



Grasp

You have learnt to read the vertical and horizontal bar graphs in Class 4. Now, let's learn how to represent data through them.

Study this example.

Miss Zarina asked her students about the mode of transport they used to come to school. She represented the data using tally marks and asked the students to complete the table.

Mode of transport	Tally marks showing number of students	Number of students
Cycle		
School bus		
Car		
Three-wheeler		

Now let's represent the above information through vertical and horizontal bar graphs.

a. Vertical bar graph

Remember: A vertical bar graph has...

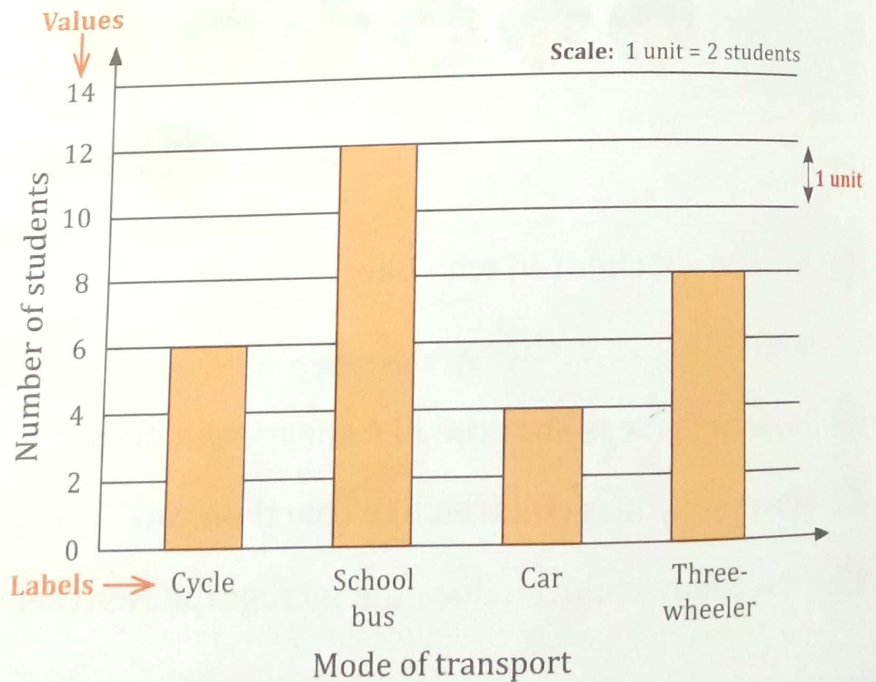
- a **title** explaining what is being represented.
- a **horizontal axis** with labels.
- a **vertical axis** with suitable data values.

4009
18000

Steps to draw a vertical bar graph:

1. Select an appropriate title.
2. Draw horizontal and vertical axes.
3. Choose a suitable scale. Mark the values on the vertical axis.
4. Mark the labels on the horizontal axis.
5. Draw columns of the same width according to the data on the horizontal axis.

Title: Mode of transport of Class 5 students



b. Horizontal bar graph

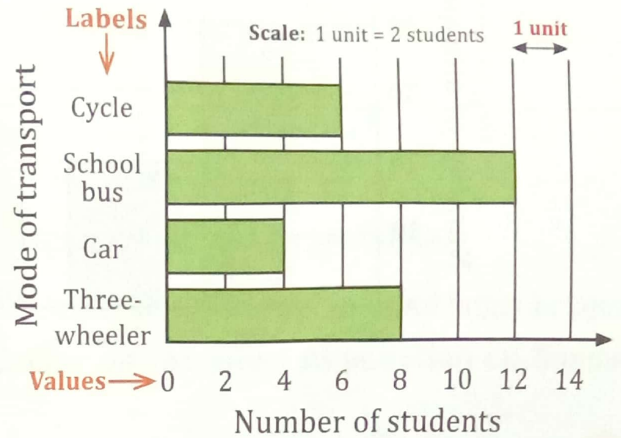
Remember: A horizontal bar graph has...

