Transformations
Use and interpret translation of a shape
Use and interpret reflection of a shape
Enlarge a shape with, or without a centre.
Describe an enlargement
Use and interpret a fractional/negative enlargement
MINI REVIEW
Use and interpret rotation of a shape
Describe a single transformation
Multiple transformations of one shape
OPEN BOOK ASSESSMENT

Enlargement

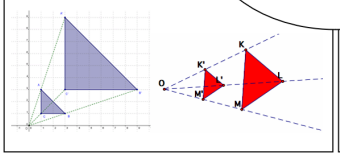
DEFINITION

In geometry, a transformation that moves all points a distance away from a centre point by applying a scale factor.

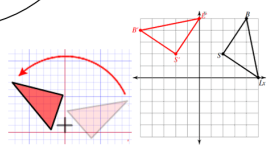
CHARACTERISTICS

- Shapes change size.
- The scale factor multiplies distances, including the distance from the centre.

EXAMPLES



NON-EXAMPLES



Handling Data
To use and interpret single averages including the range
Find the averages from single frequency tables
MINI REVIEW
Find averages from a grouped frequency table
Compare the distributions of two sets of data
Problem solving with averages and reverse mean problems
OPEN BOOK ASSESSMENT

Median

DEFINITION

The value at the centre of a numerically ordered list of values.

CHARACTERISTICS

- May be one of the values, or halfway between two values.
- Position of the median found by $\frac{n+1}{2}$ where n is the number of values, for a small list.
- If median is between two values, add the values and divide by 2 to find it.
- Unaffected by outliers.

EXAMPLES

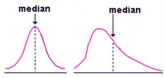
1, 3, 3, **6**, 7, 8, 9

Median = 6

1, 2, 3, **4**, **5**, 6, 8, 9

Median = (4 + 5) ÷ 2

= 4.5



NON-EXAMPLES

3, 5, 7, 13, 3, 7, 9

Score	Frequency
5	2
6	3
7	2
8	2
9	1
10	1

Median is not 7.5

Mode

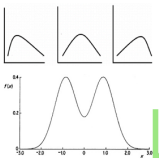
DEFINITION

The most frequent item in a set of data.

CHARACTERISTICS

- May be more than one mode, or no mode.
- Shows popular choices.
- Is not affected by outliers.

EXAMPLES



3, 5, 7, 13, 3, 7, 9, 3

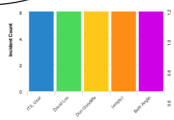
mode = 3

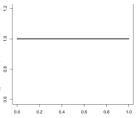
NON-EXAMPLES

Example 2

5, 8, 13, 15, 17

no mode





Statistical Diagrams

Draw and interpret pie charts

Draw and interpret bar charts / dual / composite

Use and interpret scatter graphs

Draw and interpret cumulative frequency diagrams and box plots

Bar Chart

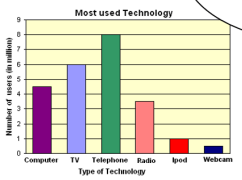
DEFINITION

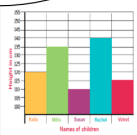
A chart that uses the heights of rectangles to represent the frequency of qualitative data

CHARACTERISTICS

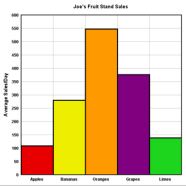
- Each rectangle should be of equal width
- The rectangles should be separated by gaps of equal width
- The frequency axis should start from 0
- Each axis should have a title

EXAMPLES





NON-EXAMPLES



Box plots

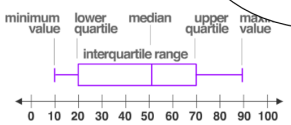
DEFINITION

Also known as Box and Whisker diagrams. They are diagrams or graphs using a number line to show the distribution of a set of data.

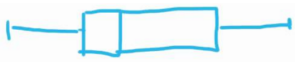
CHARACTERISTICS

The diagram displays the median, upper and lower quartiles, and the maximum and minimum values of the data. The length of the box is the interquartile range.

EXAMPLES



NON-EXAMPLES



Cumulative frequency

DEFINITION

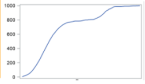
The running total of the frequencies.

CHARACTERISTICS

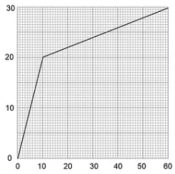
Add up the frequencies as you go. The cumulative frequency numbers always go up, never down. For grouped data, plot the right hand value of the group. Join with a curve.

EXAMPLES

score (x)	tally	frequency (f)	cumulative frequency
1	IIII	4	4
2	~~IIII~~ III	9	13
3	~~IIII~~ I	6	19
4	~~IIII~~ II	7	26
5	III	3	29
6	II	2	31



NON-EXAMPLES



Ratio and Proportion
Simplify ratio including 1:n and n:1
Use ratio with fractions
Use ratio to share amounts out
Find a missing value given one part of the ratio
Direct proportion including the unitary method
Reciepes
Inverse proportion
Using two sets of information linked by a common ratio

Ratio

DEFINITION

A way of comparing two or more numbers or amounts by division.

CHARACTERISTICS

- Write using a ":" symbol, say "to"
- Equivalent to a fraction.
- Unchanged when both quantities are multiplied by same factor.

EXAMPLES

2:3 7:9 5:4:12

2 parts sugar to 3 parts flour

Twice as many girls as boys

1:1.345 4.2103:1 £1 = $1.20

35p per 100g 43 miles per gallon

NON-EXAMPLES

One teabag per person and one extra "for the pot".

There are six more girls than boys in the class.

£6 per day + £2 service charge

Inverse Proportion

DEFINITION

The relationship between two variables where the product of the variables is constant. As one variable goes up, the other goes down.

CHARACTERISTICS

- If one variable is multiplied by a constant, the other will be divided by the same constant (or multiplied by the reciprocal).
- 0 of one variable means the other doesn't exist.

EXAMPLES

The average speed and time taken to travel a fixed distance

The number of people working on a job and the time taken to do the job (provided all work at the same rate).

NON-EXAMPLES

The number of people working on a job and the cost of the job.

The amount of water leaking from a tank and the amount of water left in the tank.

Probability
Find the probability of an event happening
Find the probability of an event not happening
To understand relative frequency
Draw and interpret tree diagrams
Draw and interpret non replacement tree diagrams
OPEN BOOK ASSESSMENT

Probability

DEFINITION

The measure of the likelihood of an event occurring or not occurring.

CHARACTERISTICS

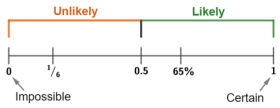
Written as a decimal or (more commonly) a fraction.

The value must be between 0 and 1 (inclusive)

EXAMPLES

P(win) = 0.34

P(not rain) = $^{5}/_{7}$



NON-EXAMPLES

P(win) = 3

P(red) = -0.6

Unlikely means ¼

Likely means ¾

50:50

Tree Diagrams

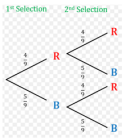
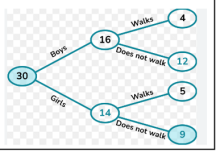
DEFINITION

A **tree diagram** is a visual tool used to map out all possible outcomes of a sequence of events.

CHARACTERISTICS

It consists of "branches" (which represent events or choices) and "nodes" (which represent the points where events occur). They are primarily used in probability, combinatorics, and statistics.

EXAMPLES



NON-EXAMPLES