graph :

1. Write (✓) to the correct statement and (X) to the incorrect statement.

- a. The number of students who liked blue is 40. ()
- b. The number of students who liked red and yellow is 160. ()
- c. The difference between the number of students who liked green and yellow is 140. ()

2. Complete using $>$, $<$ or $=$.

- a. The number of students who liked blue The number of students who liked red
- b. The number of students who liked green The number of students who liked yellow
- c. The number of students who liked green The number of students who liked blue
- d. The number of students who liked yellow The number of students who liked red



- Pictograph
- Graph elements



Learn 1 Pictograph

A **pictograph** is another way to show data.






A pictograph uses pictures to tell how many.

Here are two pictographs that show the same data with different keys.

The key tells each  represents **1** vote.






The key tells each  represents **2** votes.



Amir's way

Favorite art materials	
Painter	
Marker	
Clay	
Crayons	
Colored pencils	

Key	 = 1 vote
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Magy's way

Favorite art materials	
Painter	
Marker	
Clay	
Crayons	
Colored pencils	

Key	 = 2 votes
	 = 1 vote



From the pictograph :

- The number of students who liked marker is **8**
- The number of students who liked clay is **5**
- The number of students who liked painter and colored pencils is **$4 + 2 = 6$**
- How many more students liked marker than crayons ? **$8 - 6 = 2$**

Notes for parents

- Make sure that your child understand that the key tells how many each picture stands for.



Learn 2 Pictograph and bar graph

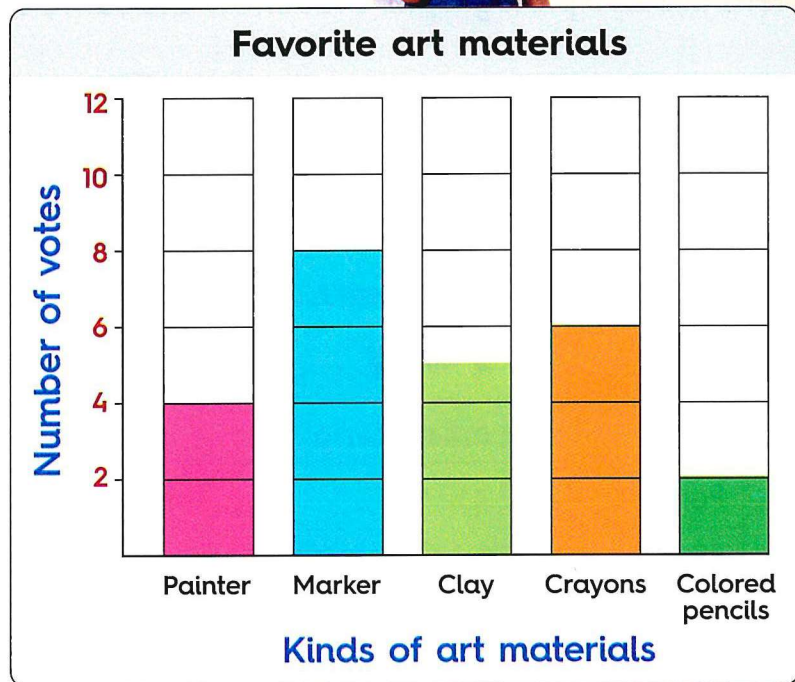
We can represent the data of the pictograph in a bar graph.

I converted the data on pictograph into bar graph and I preferred the bar graph with a scale of 2 to match the key of pictograph.



Favorite art materials	
Painter	😊😊
Marker	😊😊😊😊
Clay	😊😊😊
Crayons	😊😊😊
Colored pencils	😊

Key	
😊	= 2 votes
😊	= 1 vote



Note :

In the above pictograph, the clay category shows 5 votes and to represent it on a bar graph with a scale of 2, you should stop halfway between 4 and 6.