- a **title** explaining what is being represented.
- a **horizontal axis** with suitable data values.
- a **vertical axis** with labels.

Steps to draw a horizontal bar graph:

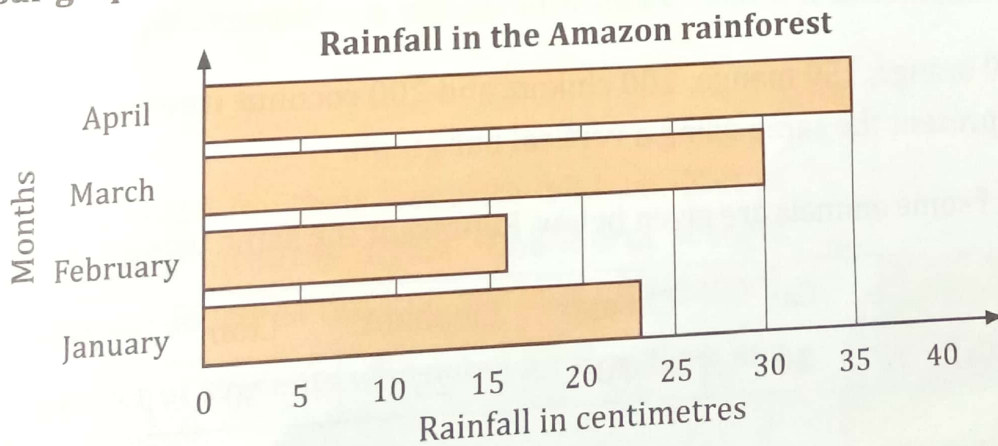
1. Select an appropriate title.
2. Draw horizontal and vertical axes.
3. Choose a suitable scale. Mark the values on the horizontal axis.
4. Mark the labels on the vertical axis.
5. Draw bars of the same width on the vertical axis according to the data.

Title: Mode of transport of Class 5 students



Work Out

- 1 The following bar graph represents the amount of rainfall in the Amazon rainforest. Study the bar graph and answer the questions.



- a What type of bar graph is it? _____
- b Write the amount of rain received in each month.

January

February

March

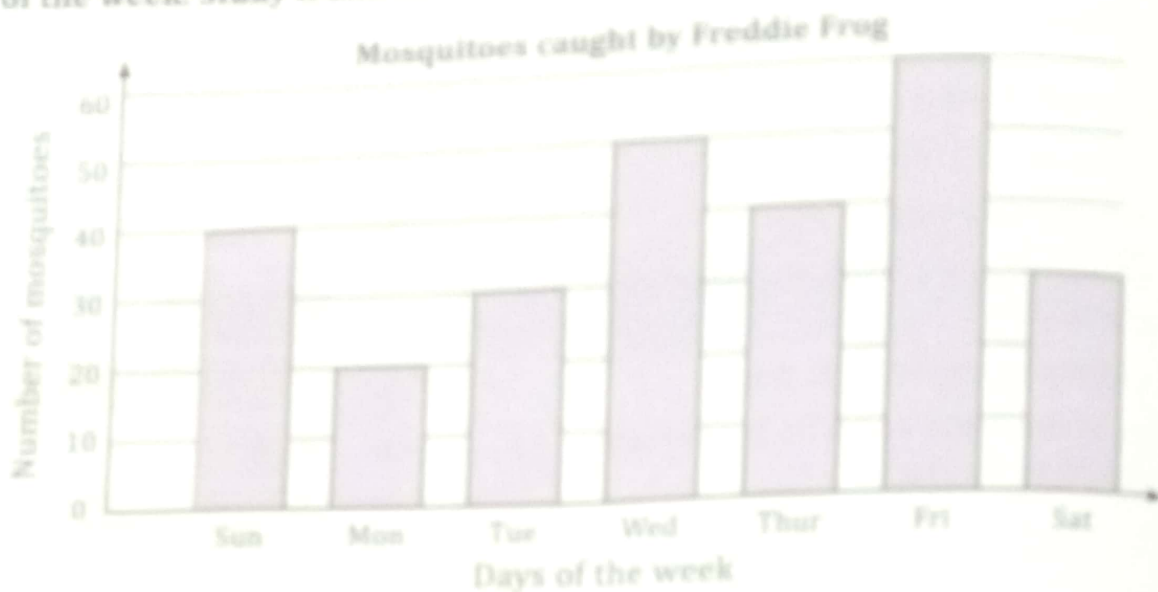
April



c How much more rainfall occurs in April than in March?

d What is the total rainfall in the 4 months?

