

9

Data Handling

Exercise 9.1

Q.1. In a Mathematics test the following marks were obtained by 40 students. Arrange these marks in a table using tally marks.

8	1	3	7	6	5	5	4	4	2
4	9	5	3	7	1	6	5	2	7
7	3	8	4	2	8	9	5	8	6
7	4	5	6	9	6	4	4	6	6

- (a) Find how many students obtained marks equal to or more than 7.
- (b) How many students obtained marks below 4?

Ans.

Marks	Tally marks	Number of students
1		2
2		3
3		3
4		7
5		6
6		7
7		5
8		4
9		3

- (a) $5 + 4 + 3 = 12$ students obtained marks equal to or more than 7.
- (b) $3 + 3 + 2 = 8$ students obtained marks below 4.

Q.2. Following is the choice of sweets of 30 students of Class VI

Ladoo, Barfi, Ladoo, Jalebi, Ladoo, Rasgulla Jalebi, Ladoo, Barfi, Rasgulla, Ladoo, Jalebi Jalebi, Rasgulla, Ladoo, Rasgulla, Jalebi, Ladoo, Rasgulla, Ladoo, Ladoo, Barfi, Rasgulla, Rasgulla, Jalebi, Rasgulla, Ladoo, Rasgulla, Jalebi, Ladoo.

(a) Arrange the names of sweets in a table using tally marks.

(b) Which sweet is preferred by most of the students?

Ans. (a)

Sweets	Tally marks	Number of students
Ladoo		11
Barfi		3
Jalebi		7
Rasgulla		9

Ans. (b) Ladoo is preferred by most of the students.

Q.3. Catherine threw a dice 40 times and noted the number appearing each time as shown below :

1	3	5	6	6	3	5	4	1	6
2	5	3	4	6	1	5	5	6	1
1	2	2	3	5	2	4	5	5	6
5	1	6	2	3	5	2	4	1	5

Make a table and enter the data using tally marks. Find the number that appeared.

(a) The minimum number of times

(b) The maximum number of times







(c) Find those numbers that appear an equal number of times.

Ans.

Numbers	Tally marks	How many times?
1		7
2		6
3		5
4		4
5		11
6		7

- (a) The number that appears the minimum number of times is 4.
- (b) The number that appears the maximum number of times is 5.
- (c) The numbers that appear an equal number of times are 1 and 6.

Q.4. Following pictograph shows the number of tractors in five villages.













Villages	Number of tractors  = 1 tractor
Village A	
Village B	
Village C	
Village D	
Village E	







Observe the pictograph and answer the following questions.

- (i) Which village has the minimum number of tractors?
- (ii) Which village has the maximum number of tractors?
- (iii) How many more tractors village C has as compared to village B?
- (iv) What is the total number of tractors in all the five villages?

- Ans.** (i) Village D has the minimum number of tractors.
- (ii) Village C has the maximum number of tractors.
- (iii) Village C has $8 - 5 = 3$ more tractors as compared to village B.
- (iv) Total number of tractors in all the five villages = $6 + 5 + 8 + 3 + 6 = 28$

Q.5. The number of girl students in each class of a co-educational middle school is depicted by the pictograph :

<i>Classes</i>	<i>Number of girl students</i>	 – 4 Girls
I	     	
II	    	

III	
IV	
V	
VI	
VII	
VIII	


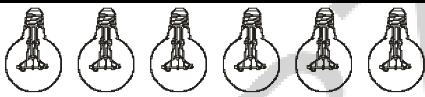
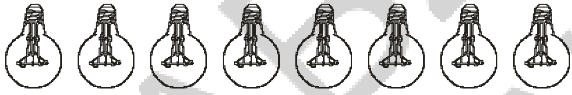
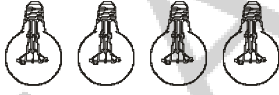

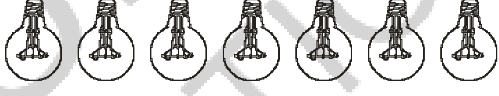
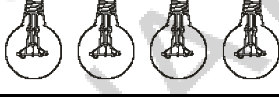
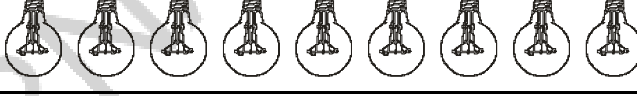
Observe this pictograph and answer the following questions:

- Which class has the minimum number of girl students?
- Is the number of girls in class VI less than the number of girls in class V?
- How many girls are there in class VII?

