

§ 4.1 TYPES OF DATA

- ✦ Data handling deals with:
 - a) the collection,
 - b) the organisation,
 - c) the presentation,
 - d) the analysis and
 - e) the interpretation of data.
- ✦ Data can be collected from questionnaires, interviews and experiments. Books, magazines, and the internet are also sources of data.
- ✦ Collected data, called **raw data**, has to be **organised** and **presented** in such a way that it makes sense and so that some deduction may be drawn from it.
- ✦ The data may be **discrete** or **continuous**.
 - With **discrete data**, each item of data is exact and distinct. This data is often a total of counted objects.

Examples of discrete data are:

 - a) Number of children (no fractions)
 - b) Shoe size (half sizes included, but no smaller fractions)
 - c) Number of objects
 - With **continuous data**, the data is measured to some degree of accuracy, e.g. to 1 decimal place. It is an approximation and not necessarily exact. This data is usually a measurement.

Examples of continuous data are

 - a) Age (measured to the nearest year or month)
 - b) Time (measured to the nearest hour, minute, second)
 - c) Length (measured to the nearest cm)

Exercise 4.1

Classify each of the following examples of data as a discrete or continuous:

- 1) The number of goals scored in successive football matches
- 2) Shirt sizes of the men in an office
- 3) The height of each child in a class
- 4) The temperature of an oven in cake baking
- 5) The volume of water in each tank at a recycling centre
- 6) The number of children in each classroom in a school
- 7) The set of mathematics test marks obtained by a class
- 8) The heights of the mealies in a field
- 9) The number of sweets in various boxes
- 10) The mass of each of the players in a rugby team

§ 4.2 ORGANISING DATA

✦ If data is not organised, no pattern or trend can be seen. One way to organise data is to arrange it in descending or ascending order.

EXAMPLE

Listed below are the results (raw data) of an experiment in which a dice is thrown 40 times and the number on the upper face is recorded after each throw.

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

Arrange this data in descending order.

SOLUTION

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

✦ Organising the data in an array still does not give a clear picture. A **frequency table** shows better organisation.

EXAMPLE

- 1) Organise the above data (the dice being thrown 40 times) using a frequency table.
- 2) What conclusion can be drawn from the data?
- 3) Which of the two forms of organisation presents the data more clearly?

SOLUTION

1)

Number	Tally	Frequency
6		4
5	 	11
4		5
3		5
2	 	12
1		3
TOTAL		40

- 2) Conclusion: There are more 2's and 5's than of any other number. A fair dice would show about the same frequency for each number, especially with a greater number of throws. The dice is possibly biased (weighted).
- 3) The frequency table presents the data more clearly than a list.

Note:

- By adding the frequencies we can check that all the data is entered on the table

Exercise 4.2

A dice is thrown 20 times and the number is recorded after each throw. Write the data in ascending order and also in a frequency table.

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

Face	1	2	3	4	5	6	Total
Frequency							