Year 9 Higher Topic 3

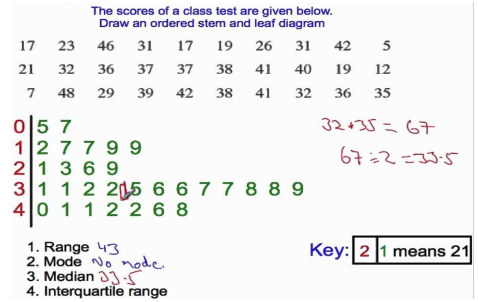
Topic title: Interpreting and Representing Data

Stem and leaf diagrams

Can represent one or two sets of data.

Must always have a key.

Good for demonstrating the modal group of a set of data. Shows outliers easily.



What careers would use these skills?

Graphical representation is found in may job sectors. Such as meteorology, statistical analysis, journalism, market research analyst, architects, engineers, life scientists, biometrician, mudlogger, royalty calculation analyst and actuary.

Which average?

AVERAGE	PROS	CONS
Mean	Includes every value in the calculation	Affected by 'extreme' values
Median	Isn't affected by 'extreme' values	Doesn't include all the data
Mode	Isn't affected by 'extreme' values Only average that can be used with words	No use if all the data is different No use if there is more than one mode

Averages from grouped data

Mode—group with the most data in

Median—group containing the median

Mean—an estimate of the mean of the data.

Median

(Total frequency + 1) / 2

Count this number of items in to the data to decide which group the median will fall in.

Mean

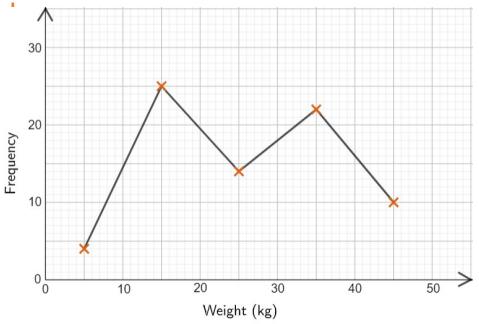
Total of Midpoint of each group x the frequency divided by the total frequency.

Frequency polygons

A frequency polygon plots the mid-point of a group of data against the frequency.

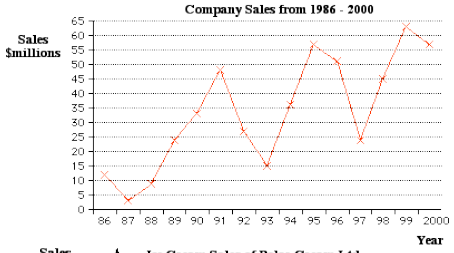
A frequency polygon shows the trend of the data.

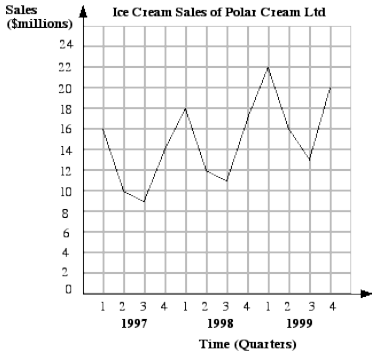
Don't join up the first and last point.



Time series graphs

Shows the trend of data over a time period.

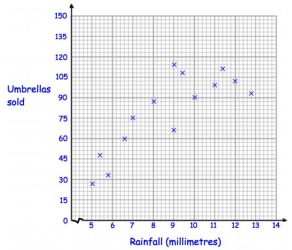


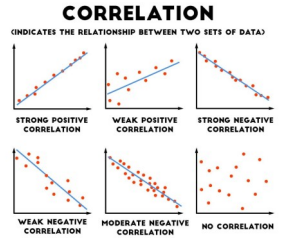


Scatter graphs

Scatter graphs show a relationship between two sets of data.

They show if there is positive or negative correlation between them.





Grouped MEAN Average

We find the **Average Number of Coffees per Hour** by adding two new columns to our Frequency Table and using a Formula.

Cappuccinos	Freq	Interval Midpoint	Freq x Midpt
0-3	2	1.5	2 x 1.5 = 3
4-7	3	5.5	3 x 5.5 = 16.5
8-11	8	9.5	8 x 9.5 = 76
12-15	3	13.5	3 x 13.5 = 40.5
16-19	2	17.5	2 x 17.5 = 35
TOTALS	18		171

MEAN Average = Total of (Freq x Midpt) / Total Frequency
= 171 / 18 = 10 cappuccinos per hour

Grouped Data – Median Class

The Median is halfway through our Groups of Interval Data.

Cappuccinos	f
0-3	2
4-7	3
8-11	8
12-15	3
16-19	2
TOTAL	18

We find the Median by finding our Half-Way Position within the Frequencies, which is NOT 18 / 2 = 9 ⊗

9.5

1,2,3,4,5,6,7,8,9, 10,11,12,13,14,15,16,17,18

The middle of our Frequencies is at the 9.5th value.