2 The following bar graph shows the number of mosquitoes Freddie Frog caught each day of the week. Study it and answer the questions.



a What type of graph is it?

b How many mosquitoes did Freddie Frog catch each day?

Sun Mon Tues Wed Thur Fri Sat

c How many more mosquitoes did Freddie Frog catch on Friday than on Monday?

d How many mosquitoes did Freddie Frog catch in all?

3 Ratan has 50 orange, 150 mango, 100 chikoo, and 200 coconut trees in his orchard. Prepare a table and represent the same using a vertical bar graph.

4 The speeds of some animals are given below. Represent the same using a horizontal bar graph.

Animal	Cat	Cheetah	Elephant	Lion	Zebra
Speed (km/h)	30	70	25	50	40

5 Binaz, Nancy, Sanobar, and Fili bought storybooks for ₹500, ₹700, ₹400, and ₹300, respectively. Prepare a table for this data. Represent the same using a horizontal bar graph.

6 Mr Varun collected 8,000 coconuts in January, 6,000 coconuts in September, 10,000 coconuts in April, 3,000 coconuts in July, and 4,000 coconuts in March. Sort the data given and prepare a table. Represent the same using a vertical bar graph.



Project



Collect information and present it through a bar graph.

Refer to reports appearing in newspapers, TV news, or locally available sources and collect data for a week on the pollution level in your city, town, or village.

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Date							
Pollution Level							
Temperature							

Represent the above data using a bar graph on A4 size paper. Add it to your portfolio.

Have a class discussion about the effect of pollution and temperature on the flora and fauna in your surroundings. Collect information from your family doctor on the effect of pollution on human beings. Suggest ways to reduce pollution.

Circle Graph



Grasp



A **circle graph** is another way to represent data. It shows data as parts of a whole. The circle represents the whole or the total. It is divided into parts. The data in a circle graph can be shown as fractions. A circle graph resembles a pie cut into slices; hence, it is sometimes referred to as **pie graph** or **pie chart**.

Study this example.

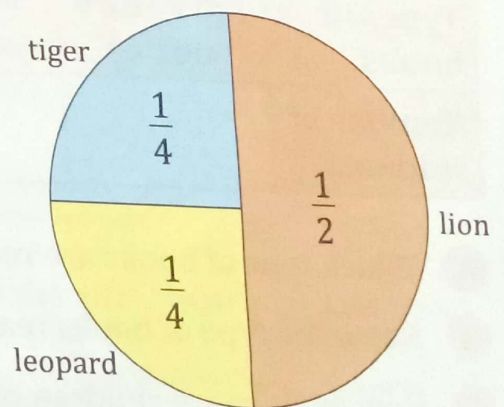
20 students in class 5 voted for their favourite wild cat. Half of them selected lion as their favourite animal. One-fourth of them liked tiger. Remaining one-fourth of the students voted for leopard.

Let's find out the number of students who voted for lion, tiger, and leopard, respectively.

$$\frac{1}{2} \text{ of } 20 \text{ students voted for lion} = 20 \div 2 = 10 \text{ students}$$

$$\frac{1}{4} \text{ of } 20 \text{ students voted for tiger} = 20 \div 4 = 5 \text{ students}$$

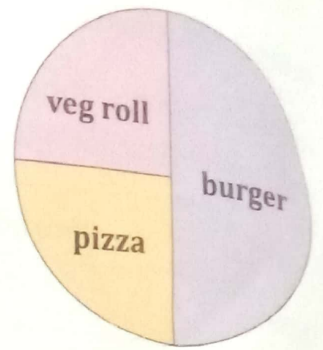
$$\text{Similarly, } \frac{1}{4} \text{ of } 20 \text{ students voted for leopard} = 5 \text{ students}$$





Work Out

1 Miss Aradhana did a survey on the favourite food of 40 students in her class. She represented this data using a circle graph. Observe the graph and answer the following questions.



a Name the favourite food items of the students in the survey.

