ODM EDUCATIONAL GROUP
Changing your Tomorrow

CLASS : V

SUBJECT : MATHEMATICS

CHAPTER NUMBER: 21

CHAPTER NAME : DATA HANDLING

SUB-TOPIC : INTRODUCTION PICTOGRAPH

EXERCISE 21 A

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DATA HANDLING

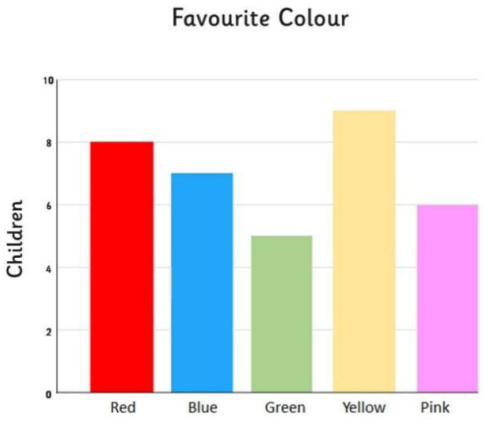
Information collected in the form of numerical figures is called data.

Data can be represented in four different ways:

1. Pictograph

Small Towns	Number of illiterate children
Melrose	
Marengo	
Midway	
Parral	
Rushville	

2. Bar graph



DATA HANDLING

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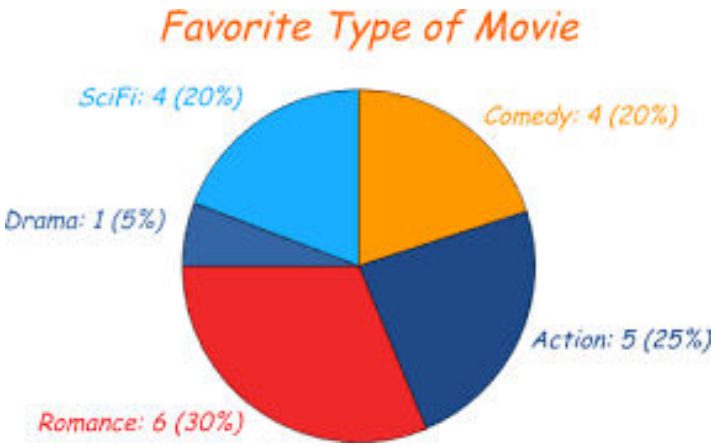
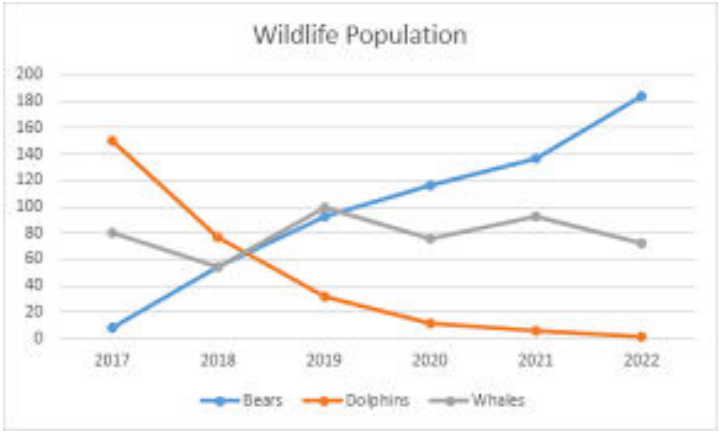
3. Pie chart



4. Line graph



PICTOGRAPH

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In a pictograph, a symbol is used to represent one or more objects of the data according to the scale / key selected.

EXAMPLE 1

The pictograph given below shows the number of visitors who visited a planetarium from Monday to Friday.

Monday	Tuesday	Wednesday	Thursday	Friday
2,000	2,200	1,800	2,400	3,000

Scale = ✡ = 400 persons
△ = 200 persons

Day	Visitors to the planetarium
Monday	✡ ✡ ✡ ✡ ✡
Tuesday	✡ ✡ ✡ ✡ ✡ △
Wednesday	✡ ✡ ✡ ✡ △
Thursday	✡ ✡ ✡ ✡ ✡ ✡
Friday	✡ ✡ ✡ ✡ ✡ ✡ ✡ △

Answer the following questions :

(a) On which day did the maximum number of visitors visit the planetarium and what was the number ?

(b) On which day did the least number of visitors visit the planetarium and what was the number ?

(c) How many visitors visited the planetarium during the week ?

ANSWERS.

a) On Friday and 3000 visitors.

b) On Wednesday and 1800 visitors.

c) It's 11, 400 people.

EXERCISE 21 – A

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1 The arrival of passengers in different time intervals on a particular day at a Railway Station is depicted in the pictograph given below.

(a) Find out the peak hours.

(b) In which time interval was the arrival of passengers the least ?

(c) In which time interval was the arrival of passengers less than 8000 ?

(d) What is the difference between the maximum and minimum number of passengers arrived ?

(e) How many passengers arrived on that day ?

Time interval (Hours)	Number of passengers arrived
00-04	
04-08	
08-12	
12-16	
16-20	
20-24	

Scale = 1000 persons
= 500 persons

ANS.

a. The peak hours were from 04 : 00 hours to 08 : 00 hours.

b. From 00 : 00 hours to 04 : 00 hours the passengers arrival was the least.

EXERCISE 2I – A

c. From **00:00 hour to 04 : 00** hours and **20 :00 hours to 24 :00** hours the arrival of passengers is less than 8000.

d. The difference between the maximum and minimum passengers arrival =

12000 – 5000 = 7000

e. Total passengers arrived that day = **52, 000.**

EXERCISE 2I – A

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2 The pictograph given below gives the weekly sale of milk from a Mother Dairy outlet in Delhi.

(a) Calculate the total milk sold during the week. If it costs ₹ 32 per litre, calculate the weekly sale.

(b) On which day was the sale maximum ?

(c) What was the sale on Wednesday ?

(d) On which two days was the sale minimum ?

Days	Sales
Sunday	5 bottles
Monday	4 bottles
Tuesday	3½ bottles
Wednesday	4½ bottles
Thursday	6 bottles
Friday	3½ bottles
Saturday	4 bottles

Scale = 1 bottle = 100 litres
= ½ bottle = 50 litres

ANS.

a) Total milk sold in the week =

500 L + 400 L + 350 L + 450 L + 600 L + 350 L + 400 L = **3050 L**

Cost of 1 L of milk = ₹ 32

Cost of 3050 L of milk = 3050 x 32 = **₹ 97,600**

```
  3050
X   32
------
  6100
 91500
------
 97600
```

EXERCISE 2I – A

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b) On **Thursday** the sale was maximum.

c) The sale on Wednesday = **450 L**

d) On **Tuesday** and **Friday** the sale was minimum.

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Complete Exercise 21 A in the notebook.