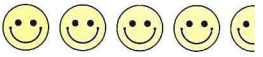




From the graphs :

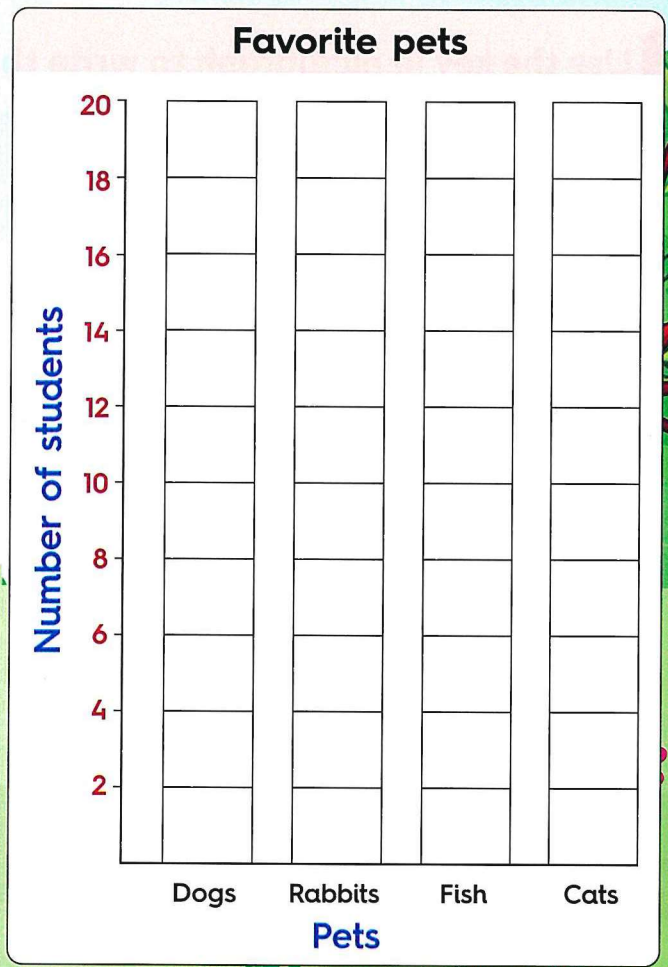
- The number of students who liked painter is 4
- The number of students who liked crayons is 6
- The number of students who liked marker and crayons is $8 + 6 = 14$
- How many more students liked clay more than colored pencils ? $5 - 2 = 3$

Check 

Use the pictograph to color the bar graph.

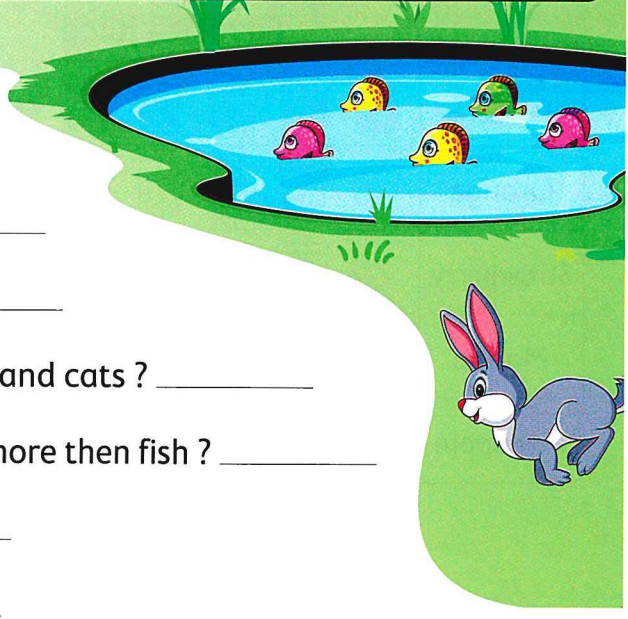
Favorite pets	
Dogs	
Rabbits	
Fish	
Cats	

Key  = 2 votes



Answer the questions :

- How many students liked fish ? _____
- How many students liked dogs ? _____
- How many students in all liked rabbits and cats ? _____
- How many more students liked rabbits more then fish ? _____
- Which pet is liked the most ? _____
- Which pet is liked the least ? _____




• Help your child make the bar graph and make sure that your child stands halfway between 2 numbers when he/she represents any odd number.

