

DATA HANDLING



ATOMIC ENERGY EDUCATION SOCIETY



MONTH : July
CLASS : Eight
SUBJECT : Mathematics

TOPIC

Data Handling
MODULE: 2/5

PREPARED BY

S.Anitha

TGT

AECS-1 Kalpakkam



INDEX

1. Organising data
2. Frequency Distribution Table
 - a) Discrete frequency distribution
 - b) Grouped frequency distribution



Organising data

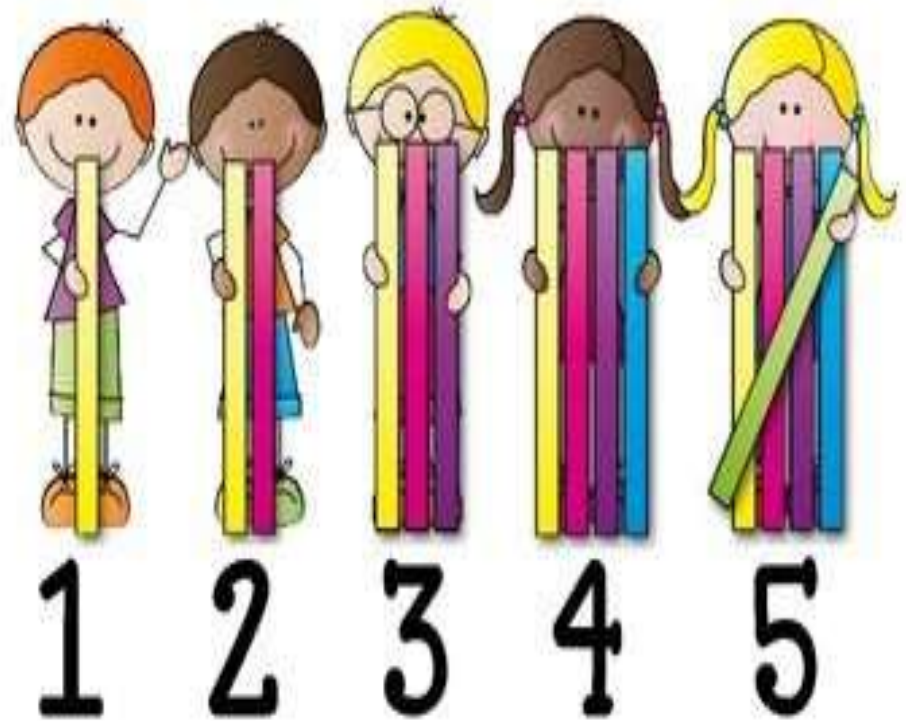
- Usually, data available to us is in an unorganised form , in order to draw meaningful inferences, we need to organise the data systematically by **tabulating**
- For example, a group of students was asked for their favourite subject. The results were as listed below:
Art, Mathematics, Science, English, Mathematics, Art, English, Mathematics, English, Art, Science, Art, Science, Science, Mathematics, Art, English, Art, Science, Mathematics, Science, Art.
- Which is the most liked subject and the one least liked?

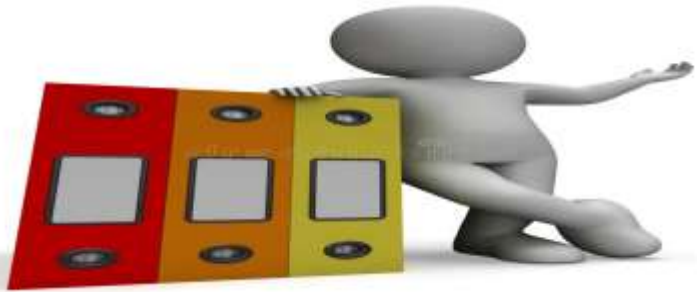


Organising data

- It is not easy to answer the question looking at the choices written haphazardly. We need to arrange the data in Table using tally marks.

TALLY MARKS

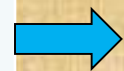




Tabulate data

Subject	Tally Marks	Number of Students
Art	III II	7
Mathematics	III	5
Science	III I	6
English	IIII	4

- The number of tallies before each subject gives the number of students who like that particular subject.
- This is known as the frequency of that subject.
- Frequency gives the number of times that a particular entry occurs.
- This table is called **Frequency Distribution table**

 Art is the most liked subject and English is least liked.