Ans. (a) Class VIII has the minimum number of girl students.
 (b) No, the number of girls in class VI is not less than the number of girls in class V.

(c) Number of girl in class VII = $3 \times 4 = 12$.

Q.6. The sale of electric bulbs on different days of a week is shown below :

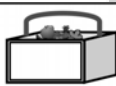
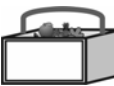
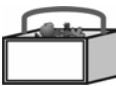





















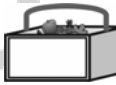








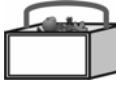
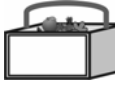
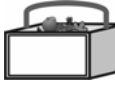
<i>Days</i>	<i>Number of electric bulbs</i>  = 2 Bulbs
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	






What can we conclude from the said pictograph?

- Ans.** (a) Number of bulbs sold on Monday = $6 \times 2 = 12$.
Similarly, number of bulbs sold on Tuesday, Wednesday, Thursday, Friday, Saturday and Sunday are 16, 8, 10, 14, 8 and 18 respectively.
- (b) Maximum number of bulbs were sold on Sunday.
- (c) Same number of bulbs were sold on Wednesday and Saturday.
- (d) The minimum number of bulbs were sold on Wednesday and Saturday.

- (e) The total number of bulbs sold in the given week
 $= (6 + 8 + 4 + 5 + 7 + 4 + 9) \times 2 = 43 \times 2 = 86.$

Q.7. In a village six fruit merchants sold the following number of fruit baskets in a particular season :

<i>Name of fruit Merchant</i>	<i>Number of fruit baskets</i>  – 100 Fruit baskets
Rahim	   
Lakhanpal	     
Anwar	      
Martin	         
Ranjit Singh	       

Joseph	    
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Observe this pictograph and answer the following questions :

- Which merchant sold the maximum number of baskets?
- How many fruit baskets were sold by Anwar?
- The merchants who have sold 600 or more number of baskets are planning to buy a godown for the next season. Can you name them.

- Ans.** (a) Martin sold the maximum number of baskets.
 (b) Number of fruit baskets sold by Anwar = $7 \times 100 = 700$
 (c) Anwar, Martin and Ranjit Singh are planning to buy a godown for the next season.

Exercise 9.2

Q.1. Total number of animals in five villages are as follows :

Village A	:	80
Village B	:	120
Village C	:	90
Village D	:	40
Village E	:	60

Prepare a pictograph of these animals using one symbol \otimes to represent 10 animals and answer the following questions:

- (a) How many symbols represent animals of village E?
- (b) Which village has the maximum number of animals?
- (c) Which village has more animals : Village A or village C?


Ans.

	Number of Animals	⊗ – 10 animals
Village A	⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗	
Village B	⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗	
Village C	⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗ ⊗	
Village D	⊗ ⊗ ⊗ ⊗	
Village E	⊗ ⊗ ⊗ ⊗ ⊗ ⊗	

- (a) 6 symbols represent animals of village E.
- (b) Village B has the maximum number of animals.
- (c) Village C has more animals than village A.






























Q.2. Total number of students of a school in different years is shown in the following table :

<i>Years</i>	<i>Number of Students</i>
1996	400
1998	535
2000	472
2002	600
2004	623










A. Prepare a pictograph of students using one symbol  to represent 100 students and answer the following questions:

- (a) How many symbols represent total number of students in the year 2002?
- (b) How many symbols represent total number of students for the year 1998?

B. Prepare another pictograph of students using any other symbol each representing 50 students. Which pictograph do you find more informative?

