

* CHAPTER - 3

DATA HANDLING Module-3/3

*GRAPH

*The diagram or visual representation which shows the relation between two variable quantities in the form line, bar graph, histogram etc. is called graph

* BAR GRAPH:

The visual representation of data, in the form of bars with uniform width and length of the bars shows its frequency, is called a bar graph. There is an equal gap between two bars.

- *The information is represented by two axes, which are mutually perpendicular to each other.
- *The horizontal line represents the x-axis and the vertical line represents the y-axis.

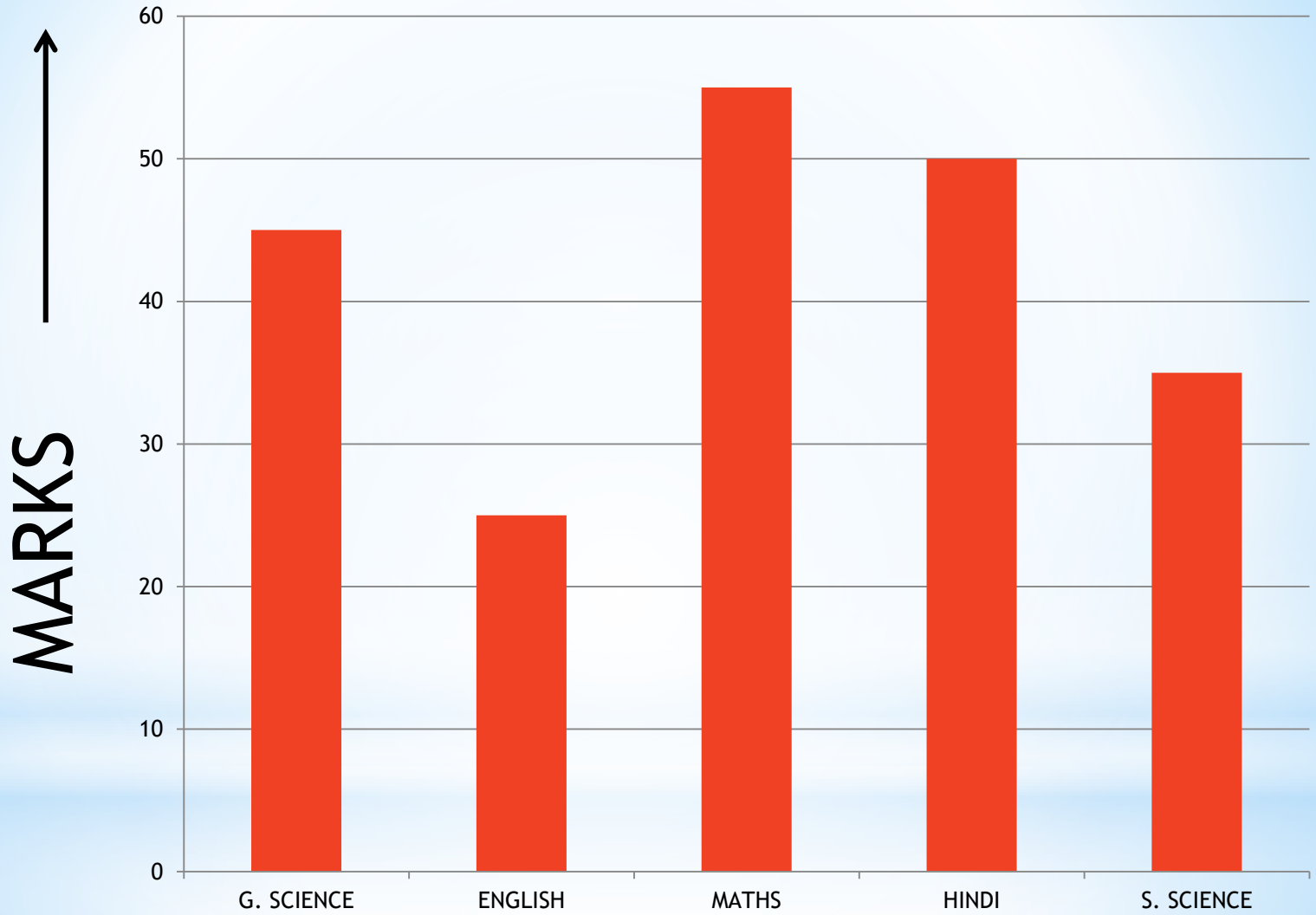
*Choosing Scale: We have to choose a scale according to the frequency which represents the length of the bars. One unit (10 small divisions on graph paper) may be chosen for frequency of 10 or 100 etc. We have to mark on the axis representing frequency at equal increment of 10 or 100.