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CLASS : V

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CHAPTER NUMBER: 21

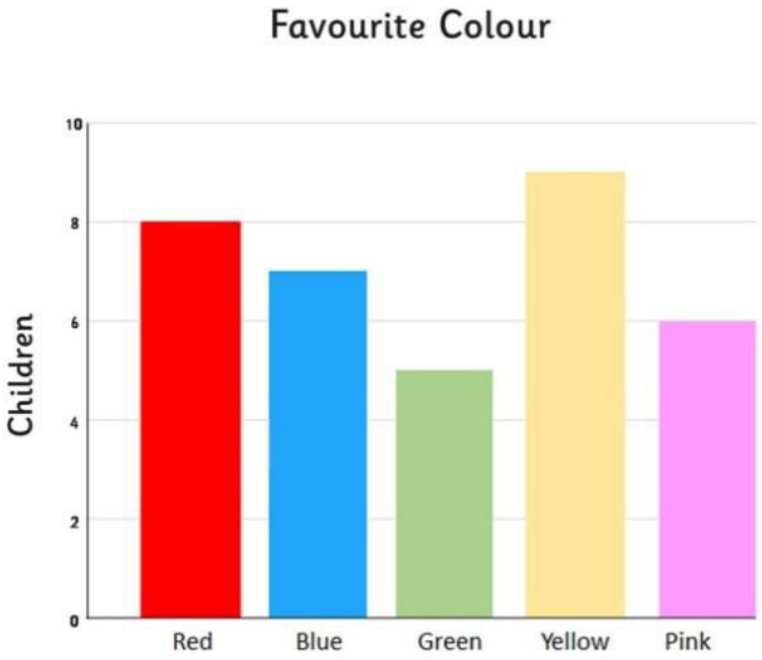
CHAPTER NAME : DATA HANDLING

SUB-TOPIC : BAR GRAPH

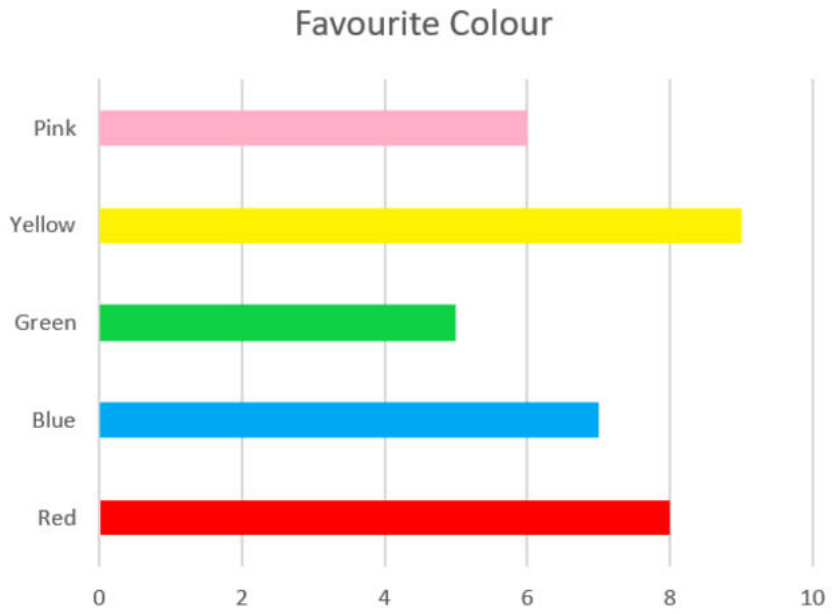
EXERCISE 21 B

BAR GRAPH

Bar graphs are the pictorial representation of data (generally grouped), in the form of vertical or horizontal rectangular bars,



VERTICAL



HORIZONTAL

BAR GRAPH

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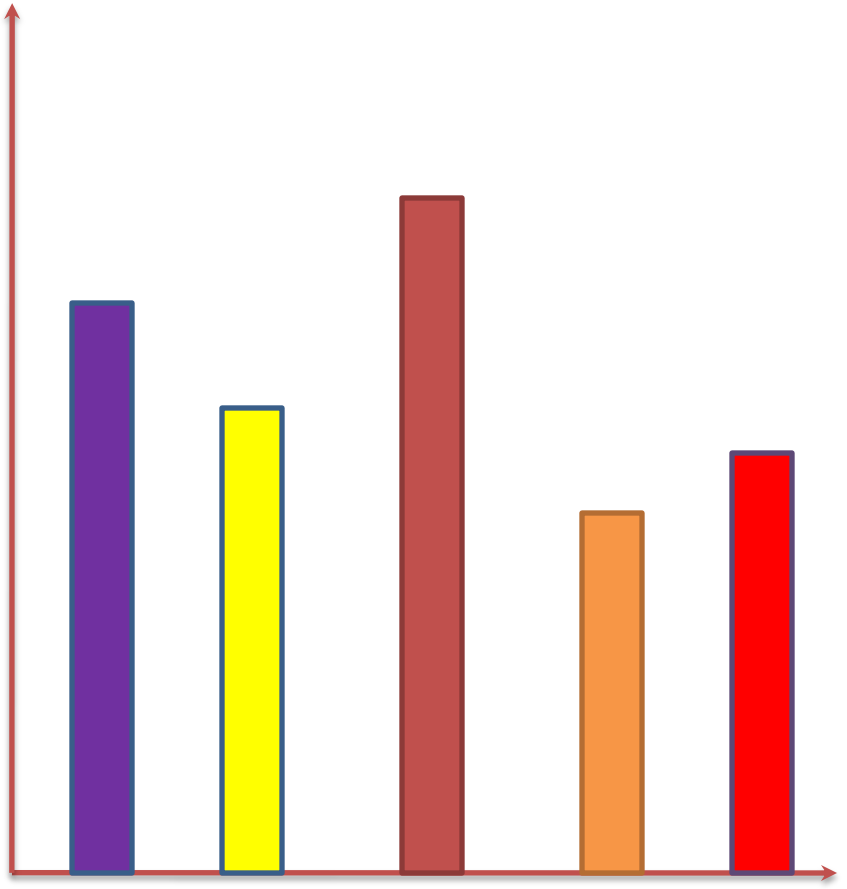
Points To Remember