Exercise

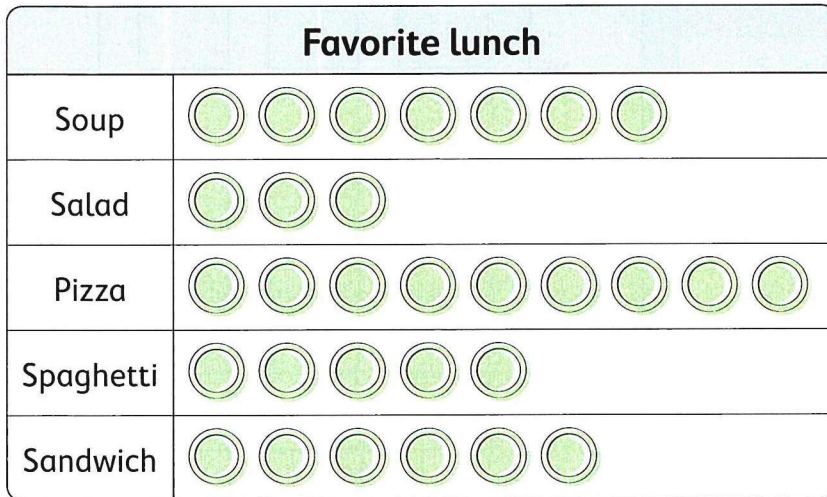
4

- Pictograph
- Graph elements

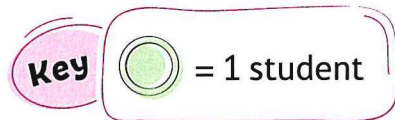
On Lessons 9 & 10

 From the school book

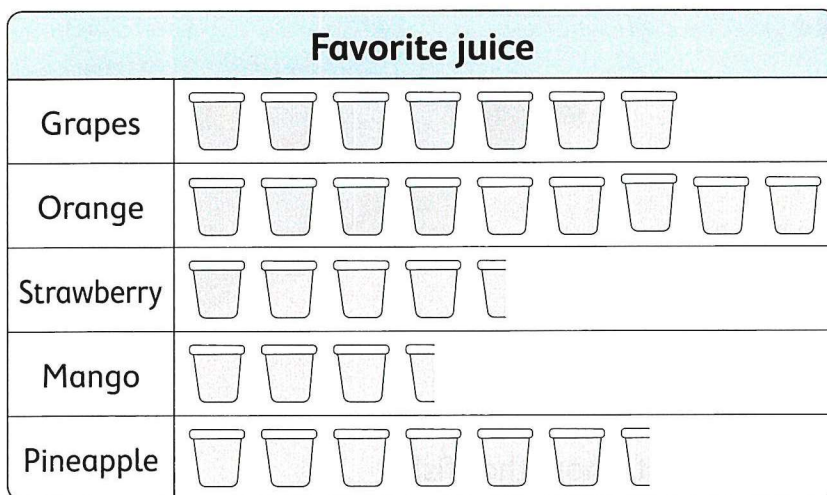
1 Use the key in pictograph to write the numbers in the table.



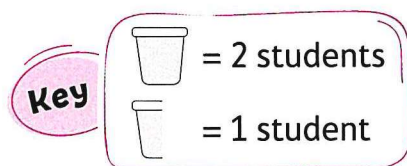
Favorite lunch	
Food	Number
Soup	_____
Salad	_____
Pizza	_____
Spaghetti	_____
Sandwich	_____