* Suppose we have to represent the following data as a bar graph:

Subject	General Science	English	Maths	Social science
Marks obtained	45	25	65	55

* Here we have to start the scale from 0. As 65 is the greatest value, so we can end the scale at 70. So all the values lie between 0 to 70. So here we choose 1 unit for 10 marks.

- * Now we draw two axes i.e. x-axis and y-axis. On x-axis we take the subjects and on y-axis the marks obtained as per the scale chosen.
- * Now plot the bars by leaving equal gap between two bars.



*Double bar graph: When there are two collections of data, then we draw two bars adjacent to each other.

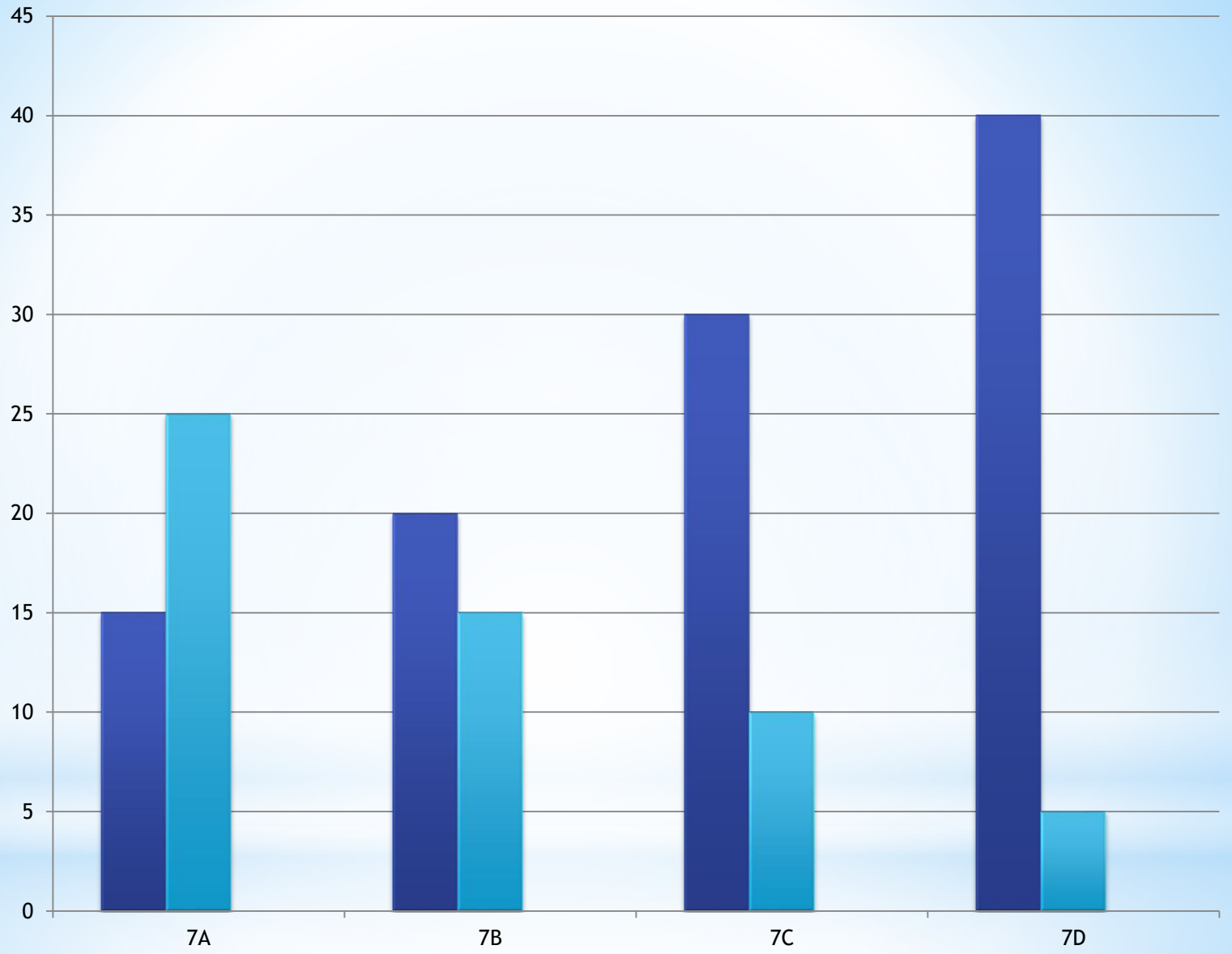
A double bar graph helps us to compare two collections of data at a glance.

To understand drawing double bar graph, we have to learn the following situation.