1. Draw the vertical and horizontal axis .

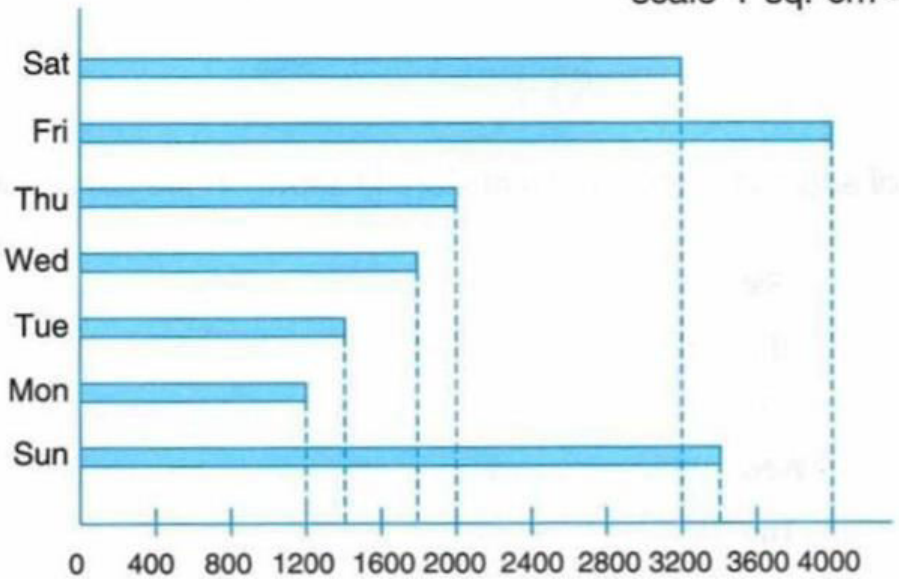
2. Draw bars of equal width to represent the same items of the data

3. The horizontal axis should be marked suitably according to the range of data



EXAMPLES 1 Following is a horizontal bar graph representing number of people visiting a cinema hall on all seven days of the week.

scale 1 sq. cm = 400 persons



Q1. On which day did the maximum no. of people visit the cinema hall? Mention the number

Ans. On Friday , 4000 people

2. On which day did the minimum no. of people visit the cinema hall? Mention the number

Ans. On Monday , 1200 people.

3. How many people visited on Thursday?

Ans. 2000 people.

4. How many people visited the hall during the entire week?

Ans. 17000 people. [Tuesday 1400 people, Wednesday 1800 and Sunday 3400]

Example:2

1. Which fruit is the most preferred by people?

   Ans. Blueberry.

1. Which fruit is the least preferred?

   Ans. Grapes.

1. How many people like banana and apple together?

   Ans. 45 people.

EXERCISE 21 B

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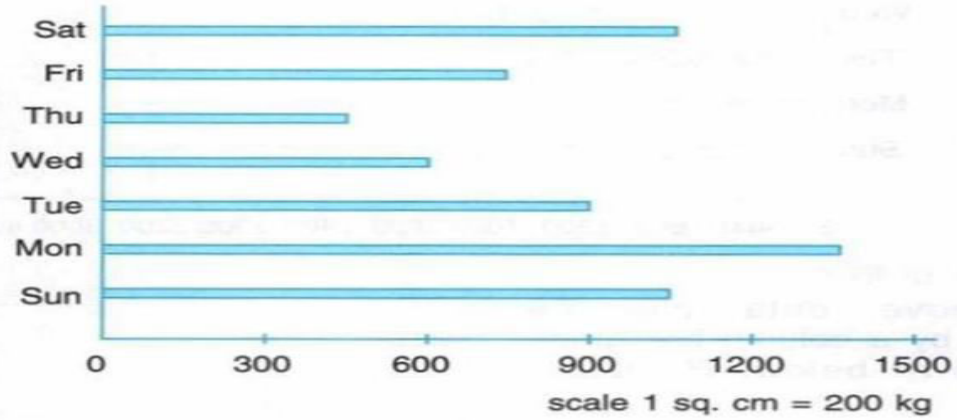
1 Daily sale of sugar in a departmental store is shown in the bar graph below.



(a) Which day has the maximum sale ?
(b) Which day has the least sale ?
(c) Calculate the total sale of the week.
(d) Which two days have the same sale ?
(e) If the cost of sugar is ₹ 42 per kg, calculate the amount of money collected during the week.

a) **Monday** has the maximum sale.

b) **Thursday** has the least sale.

c) The total sale of the week = 1050 + 1350 + 900 + 600 + 450 + 750 + 1050 = **6150** kg

d) **Saturday** and **Sunday** have same sale.

e) Cost of 6150 kg sugar = 6150 x 42 = **Rs. 2,58 300**

EXERCISE 21 B

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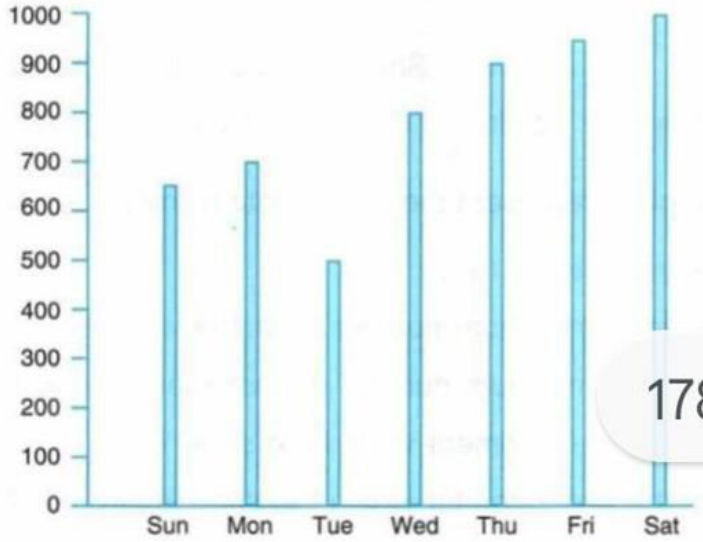
2 In the bar graph below, sale of chocolates from a store for a week is shown.