Years	Number of students	 – 100 Students
1996	   	
1998	     	
2000	    	
2002	     	
2004	      	

- (a) 6 symbols represent total number of students in the year 2002.
- (b) 5 complete and 1 incomplete symbols represent total number of students for the year 1998.

Years	Number of students	 – 50 Students
1996	       	

1998	⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕
2000	⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕
2002	⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕
2004	⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕

Pictograph B is more informative because it gives better approximations.

Exercise 9.3

Q.1. The bar graph given alongside shows the amount of wheat purchased by government during the year 1998-2002.



**Read the bar graphs and write down your observations.
In which year was**

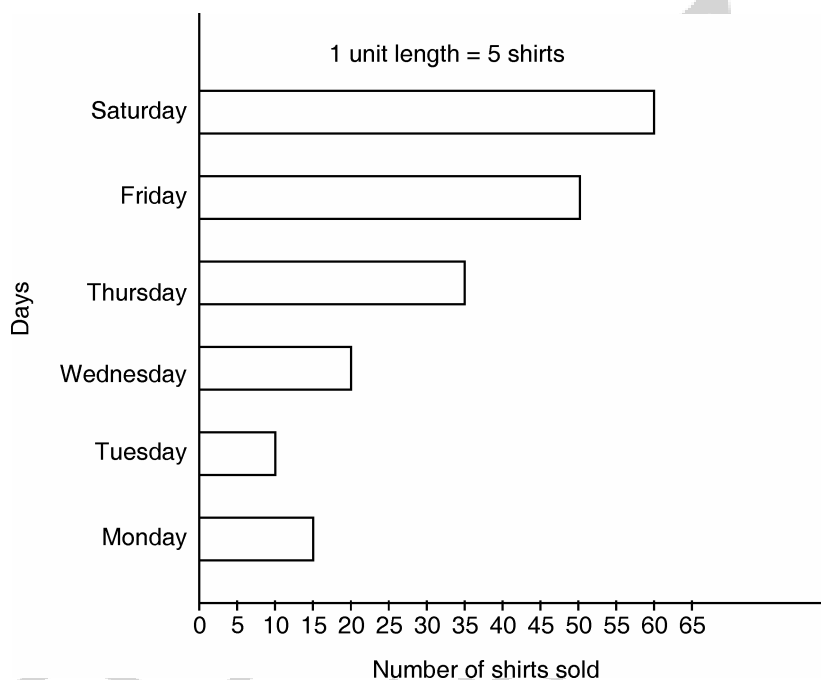
(a) the wheat production maximum?

(b) the wheat production minimum?

Ans. (a) The wheat production was maximum in the year 2002.

(b) The wheat production was minimum in the year 1998.

Q.2. Observe this bar graph which is showing the sale of shirts in a ready made shop from Monday to Saturday.



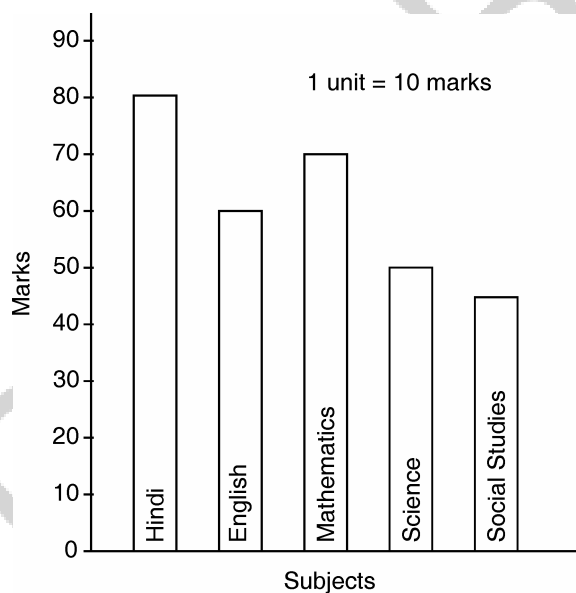
Now answer the following questions :

- (a) What information does the above bar graph give?
- (b) What is the scale chosen on the horizontal line representing number of shirts?
- (c) On which day were the maximum number of shirts sold? How many shirts were sold on that day?
- (d) On which day were the minimum number of shirts sold?
- (e) How many shirts were sold on Thursday?