The numbers of boys and girls in section 7A, 7B, 7C and 7D of a school are given below ¹⁰

Section	7A	7B	7C	7D
Nos. of boys	15	20	30	40
Nos. of girls	25	15	10	5

No. of students



*CHANCES AND PROBABILITY

- *The word probability has been derived from the word probable means 'may' or 'may not'.
- *Suppose in a day early in the morning, we see the weather is cloudy, and then we can say, today it may rain. But it is not sure that it will rain. So it is the chances.
- *So probability tells us about the chance of occurring of an event.

* If we say that-

- * (i) The sun rises from the west. This statement is completely impossible.
- (ii) Getting 7 by throwing a ludo dice. This statement is also completely impossible, as there are six faces of the dice and it is marked as 1, 2, 3, 4, 5 and 6.
- * (iii) The weight of a butterfly is 10 Kg. This statement is completely impossible.

* If we perform an experiment or activity, it is sure, we shall get some outcomes or results.

* Only those experiments will be considered for calculating probability, whose occurring of the possible outcomes cannot be predicted well in advance.

EVENT

- * One or more of the outcomes which is taken into consideration for calculating probability is known as event
- * **EQUALLY LIKELY EVENTS-** If we throw a coin, then there are two outcomes, head and tail. We cannot predict the occurrence of head or tails before throwing the coin. Such kind of events are called equally likely events

*PROBABILITY

- *Probability is a concept which measures the certainty of the occurrence of an event.
- *The probability of getting a head by throwing a coin is $\frac{1}{2}$.
- *So probability =
number of outcomes favourable to the event
total number of outcomes

- * Probability of occurring of an event lies between 0 and 1.
- * The event which will never happen is called impossible event.
- * The probability of an impossible event is 0.
- * The event that is bound to happen is called sure event.
- * The probability of a sure event is 1.

- * Example: 1- A coin is flipped to decide which team starts the game. What is the probability that your team will start?
- * When a coin is tossed, then either head or tail comes.
- * Total no. of outcomes = 2
- * Favourable outcome = 1

* probability =
number of outcomes favourable to the event

total number of outcomes

$$* = \frac{1}{2}$$

* Example:2- A die is thrown ,find the probability of getting 3 and 5.

* The possible outcomes are - 1,2,3,4,5 and 6. Total outcomes= 6

* Probability of getting 3 =
number of outcomes favourable to the event
total number of outcomes

$$* = \frac{1}{6}$$

* Probability of getting 5 = $\frac{1}{6}$

* Example 3: There are 5 cards in a box with numbers 1 to 5 marked on them. The probability of getting a card with number 3

* The possible outcomes are 1, 2, 3, 4 and 5

* So total possible outcomes=5

* Probability of getting a card with number 3
= $\frac{\text{number of outcomes favourable to the event}}{\text{total number of outcomes}}$

* $= \frac{1}{5}$

*WHAT WE HAVE LEARNT

- * a. Graph- it shows the relation between two variable quantities.
- * b. Bar graph- It is the visual representation of the data in the form of bars with uniform width.
- * c. Double bar graph- It helps us to compare two collections of data at a glance.

*d. Probability- It measures the certainty of the occurrence of an event

*e. . Probability =

number of outcomes favourable to the event
total number of outcomes

* ASSIGNMENT

- * Q1. The performance of students in first term and second term is given. Draw a double bar graph choosing appropriate scale and answer the following.
- * (i) In which subject has the child improved his performance the most?
 - * (ii) In which subject the improvement is least?
 - * (iii) Has the performance gone down in any subject?

Subject	English	Hindi	Maths	Science	S. Science
1st term(M. M. 100)	67	72	88	81	73
2nd term(M. M. 100)	70	65	95	85	75

*Q2. Draw a bar graph with the following information.

Number on the dice	Frequency
1	33
2	40
3	47
4	52
5	38
6	40

*Q3. A box has 4 red balls and eight white balls. If a ball is drawn out without seeing then what is the probability of getting a red ball?

*Q4. Surya, Sid, Sara, Likhi, Akhil are participating in a debate. One of them is to be selected for representation at zonal level. Find the probability of Surya for being selected as a participant at zonal level.

- * Q5. Find the probability of getting a prime no, when a dice is thrown.
- * Q6. Find the probability of getting an even no, when a die is thrown.
- * Q7. What is the probability of selecting the letter A from the word 'ROAD'?

- * Q8. Find the probability of getting 0, when a die is thrown.
- * Q9. If a coin is thrown find the probability of getting head.
- * Q10. In a piggy bank, there are 10 one rupee coins, 20 two rupees coins and 15 five rupees coins. If you take out one coin at a time, find the probability of getting a two rupees coin.