Displaying Data: Stem Plots

Displaying Data



Displaying data helps us:

- organise information clearly
- identify patterns and trends
- compare data sets
- describe spread and variation

Types of data displays

The type of data display you choose depends on:

- the type of data being collected
- what you want to show or compare
- the patterns or trends you want to identify

Understanding a Stem Plot

A stem plot (stem-and-leaf plot) organises numerical data while keeping the original values visible.

It is best used for:

- small to medium numerical data sets
- displaying exact values in order, making it easier for patterns to be identified
- finding and comparing summary statistics such as:
  - measures of centre (mean, median, mode)
  - measures of spread (range, IQR)

Features of stem plot

A stem plot is a unique table used to organise and display numerical data based on the place value of the numbers.

The ‘stem’ displays the first digit(s) of the data

The ‘stem’ values are ordered downwards

Stem	Leaf
0	1 4
1	3 6 6 7 8
2	0 2 5
3	6 7 7 7
4	0 1 3

Key
0|3 = 0.3

The ‘key’ explains how to convert the ‘stem’ and ‘leaf’ digits into a single data point

The ‘leaf’ displays the last digit

The ‘leaf’ values are ordered right (or left) from the stems

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Constructing a Stem Plot

Steps	Example
1. Put the data in order	Data: 12, 15, 11, 18, 24, 27, 22, 21 = 11, 12, 15, 18, 21, 22, 24, 27
2. Identify the stems	The tens digits become the stems Stem | Leaf **0** **1** **2**
3. Add the leaves	Stem | Leaf 0 1 **1 2 5 8** 2 **1 2 4 7**
4. Add a key	Key: 1|2 = 12

Back-to-back stem plots

These are used to compare two data sets.

They help compare:

- centre
- spread
- range
- distribution

Leaf - set A	Stem	Leaf – set B
6 4 2	0	1 4
9 7 6 4 2	1	3 6 6 7 8
1	2	0 2 5
8 8 7 7	3	6 7 7 7
8 6 5 2	4	0 1 3

Key
0|3 = 0.3

Related Helpsheets

- Measures of Centre
- Measures of Mean
- Standard Deviation

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