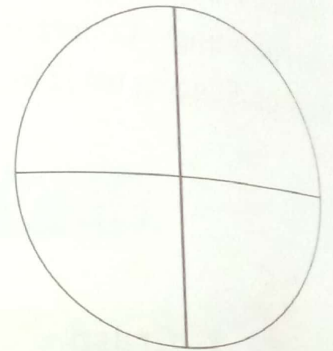
b What fraction of the students like burger? _____

c What fraction of the students like veg roll? _____

d How many students like pizza? _____

e How many students like burger? _____

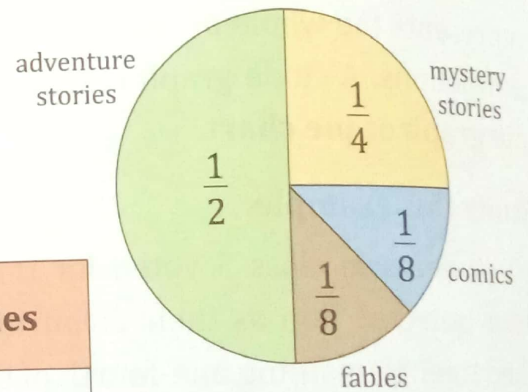
2 Manoj baked 20 cupcakes and distributed them equally among four children. Colour this circle using different coloured crayons to show the fraction of cupcakes each child got.



How many cupcakes did each child get?

Ans. Each child got _____ cupcakes.

3 Miss Mallika carried out a survey on types of books read by 40 students of Class 5. She presented the data using a pie chart / circle graph. Calculate and complete the following table.



Types of books	Adventure stories	Mystery stories	Comics	Fables
Number of students				

a Which type of books are read by most of the students? _____

b Name the type of books read by the least number of the students. _____

c How many more children read adventure stories than fables? _____

d How many less children read comics than mystery stories? _____

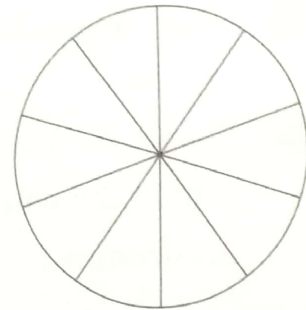
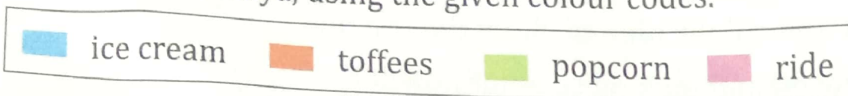




Challenge

- 1 Amol and Ananya went to a fair. Their mother gave them ₹100 to spend at the fair. They spent half of the amount on rides. They paid $\frac{1}{5}$ of the total amount for buying ice creams and $\frac{1}{10}$ of the total amount for buying toffees. They bought popcorn with the remaining amount.

- a Colour the parts of the circle to show the amount spent on different items by Amol and Ananya, using the given colour codes.



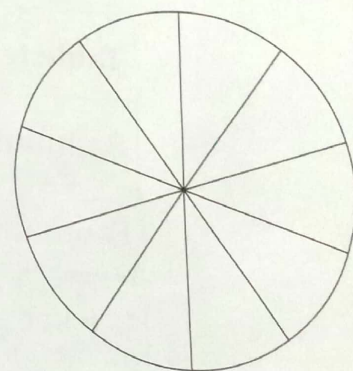
- b Find the amount spent on rides, ice cream, popcorn, and toffees. Complete the following table.

Item	Rides	Ice cream	Popcorn	Toffees
Amount spent (₹)				

- 2 Today is Azmin's birthday. She has packed return gifts for her friends with different wrapping papers. Observe the gifts. Represent the data on the given pie chart. Colour each part of the circle as per the colour of the wrapping paper of the gifts. Answer the following questions.