178 / 213

a)Which day has the maximum sale? **Saturday**

b) Which day has the least sale? **Tuesday**

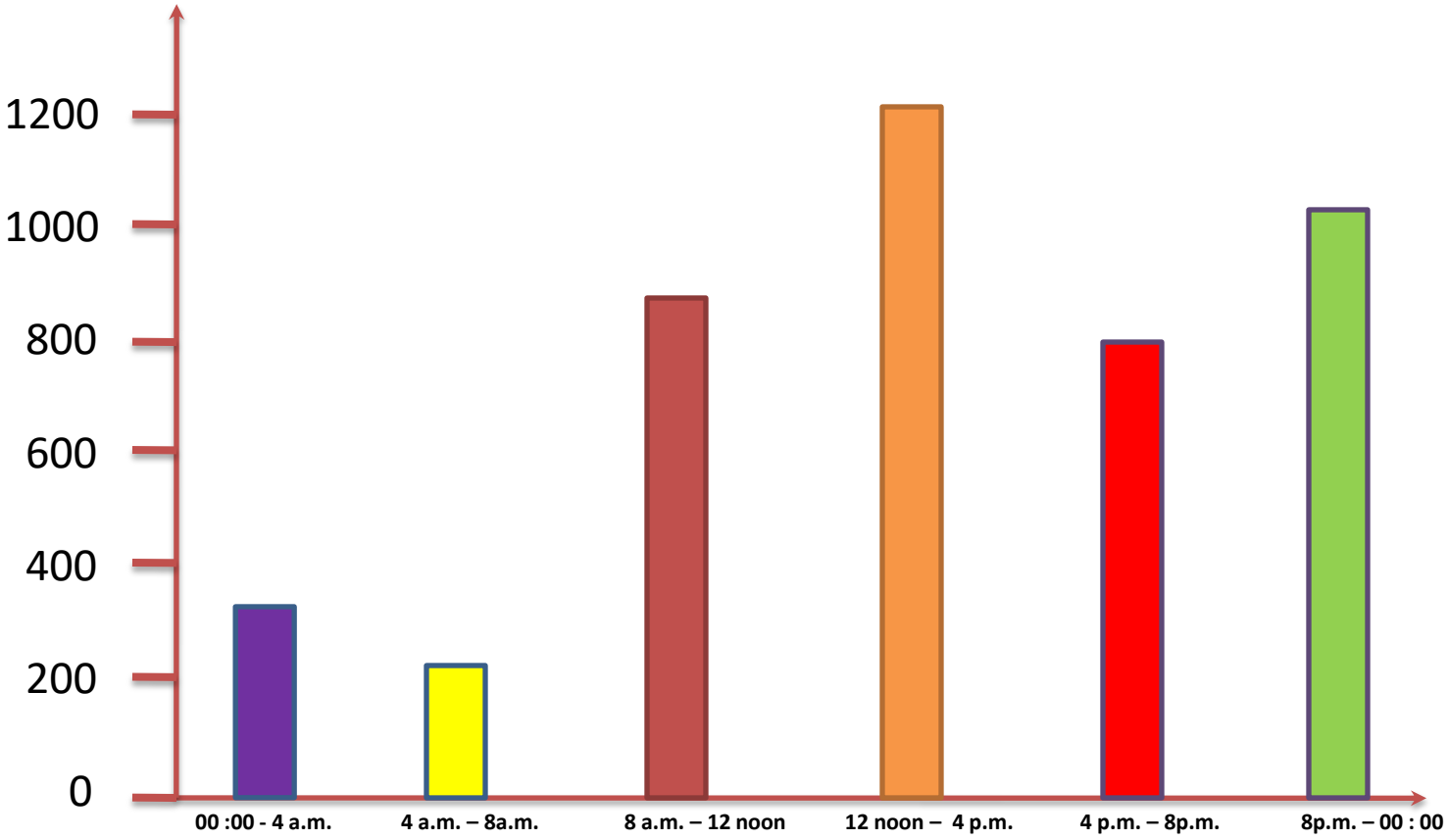
c) Calculate the total sale of the week? 650 + 700 + 500+ 800 + 900 + 950 + 1000 = **5500**

d) If the cost of a chocolate is ₹ 25 , calculate the total amount collected.

Cost of 5500 chocolates = 5500 x 25 = **₹ 1,37,500**

EXERCISE 21 B

3. The customer visit graph of the medical shop.

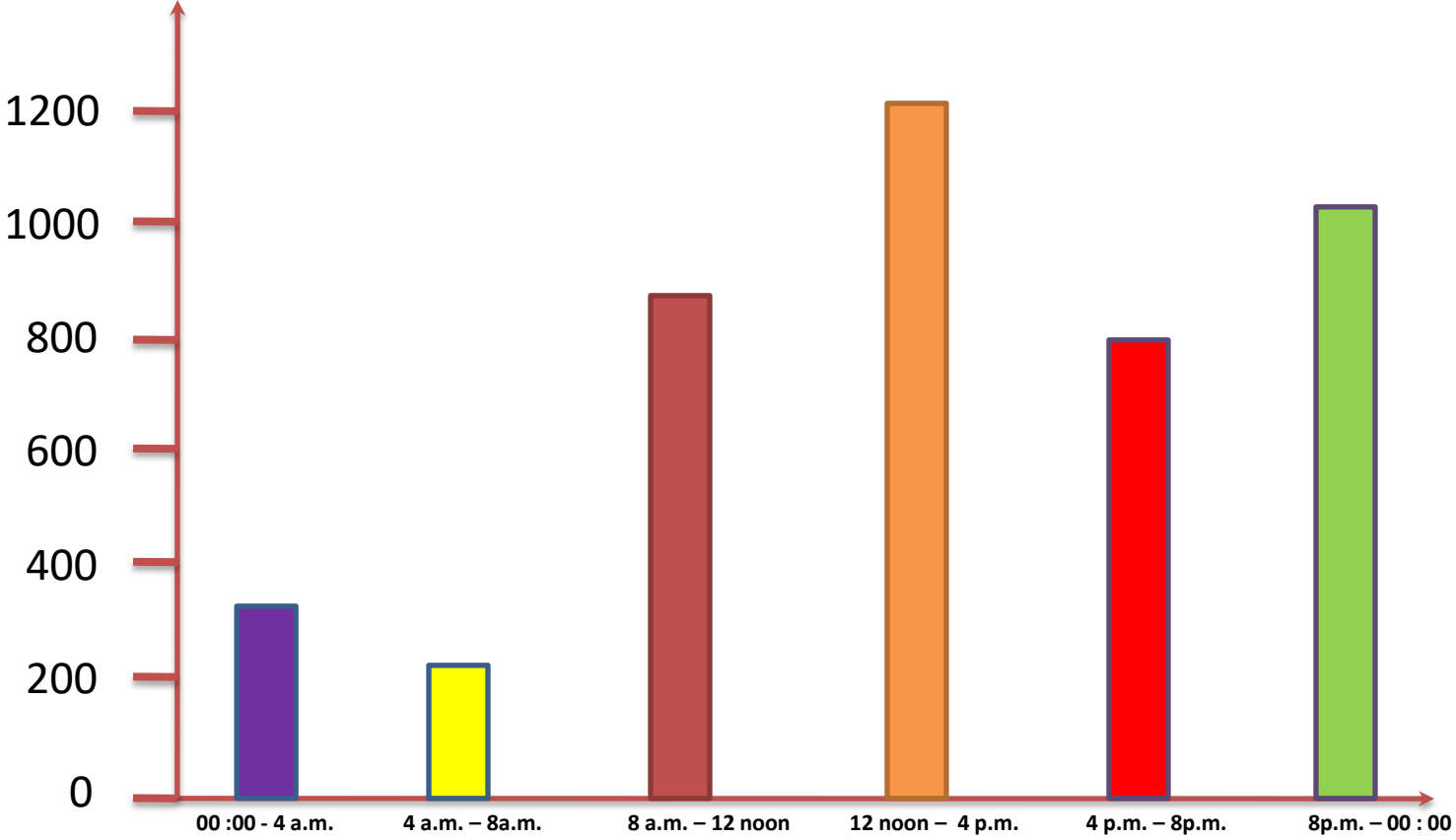


a. During which time interval did the maximum no. of people visit?

