

# CHAPTER FIFTEEN

## MISCELLANEOUS TOPICS

### Introduction to basic stem and leaf plots:

A stem and leaf plot is a special table, in which each data value is split into a stem (which is the first digit), and a leaf (which is usually the last digit).

- For example considering 32, 3 is the stem while 2 is the leaf.
- Considering 67, 6 becomes the stem while 7 becomes the leaf.
- Lastly considering 48, while 4 is the stem, 8 becomes the leaf.
- Example 1: You are given this data: 15, 16, 21, 23, 23, 26, 30, 32, . Make a stem and leaf plot of it.

Hint:

- (1) Ensure that the numbers have been arranged in the ascending order.
- (2) Construct a table as shown next:

Stem	Leaf

- (3) Consider all the numbers beginning with 1, i.e 15 and 16 in this case.
- (4) Since they all have 1 as a common term, it is brought outside the bracket, while the numbers attached to the 1 are placed inside the bracket i.e 1(5 6)
- (5) Next considering all the numbers beginning with 2, i.e 21, 23, 26, while the 2 is brought outside the bracket, all the other numbers attached to it are placed inside the bracket i.e 2(1 3 6).
- (6) Now considering the numbers beginning with 3 i.e 30 and 32, while the 3 is brought outside the bracket, the 0 and the 2 are placed inside the bracket i.e 3(0 2).
- (8) Finally while all the numbers outside the brackets are placed under the stem column of the table, those within the brackets are placed under the leaf column as shown next:

Stem	Leaf
1	5 6
2	1 3 6
3	0 2

**Example 2: Create a stem and leaf plot for this data: 38, 39, 20, 28, 17, 25, 33, 19.**

**Hint: Arranging the numbers in order gives us the next data: 17, 19, 20, 25, 28, 33, 38, 39.**

**- We then make a stem and leaf plot of the data i.e:**

Stem	Leaf
1	7 9
2	0 5 8
3	3 8 9

**Example 3: The data shows the distribution of marks in a class work:**

27 19 65 69  
11 13 17 64

56 49 42 38  
28 28 39 39

Make a stem and leaf plot of the data.

Hint: Arranging the numbers in order gives us the next data:

11 13 17 19  
27 28 28 38  
39 39

Then make or construct the stem and leaf plot of the data.

Stem	Leaf
1	1 3 7 9
2	7 8 8
3	8 9 9

Conversion between certain units of measurements:

(a) To convert from kilograms into grams, we multiply by 1000.

Examples  $2\text{kg} = 2 \times 1000 = 2000\text{g}$ . and  $4\text{kg} = 4 \times 1000 = 4000\text{g}$ .

Also  $0.2\text{ kg} = 0.2 \times 1000 = 200\text{g}$  and  $0.6\text{kg} = 0,6 \times 1000 = 600\text{g}$ .

(Q1) If 5000g, 2kg, and 300g are the weights of farm animals, determine their total weight in grams.

N/B: Convert the 2kg into grams.

**Soln**

$$2\text{kg} = 2 \times 1000 = 2000\text{g}.$$

$$\text{The total weight of the animals} = 2000\text{g} + 300\text{g} + 5000\text{g} = 7300\text{g}$$

**(Q2) The weights of blocks used for a project are 0.6kg, 7kg, 800g and 200g. Determine their total weight in grams.**

**N/B: Convert the weights in kilogram into grams.**

**Soln**

$$0.6 \text{ kg} = 0.6 \times 1000 = 600\text{g} \text{ and } 7\text{kg} = 7 \times 1000 = 7000\text{g}.$$

$$\text{Total weight} = 600\text{g} + 7000\text{g} + 800\text{g} + 200\text{g} = 2300\text{g}$$

**N/B: To convert from metres into centimeters, we multiply by 100.**

$$\text{Example: } 2\text{m} = 2 \times 100 = 200\text{cm} \text{ and } 5\text{m} = 5 \times 100 = 500\text{cm}.$$

$$\text{Also } 0.3\text{m} = 0.3 \times 100 = 30\text{cm} \text{ and } 0.7\text{m} = 0.7 \times 100 = 70\text{cm}.$$

**(Q3) The lengths of sticks collected by a farmer are as follows: 2.5m, 6m, 80cm, and 40cm. Find the total length of sticks collected in centimetres.**

**N/B: The lengths in metres must first be converted into centimetres.**

**Soln**

$$2.5\text{m} = 2.5 \times 100 = 250\text{cm} \text{ and } 6\text{m} = 6 \times 100 = 600\text{cm}.$$

$$\text{The total length of sticks collected} = 250\text{cm} + 600\text{cm} + 80\text{cm} + 40\text{cm} = 970\text{cm}.$$

**(Q4) 250cm, 7m and 2m are the heights of trees within a farm. Determine the total height of all the trees within the farm in centimetres.**

**Soln**

**$7\text{m} = 7 \times 100 = 700\text{cm}$  and  $2\text{m} = 2 \times 100 = 200\text{cm}$ .**

**Total height of all the trees =  $250\text{m} + 700\text{m} + 200\text{m} = 1150\text{cm}$ .**

**N/B: To convert kilometers into metres, we multiply by 1000 e.g  $2\text{km} = 2 \times 1000 = 2000\text{m}$**