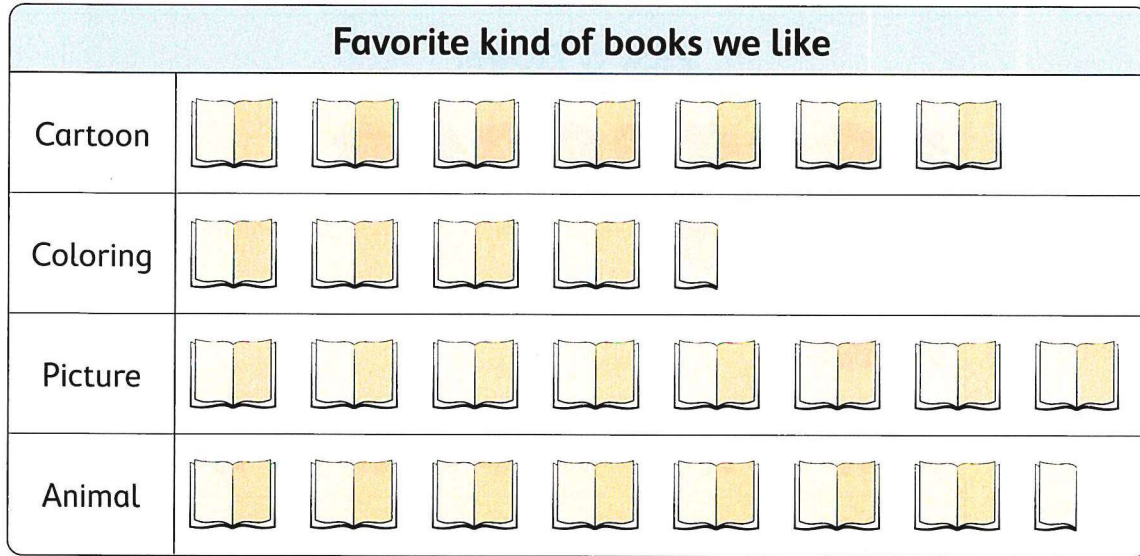
2 Use the key in pictograph to write the numbers in the table.



Favorite juice	
Flavor	Number
Grapes	_____
Orange	_____
Strawberry	_____
Mango	_____
Pineapple	_____





3 Use the pictograph and its key to answer the questions.



a. How many students liked cartoon books best? _____

Key

 = 2 students

 = 1 student

b. How many students liked coloring books best? _____

c. How many students liked picture books best? _____

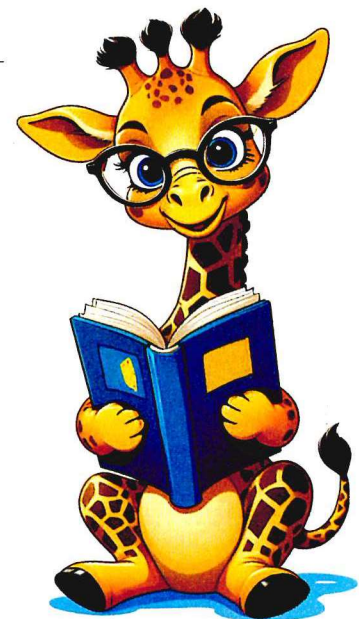
d. How many students liked animal books best? _____

e. Which kind of books is liked the most? _____






f. Which kind of books is liked the least? _____

g. How many more students liked cartoon books than coloring books? _____

h. How many students in all liked picture books and animal books? _____



4  Look at the pick a flower picograph and then answer the question below.

Pick a Flower	
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

a. How many flowers were picked on Monday? _____

b. How many flowers were picked on Thursday? _____

c. Did any two days have the same number of flowers picked? _____

d. How many flowers were picked on Monday and Tuesday? _____


e. Which day had the least number of flowers picked? _____


f. Which day had the most number of flowers picked? _____

g. How many more flowers were picked on Thursday than Wednesday? _____

h. How many flowers were picked on Monday, Tuesday, and Wednesday? _____



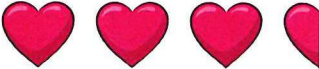
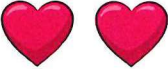