12 noon to 4 p.m.

b. During which time interval did the minimum no. of people visit?

4 a.m. to 8 a.m.



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c. How many people visited the shop in a day?

1200 + 1000 + 350 + 200+ 900 + 800 = **4450** people.

d. How many people visited the shop from 8 a.m. to 8 p.m.?

2900 people.

EXERCISE 21 B

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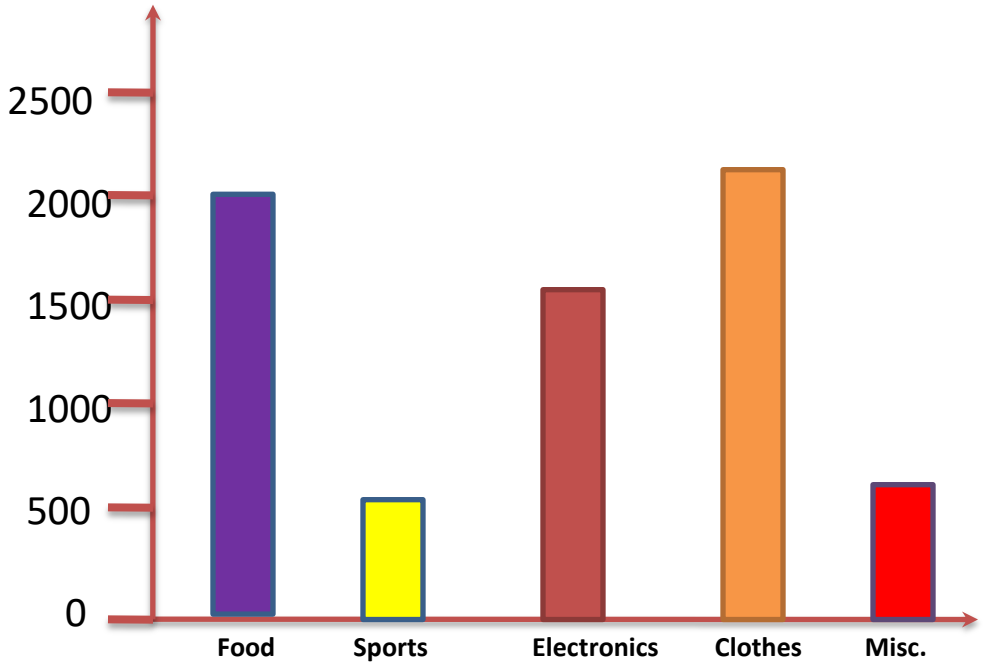
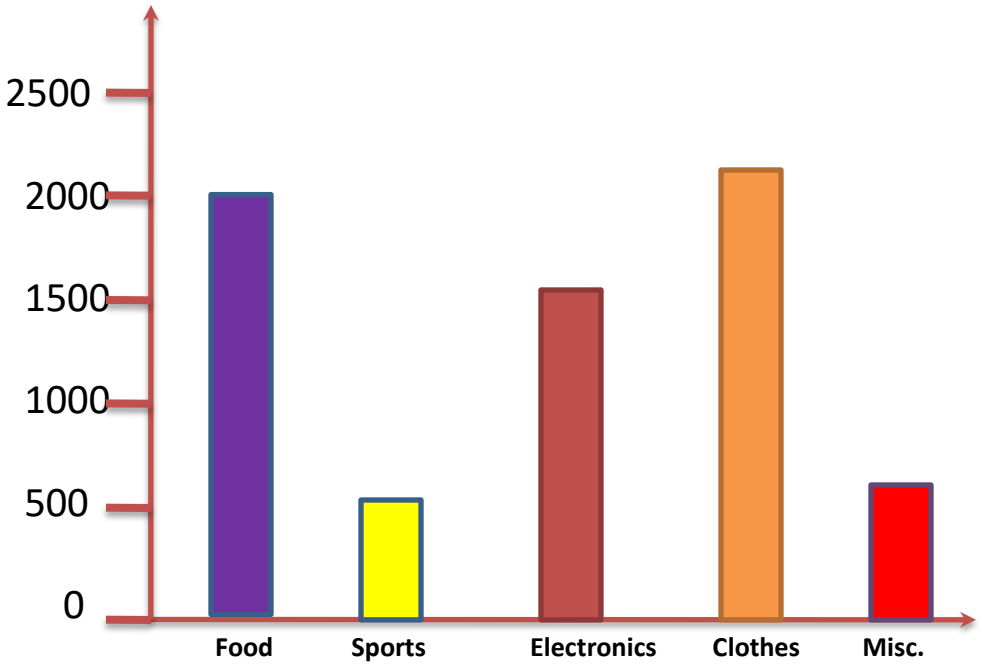
4 Sale of few items in a departmental store is as per the details given below for a week.

Items	Food	Sports	Electronic	Clothes	Miscellaneous
No. of customers	2000	500	1500	2200	600

Draw a bar graph to represent the above data using a suitable scale.





a) For which item, max. people visited the shop?

Clothes.

a) For which item, min. people visited the shop?

Sports items.

a) In all , how many customers visited the shop?

6800

a) Which are the two items for which the shop is popular?

Food and clothes.

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Complete Exercise 21 B in book and notebook.

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CLASS : V

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CHAPTER NAME : DATA HANDLING

SUB-TOPIC : PIE CHART

EXERCISE 21 C

PIE CHART

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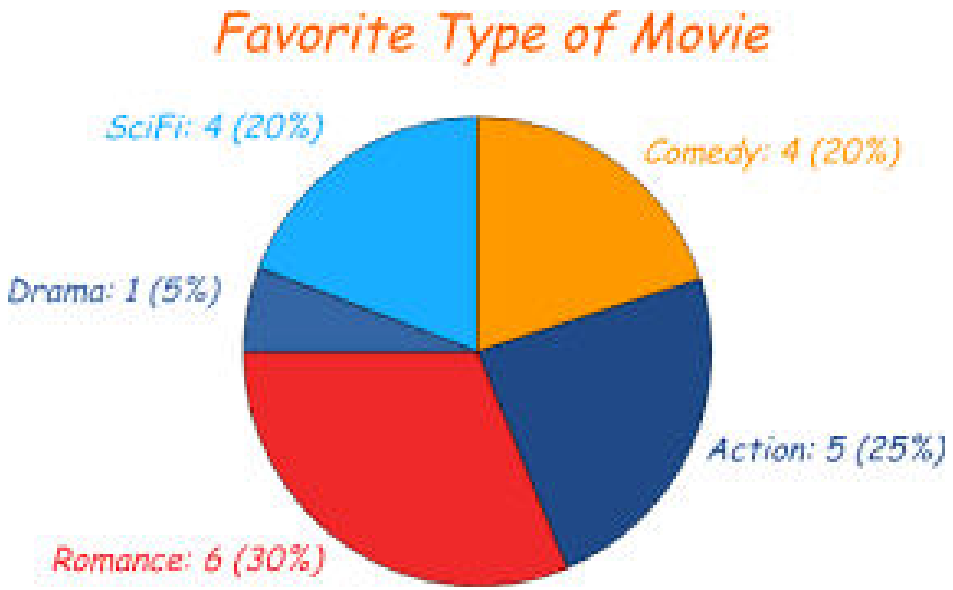
Pie charts are circular like a cake which can be divided into slices or pieces . Each slice shows a fractions of data.