Ans. (a) This bar graph shows the number of shirts sold from Monday to Saturday.

- (b) 1 unit = 5 shirts
- (c) On Saturday the maximum number of shirts were sold. 60 shirts were sold on this day.
- (d) On Tuesday the minimum number of shirts were sold.
- (e) 35 shirts were sold on Thursday.

Q.3. Observe this bar graph which shows the marks obtained by Aziz in half-yearly examination in different subjects.



Answer the given questions.

- (a) What information does the bar graph give?
- (b) Name the subject in which Aziz scored maximum marks.
- (c) Name the subject in which he has scored minimum marks.
- (d) State the name of the subjects and marks obtained in each of them.

Ans. (a) This bar graph shows the marks obtained by Aziz in different subjects.

- (b) Hindi
- (c) Social Studies
- (d) Hindi 80 marks, English 60 marks, Mathematics 70 marks, Science 50 marks and Social Studies 40 marks.

Exercise 9.4

Q.1. A survey of 120 school students was done to find which activity they prefer to do in their free time.

Preferred activity	Number of students
Playing	45
Reading story books	30
Watching TV	20
Listening to music	10
Painting	15

Draw a bar graph to illustrate the above data taking scale of 1 unit length = 5 students.

Which activity is preferred by most of the students other than playing?

Ans. To draw the bar graph of the above data, following steps are taken :

- (a) Draw one vertical and one horizontal line perpendicular to each other.
- (b) Along vertical line, mark the “Preferred activity” and along horizontal line mark the “Number of students”.
- (c) Take bars of same width, keeping uniform gap between them.

(d) Take scale of 1 unit length = 5 students along the horizontal line and then mark the corresponding values.

(e) Calculate the heights of the bars for various activities preferred as shown below :

Playing : $45 \div 5 = 9$ units

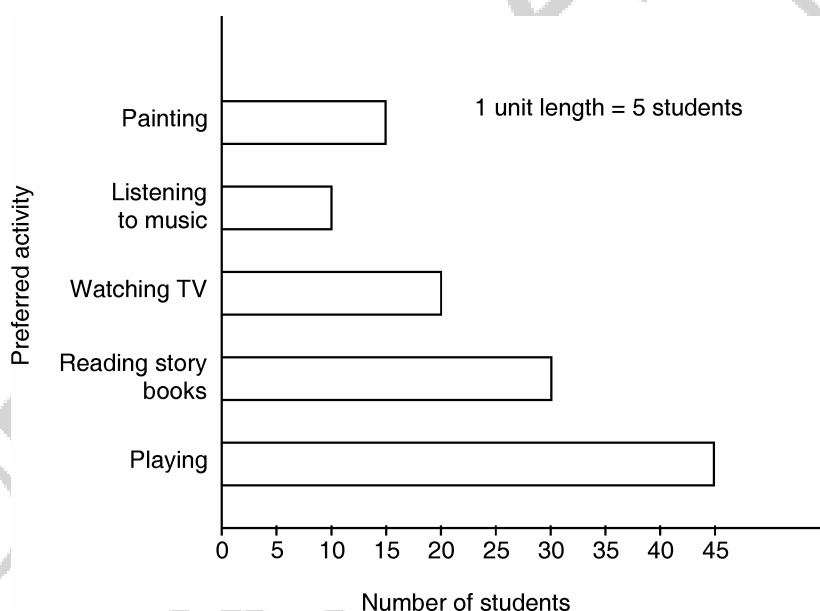
Reading story books : $30 \div 5 = 6$ units

Watching TV : $20 \div 5 = 4$ units

Listening to music : $10 \div 5 = 2$ units

Painting : $15 \div 5 = 3$ units

(f) Now, draw various bars.



The activity “Reading story books” is preferred by most of the students other than playing.

Q.2. The number of Mathematics books sold by a shopkeeper on six consecutive days is shown below :

Days	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
Number of books sold	65	40	30	50	20	70

Draw a bar graph to represent the above information choosing the scale of your choice.