Key

 = 1 flower


 = 2 flowers




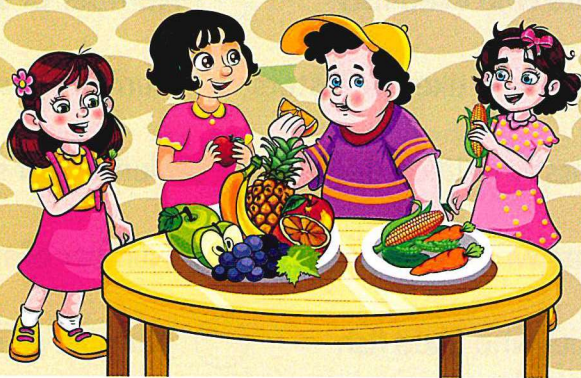
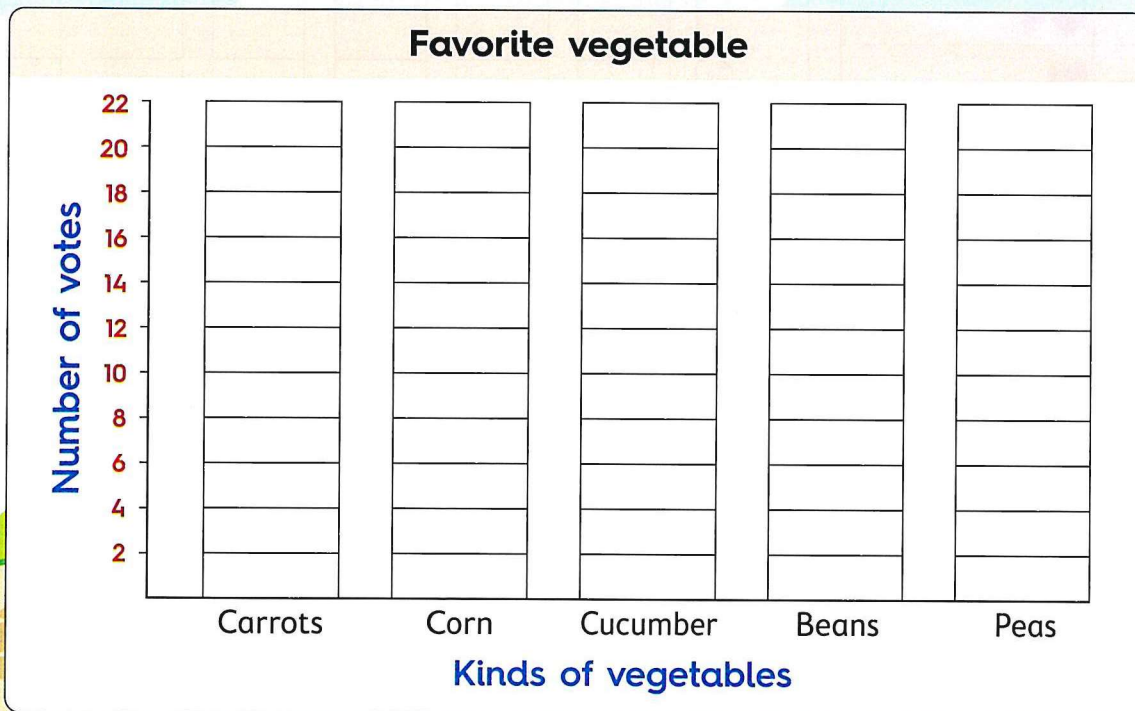
5 Convert the same information from the pictograph into a bar graph.