It is an interesting way of representing data.



DATA HANDLING

PIE CHART

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STEPS TO DRAW A PIE CHART :

1. Draw a circle of your convenience.

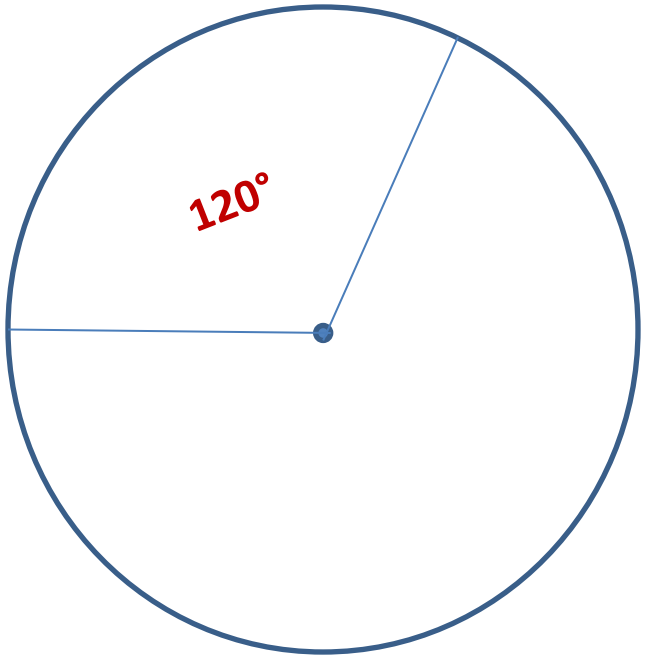
2. Draw a radius

3. Find the value to be represented

$$\frac{\text{Value}}{\text{total value}} \times 360°$$

Ex :- 500 out of 1500 = $\frac{500}{1500} \times 360$ → $\frac{120}{3}$ **= 120°**

4. Draw the angles using protractor.



PIE CHART

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EXAMPLE 1

Draw a pie chart for the different games played by the students of a school as per the details given below.

S.No.	Games	No. of students
1.	Cricket	600
2.	Football	500
3.	Basket ball	300
4.	Hockey	300
5.	Tennis	100
		1800

Let's find the value:- Cricket $= \frac{600}{1800} \times 360 = \frac{120}{3} = 120°$

Football $= \frac{500}{1800} \times 360 = \frac{100}{360} = 100°$

Basketball $= \frac{300}{1800} \times 360 = \frac{60}{6} = 60°$

DATA HANDLING

PIE CHART

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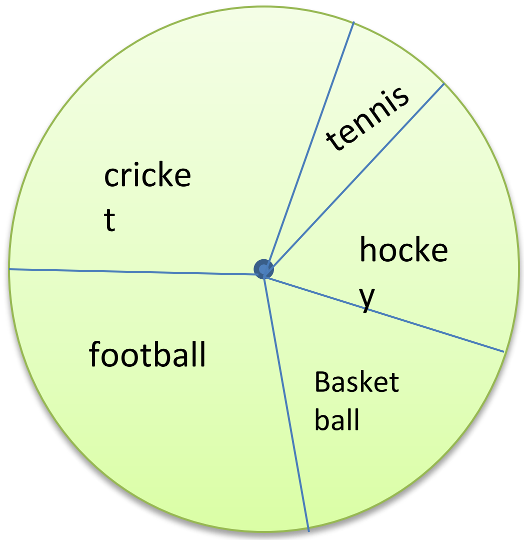
Hockey $= \frac{300}{1800} \times 360$ **= 60°**

Tennis $= \frac{100}{1800} \times 360$ **= 20°**



1. Which sport is the most popular?

   Ans. Cricket.

1. Which sport is the least popular?

   Ans. Tennis

1. Which two sports have an equal no. of participants?

   Ans. Basket ball and hockey.

EXERCISE – 21 C

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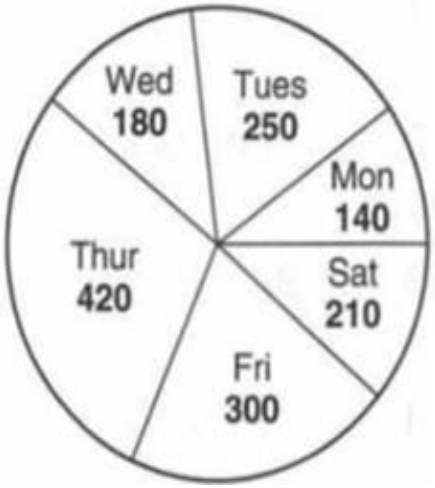
1 Read the pie chart given alongside and answer the following questions :

(a) On which day maximum books were sold ?

(b) On which day minimum books were sold ?

(c) What percentage of books were sold on Wednesday ?

(d) What percentage of books were sold on Friday ?



a) Thursday

b) Monday

c) $\frac{\cancel{180}^{\cancel{60}^{12}}}{\cancel{1500}_{5}} \times \cancel{100}$ **= 12%**

d) $\frac{\cancel{300}^{20}}{\cancel{1500}_{\cancel{15}}} \times \cancel{100}$ **= 20 %**

DATA HANDLING

EXERCISE – 21 C

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2 Draw a pie chart using the following information.

S.No.	Mode of transport	No. of students using each
1.	School transport	1500
2.	Public transport	500
3.	Own transport	400

Answer the following questions :

(a) Which is the most popular mode of transport ?

(b) What percentage of students come on their own ?

(c) What percentage of students use public transport ?