Ans. To draw the bar graph of the above data, following steps are taken :

- (a) Draw one vertical and one horizontal line perpendicular to each other.
- (b) Along horizontal line marks the “Days” and along vertical line mark the “Number of Mathematics books sold”.
- (c) Take bars of same width keeping uniform gaps between them.
- (d) Take scale of 1 unit length = 5 books along the vertical line and mark the corresponding values.
- (e) Calculate the heights of the bars for various days as shown below :

Sunday : $65 \div 5 = 13$

Monday : $40 \div 5 = 8$

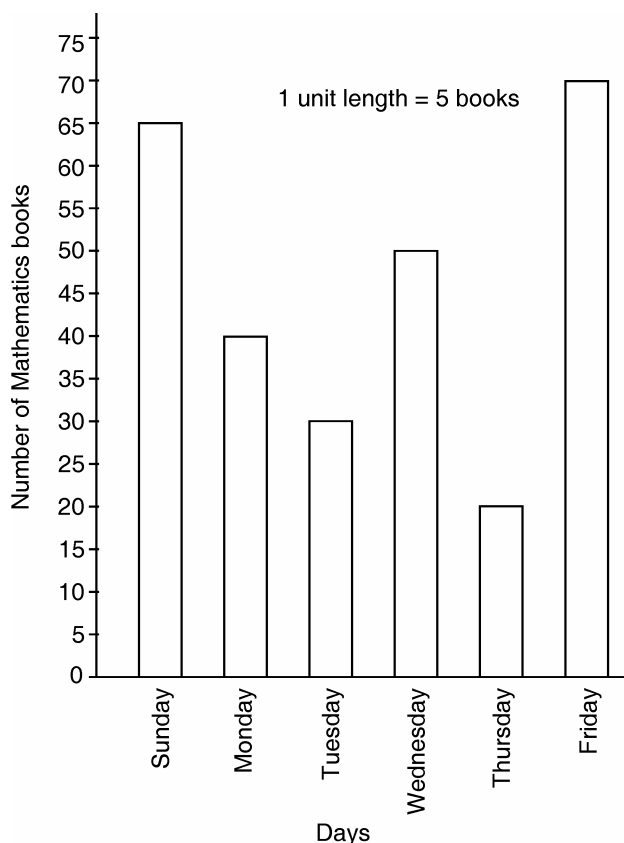
Tuesday : $30 \div 5 = 6$

Wednesday : $50 \div 5 = 10$

Thursday : $20 \div 5 = 4$

Friday : $70 \div 5 = 14$

- (f) Now draw various bars.



Q.3. Following table shows the number of bicycles manufactured in a factory during the years 1998 to 2002. Illustrate this data using a bar graph. Choose a scale of your choice.

Years	Number of bicycles manufactured
1998	800
1999	600
2000	900
2001	1100
2002	1200

(a) In which year were the maximum number of bicycles manufactured?

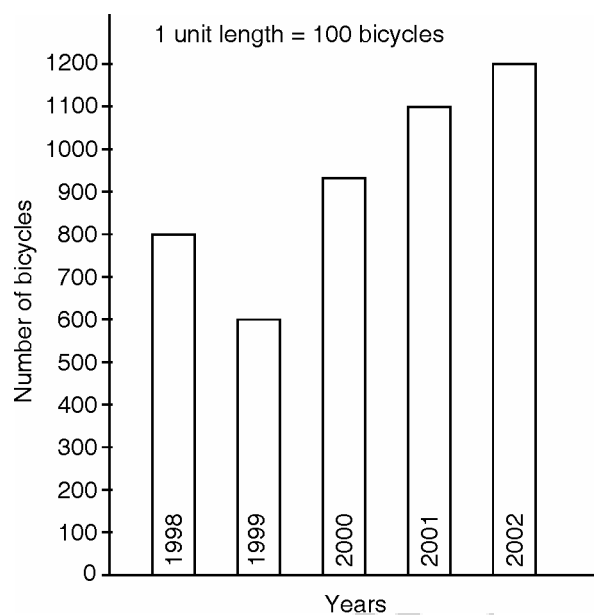
(b) In which year were the minimum number of bicycles manufactured?