Favorite vegetable	
Carrots	
Corn	
Cucumber	
Beans	
Peas	

Key

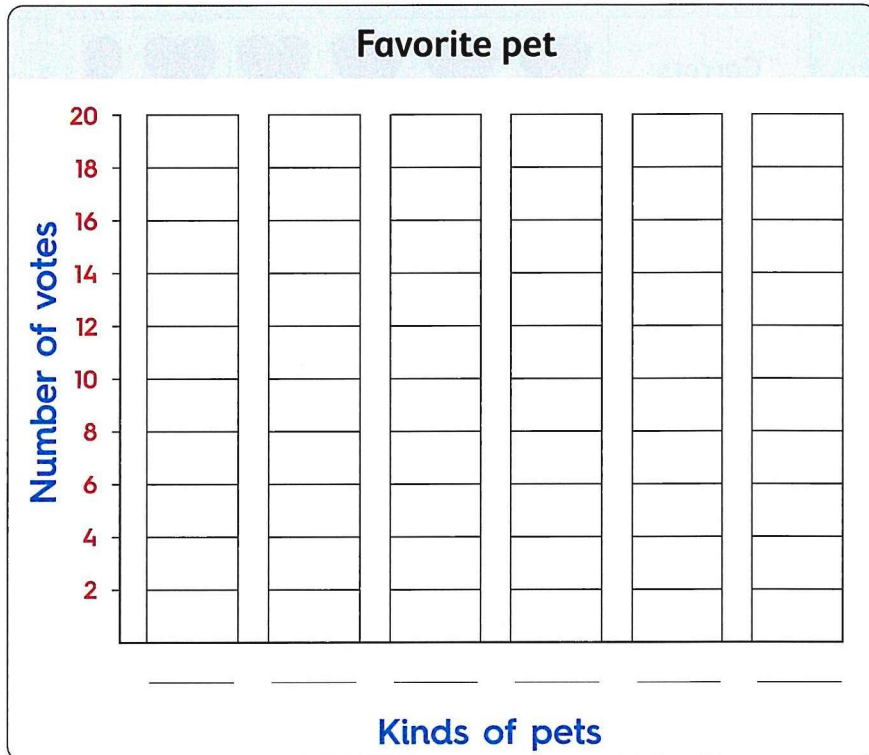
 = 2 votes

 = 1 vote



6 Convert the same information from the pictograph into a bar graph, then answer the questions.

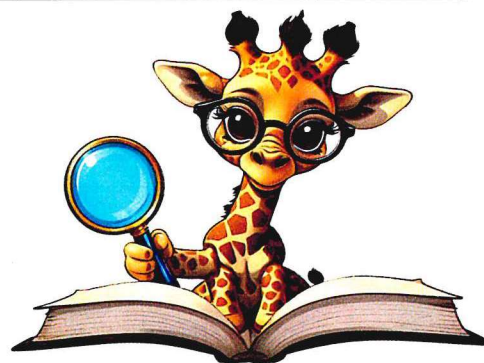
Favorite pet	
Fish	
Cats	
Dogs	
Turtles	
Birds	
Hamsters	



Key

= 2 votes

= 1 vote



1. Use the bar graph to complete using $>$, $=$ or $<$.

- | | | |
|--|-----------------------|---------------------------------------|
| a. Number of students who liked cats | <input type="radio"/> | Number of students who liked turtles |
| b. Number of students who liked fish | <input type="radio"/> | Number of students who liked birds |
| c. Number of students who liked hamsters | <input type="radio"/> | Number of students who liked dogs |
| d. Number of students who liked dogs | <input type="radio"/> | Number of students who liked birds |
| e. Number of students who liked turtles | <input type="radio"/> | Number of students who liked hamsters |
| f. Number of students who liked fish | <input type="radio"/> | Number of students who liked cats |



2. Use the bar graph to answer the questions.

- a. How many students liked cats ? _____
- b. How many students liked turtles ? _____
- c. How many students liked fish and hamsters ? _____
- d. How many students liked dogs and birds ? _____
- e. How many more students liked cats than fish ? _____
- f. How many more students liked dogs than turtles ? _____
- g. How many students liked turtles, birds and hamsters altogether ? _____

3. Use the bar graph to write (✓) to the correct statement or (X) to the incorrect statement.

- a. The number of students who liked dogs is 9. ()
- b. The number of students who liked cats and dogs altogether is 34. ()
- c. The number of students who liked fish is more than the number of students who liked birds by 1. ()



Place a smiley face