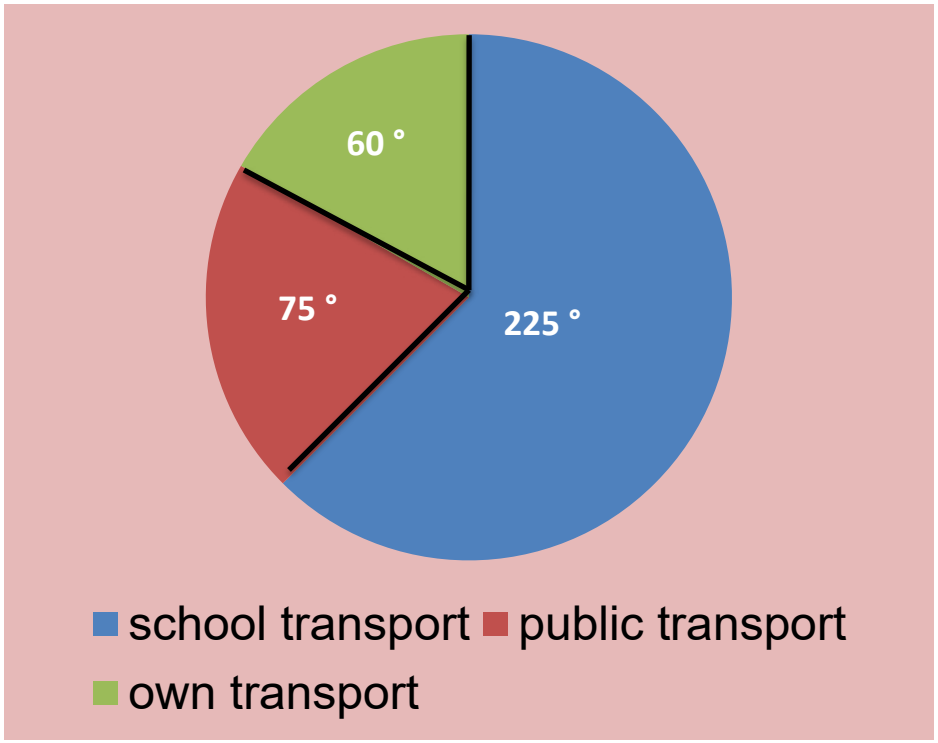
Let's find the value:-

School transport = $\frac{1500}{2400} \times 360 = 225°$

Own transport = $\frac{400}{2400} \times 360 = 60°$

Public transport = $\frac{500}{2400} \times 360 = 75°$

EXERCISE – 21 C



a) School transport.

b) $\frac{\cancel{400}}{\cancel{2400}} \times 100$ **= 16. 666... = 16 .67 %**

6

c) $\frac{125}{\cancel{500}} \times 1\cancel{00}$ **= 20.8 %**

$\cancel{2400}$

6

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EXERCISE 21 C

EXERCISE – 21 C

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3 In a class of 48 children, the favourite snacks used are as per the details given below.

S.No.	Snack item	No. of students
1.	Noodles	8
2.	Wafers	16
3.	Sandwiches	8
4.	Cakes	12
5.	Ice cream	4

Draw a pie-chart and answer the questions that follow :

(a) Which is the most favourite snack ?
(b) Which is the least favourite snack ?
(c) What percentage of students prefer cakes ?
(d) Which are the two items that are favoured by the same percentage of students ?

Lets find the value

Noodles = $\frac{8}{48} \times 360 = 60°$ (60)

Wafers = $\frac{16}{48} \times 360 = 120°$ (120)

Sandwiches = $\frac{8}{48} \times 360 = 60°$ (60)

Cakes = $\frac{12}{48} \times 360 = 90°$ (90)

EXERCISE – 21 C

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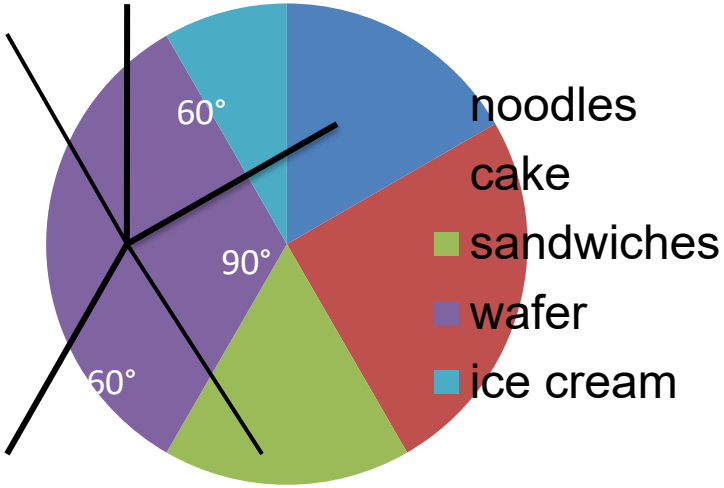
Ice cream = $\frac{4}{48} \times \overset{30}{360} = 30°$