Ans. To draw the bar graph of the above data, following steps are taken :

- (a) Draw one vertical and one horizontal line perpendicular to each other.
- (b) Along horizontal line mark the “Years” and along vertical line mark the “Number of bicycles”.
- (c) Take bars of same width keeping uniform gap between them.
- (d) Take scale of 1 unit length = 100 bicycles along the vertical line and then mark the corresponding values.
- (e) Calculate the heights of the bars for various years as shown below :

1998	:	$800 \div 100 = 8$ units
1999	:	$600 \div 100 = 6$ units
2000	:	$900 \div 100 = 9$ units
2001	:	$1100 \div 100 = 11$ units
2002	:	$1200 \div 100 = 12$ units

- (f) Now, draw various bars.



- (a) The maximum number of bicycles were manufactured in the year 2002.
- (b) The minimum number of bicycles were manufactured in the year 1999.

Q.4. Number of persons in various age groups in a town is given in the following table.

Age group	1-14	15-29	30-44	45-59	60-74	75 and above
Number of persons	2 lakhs	1 lakh 60 thousands	1 lakh 20 thousands	1 lakh 20 thousands	80 thousands	40 thousands

Draw a bar graph to represent the above information and answer the following questions. (take 1 unit length = 20 thousands)

- (a) Which two age groups have same population?
- (b) All persons in the age group of 60 and above are called senior citizens. How many senior citizens are there in the town?

Ans. To draw the bar graph of the above data, following steps are taken :

- (a) Draw one vertical and one horizontal line perpendicular to each other.
- (b) Along horizontal line mark the “Age group” and along vertical line mark the “Number of persons in thousands”.
- (c) Take bars of same width keeping uniform gaps between them.
- (d) Take scale of 1 unit length = 20 thousands along the vertical line and then mark the corresponding values.
- (e) Calculate the heights of the bars for various age groups as shown below :

$$1-14 : \frac{2,00,000}{20,000} = 10 \text{ units}$$

$$15-29 : \frac{1,60,000}{20,000} = 8 \text{ units}$$

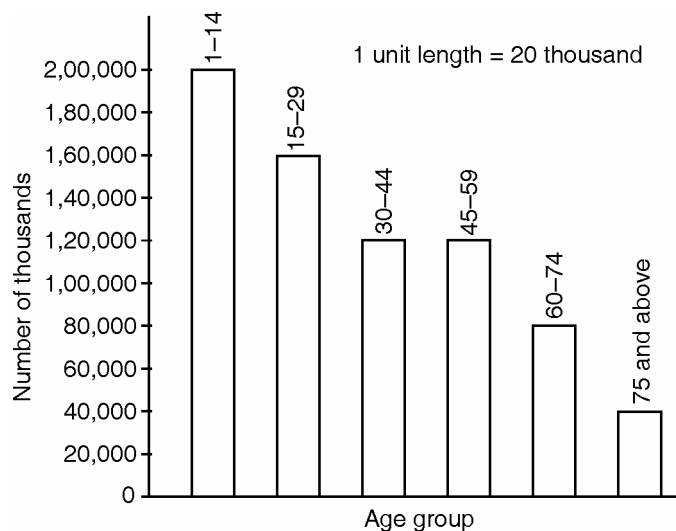
$$30-44 : \frac{1,20,000}{20,000} = 6 \text{ units}$$

$$45-59 : \frac{1,20,000}{20,000} = 6 \text{ units}$$

$$60-74 : \frac{80,000}{20,000} = 4 \text{ units}$$

$$75 \text{ and above} : \frac{40,000}{20,000} = 2 \text{ units}$$

- (f) Now draw various bars.



(a) The two age of groups 30-44 and 45-59 have same population.

(b) The number of senior citizens in the town

$$= 80,000 \text{ thousands} + 40,000 \text{ thousands}$$

$$= 1,20,000 \text{ thousands}$$

$$= 1 \text{ lakh } 20 \text{ thousands}$$