FREQUENCY DISTRIBUTION

Example :- Suppose we make survey of 20 families of a locality and find out the number of children in each family. Let the observation be.

2,2,3,1,1,2,3,2,2,1,2,2,3,1,2,1,1,3,2,2.

State the frequency of each observation.

Solution:- Arranging the data in ascending order, we get the observation as

1,1,1,1,1,1,2,2,2,2,2,2,2,2,2,2,3,3,3,3.

We find that

1 occurs 6 times;

2 occurs 10 times;

and 3 occurs 4 times;




We say that the frequency of families having 1 child is 6,

the frequency of families having 2 children is 10,

and the frequency of families having 3 children is 4.

Thus, the frequency distribution table of the above data may be presented as given in the next slide.....

FREQUENCY TABLE / TALLY CHAT

No. of children.	Tally Marks.	No. of families (frequency)
1		6
2		10
3		4
	TOTAL	20

GROUPED FREQUENCY DISTRIBUTION

- Sometime data is very huge, If we make a frequency distribution table for each observation, then the table would be too long.
- For convenience, we make groups of observations say, 0-10, 10-20 and so on, and obtain a frequency distribution of the number of observations falling in each group.
- The frequency distribution table then obtained is Grouped frequency distribution.

GROUPED FREQUENCY DISTRIBUTION

- Let's Understand this with an example

A class of 40 students was given Physics test of Maximum Marks 50. Here is the test score of the students

**7,10,25,33,40,9,27,11,28,45, 35, 20,15,45,31,
25,19,22,30,26,48,15,49,42,38,36,21,17,16, 29,
37,37,20,14,8,23,39,29,23,24**

If we draw the frequency distribution based on individual marks, it will be difficult to understand the data, So for convenience we can group the Marks in equal interval and draw the frequency distribution as given below

GROUPED FREQUENCY DISTRIBUTION

Class intervals	Tally marks	Frequency
0 — 10		3
10 — 20	///	8
20 — 30	/// //	14
30 — 40	///	9
40 — 50	///	6
Total		40

Important Definition from above learning

- 10-20,20-30 are called the **CLASS INTERVAL**. The groupings used to group the values in given data are called classes or class-intervals.
- The lower value in a class is called the lower class limit. The higher value in a class is called the upper class limit. In 20-30 class interval,20 is called **LOWER CLASS LIMIT** and 30 is called the **UPPER CLASS LIMIT**
The common observation like 20,30, etc. belongs to the higher class interval. So 20 will belong to 20-30
- The number of values that each class contains or the difference between the upper class limit and lower class limit is called the **WIDTH OR SIZE** of the class interval.

$$\text{class size} = \text{upper limit} - \text{lower limit}$$

Mid value of class interval is called its **CLASS-MARK**

$$\text{Class-mark} = (\text{Upper limit} + \text{Lower limit}) / 2$$

Q1. Read the frequency distribution table and answer the questions

Class Interval (Marks)	Tally marks	Frequency (No. of students)
0-20		4
20-40	 N	9
40-60	 N N N N	16
60-80	 N N N	14
80-100	 N	7

FREQUENCY DISTRIBUTION TABLE

- (i) What is the size of the class intervals?
size = $40 - 20 = 20$
- (ii) Which class has the highest frequency?
40-60
- (iii) Which class has the lowest frequency?
0-20
- (iv) What is the upper limit of the class interval 60-80?
80

Question 2

The annual attendance of 58 girls in Std. VIII is given below:

169, 168, 171, 180, 165, 190, 195, 159, 153, 185, 158, 156, 163, 167,
179, 157, 174, 164, 184, 184, 175, 179, 174, 183, 197, 172, 188, 172,
161, 173, 166, 166, 162, 170, 178, 182, 178, 177, 171, 177, 177, 171,
193, 187, 192, 182, 176, 176, 180, 186, 181, 171, 178, 192, 177, 187, 191,
176,

Prepare a frequency table for the data using the class intervals as:

150-155, 155-160, 160-165, 165-170, 170-175, 175-180, 180-185, 185-190, 190-195, 195-200

Solution:

Class interval attendance	Tally Marks	Frequency
150-155		1
155-160		4
160-165		5
165-170		6
170-175		10
175-180		14
180-185		7
185-190		5
190-195		5
195-200		1
	Total	58



THANK YOU