- a What fraction of the gifts are wrapped in green paper? _____
 b What fraction of the gifts are wrapped in red paper? _____
 c Arrange fractions of the gifts wrapped in different coloured papers in ascending order.



- d Is blue coloured paper used for wrapping more / less than half the gifts? Justify your answer.

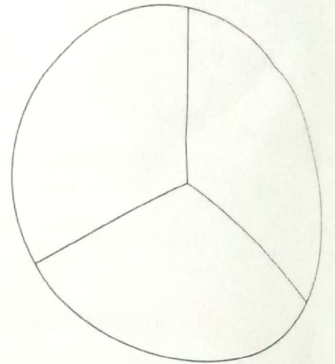
- e What fraction of the gifts are wrapped in red and blue paper? _____





HOTS

1 Sai collected 9,000 coconuts in April and May. He sold $\frac{2}{3}$ of them in the wholesale market. The remaining coconuts were used for extracting coconut oil and making dry coconut powder.



- a How many coconuts were sold in the wholesale market?

- b Colour the part of the circle red to show the fraction of coconuts sold in the wholesale market and colour blue to show the fraction of coconuts used for extracting oil and making coconut powder.
- c How many coconuts were used for extracting oil and making coconut powder? _____
- d What fraction of the coconuts were used for extracting oil and making coconut powder?

2 Mrs Fili carried out a survey of her Class 5 students who joined Tulips Sports Club for coaching. The survey results are represented by the following pictograph. Give it a suitable title and answer the following questions.

Title: _____

Volleyball	★ ★ ★ ★
Table tennis	★
Badminton	★ ★
Football	★ ★ ★
Cricket	★ ★ ★ ★ ★ ★

Key: 1 ★ = 4 students

- a Which is the most favoured game? _____
- b Which is the least favoured game? _____
- c How many students in all joined the sports club? _____

- d Each child had to pay monthly membership fee to the club. Complete the following table and find the total collection of fees for each sport.

Sport	Volleyball	Table tennis	Badminton	Football	Cricket
Number of students					
Monthly membership (₹)	80	50	70	90	100
Total collection(₹)					

Discuss your opinion with your classmates on the following.

- How are sports beneficial?
- Which is your favourite sport? How do you plan to progress in it?



Math in Daily Life!


- This is the Eatwell Plate to help you get the right type of balanced diet to keep you healthy and energetic. It includes 5 different food groups which you eat and drink on a daily basis.



- What type of graph is used to represent the Eatwell plate?
- Which are the two food groups that occupy most part of the graph?
- About how much fraction of the whole plate would the above two groups occupy?
- Which food should be consumed in less quantity?
- Discuss with your teacher and prepare a daily food chart for yourself.

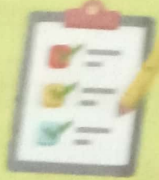
- (1) In a test, 100 marks in the first test in four subjects. In subject A, the student scored 25 marks. In subject B, the student scored $\frac{1}{4}$ of the remaining marks. In subject C, the student scored $\frac{1}{3}$ of the remaining marks. How many marks did the student score in subject D? Draw a pictograph to show the marks in the four subjects. [HOTS]
- (2) The scale of a bar graph is 1 unit = 5 kg. How many kilograms are represented by a bar of 8 units?
- (3) Anita has used the scale of 1 symbol = 5 pencils in a pictograph. Can she represent 25 pencils using the same symbol in the pictograph. Explain, why or why not.
- (4) Anil packed 25, 26, 28, and 35 marbles in four small cloth bags. What key will you use to show this data using a pictograph? Why?
- (5) There are 24 students in Class 5. $\frac{1}{3}$ of them commute by school bus. Half of the remaining students walk to school. And the rest are dropped to school by their parents / elders. How many students are dropped by parents / elders? Miss Tehmi found that the number of students in each category is the same. Do you agree with her? Justify your answer. [HOTS]

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