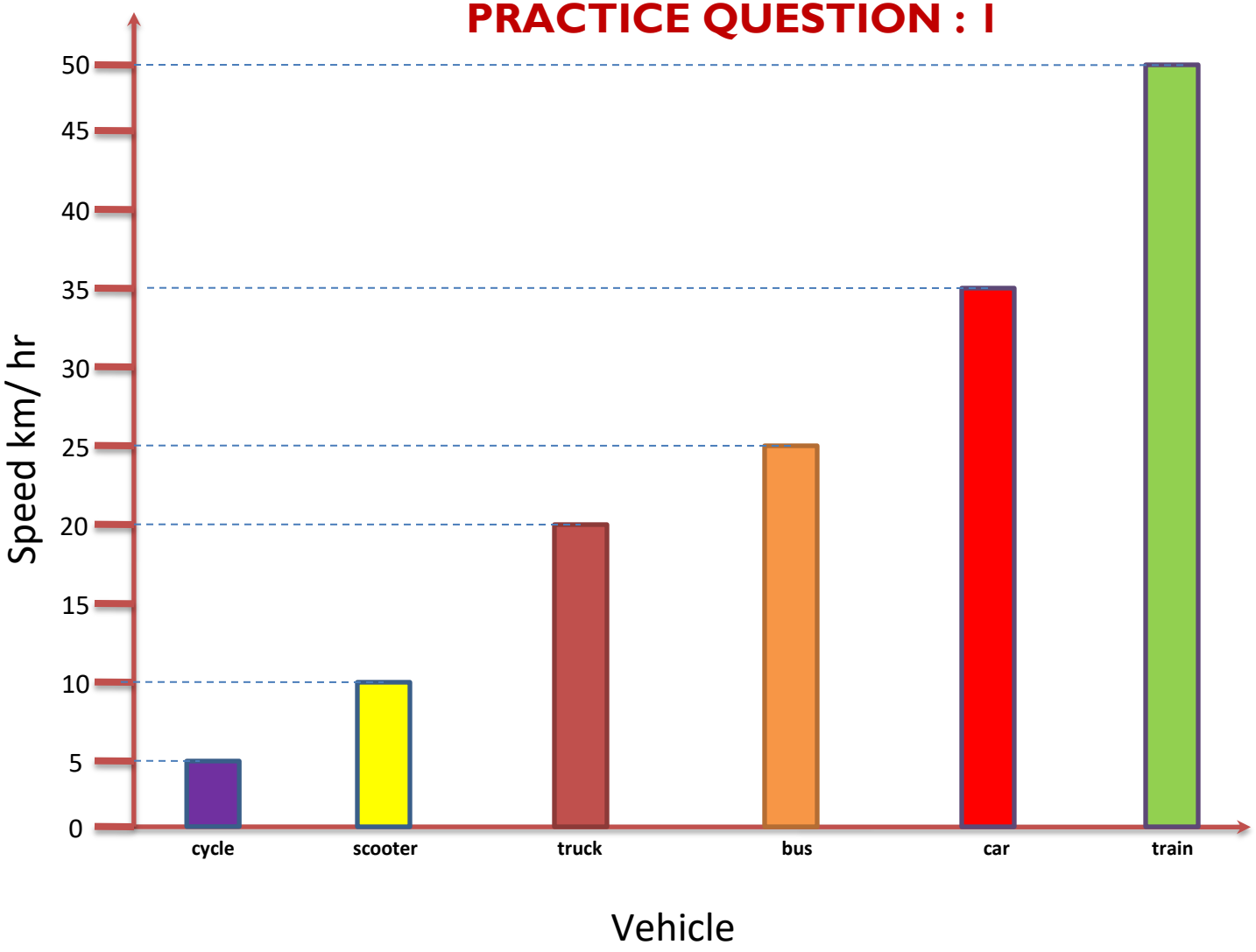
a) Wafer

b) Ice cream

c) $\frac{12}{48} \times \overset{25}{100} = 25\ \%$

d) Noodles and sandwiches.

PRACTICE QUESTION : I



Read the bar graph and answer the questions.

PRACTICE QUESTION : I

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a) Which vehicle has the maximum speed among all?

Ans. Train

a) Which vehicle has the minimum speed?

Ans. Cycle

a) What is the speed of the bus?

Ans. 25 km / hr

d) What will be the distance covered by the train after13 hours?

Ans. 50 x 13 hr = 650 km / hr

e) Write 3 road safety rules to be followed by everybody.

1. **Don't drink and drive.**
2. **Always wear seat belt.**
3. **Don't use phone while driving.**

PRACTICE QUESTION : 2

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2. Draw a bar chart using the data provided below and answer the following questions.

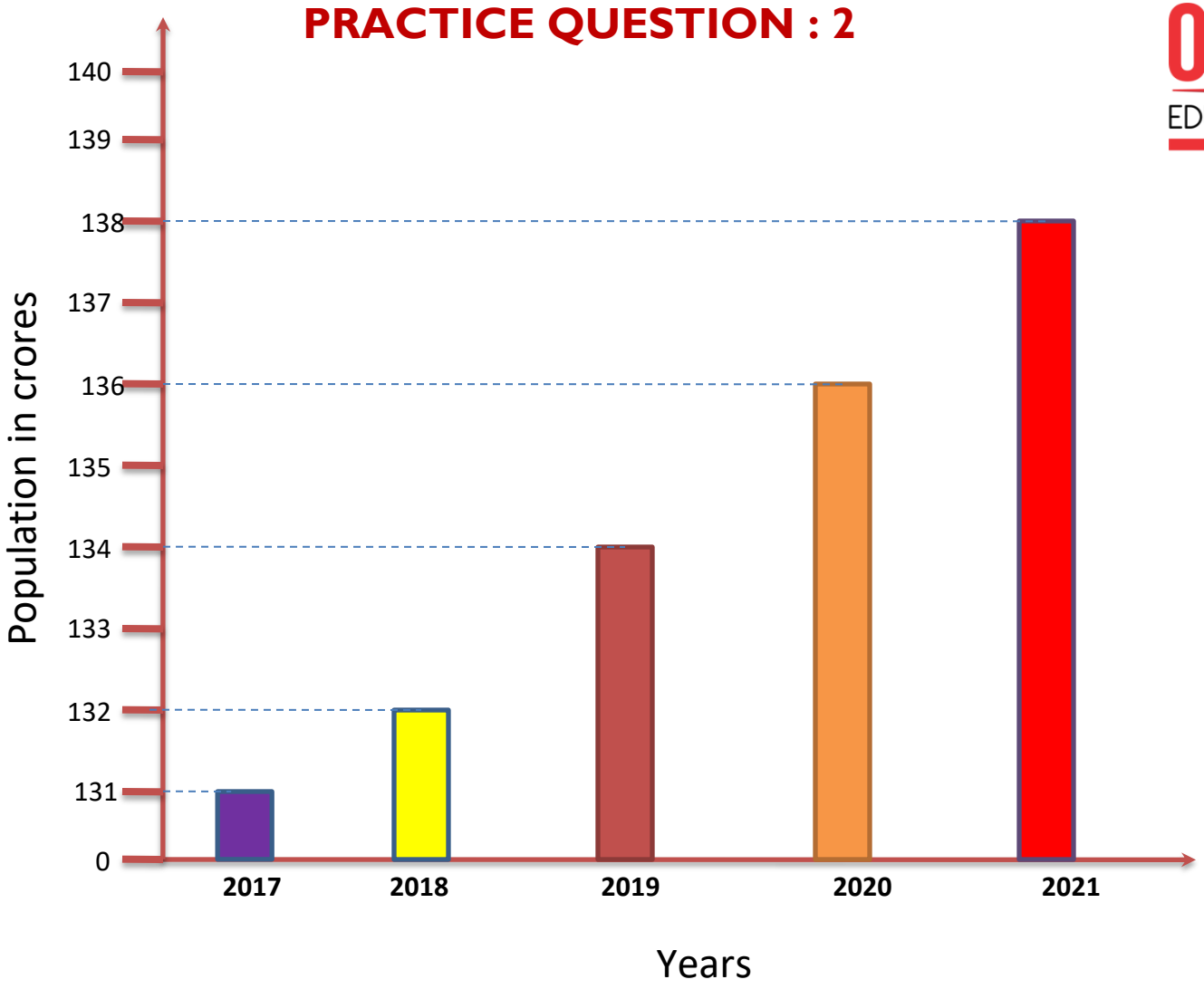
Year	Population
2017	131 cr
2018	132 cr
2019	134 cr
2020	136 cr
2021	138 cr

a) Write 5 points on what will happen if the population keeps growing?

a) Which country is the most populated country in the world?

a) Which Indian state is the most populated state?

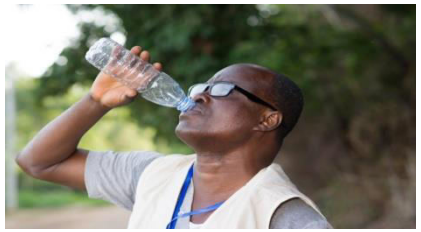
PRACTICE QUESTION : 2



PRACTICE QUESTION : 2

a) Write 5 points on what will happen if the population keeps growing?

1. **Shortage of food**
2. **Water scarcity**
3. **Global warming**
4. **Pollution**
5. **Spreading of new diseases.**



a) Which country is the most populated country in the world?

Ans. China

a) Which Indian state is the most populated state?

Ans. Uttar Pradesh

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Complete Exercise 21 C in notebook.

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