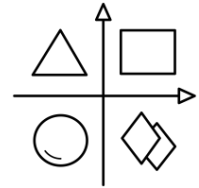
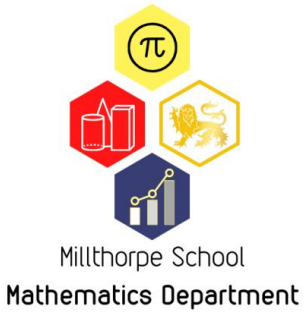


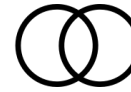
KS3 Mathematics Journey (Year 7)



Year 8

Sample spaces

Venn diagrams



Probability

Probabilities sum to 1

Experimental probability



Probability scale

Recognise and sketch quadratic graphs

Recognise and sketch linear graphs

Coordinates in all 4 quadrants

nth term of an arithmetic sequence

Generate terms of a sequence

Describe and continue sequences



Sequences and Graphs

Assessment

Simple and compound interest

Reverse percentage change

Percentage of amounts

Perimeter

Angles in polygons

Percentage change

Percentages as operators

Area: rectangles, triangles, parallelograms

Angles in parallel lines

Describe and continue sequences

Percentages

Geometry

Angle facts

Use a protractor to measure and draw angles

Compare quantities using percentages

Mixed numbers and improper fractions

Fractions \leftrightarrow Decimals

Derive and illustrate properties of triangles, quadrilaterals, and circles

Solve equations with one variable

Multiples

$+$ $-$ \times \div

Describe, sketch and draw using conventional terms and notations

Algebraic manipulation

Fractional Thinking

Fractions of amounts



Substitution

Collect like terms

Represent fractions on a number line and in diagrams

Equivalent fractions

Simplify fractions

Compare fractions

List and interpret algebraic notation

Form expressions from situations described in words

Four operations



Ordering directed numbers

Understand the difference between an expression, equation, formula, term, function and identity

Introduction to Algebra

Directed Number

Year 7

Number

Algebra

Ratio and proportion

Statistics/Probability

Geometry & measure

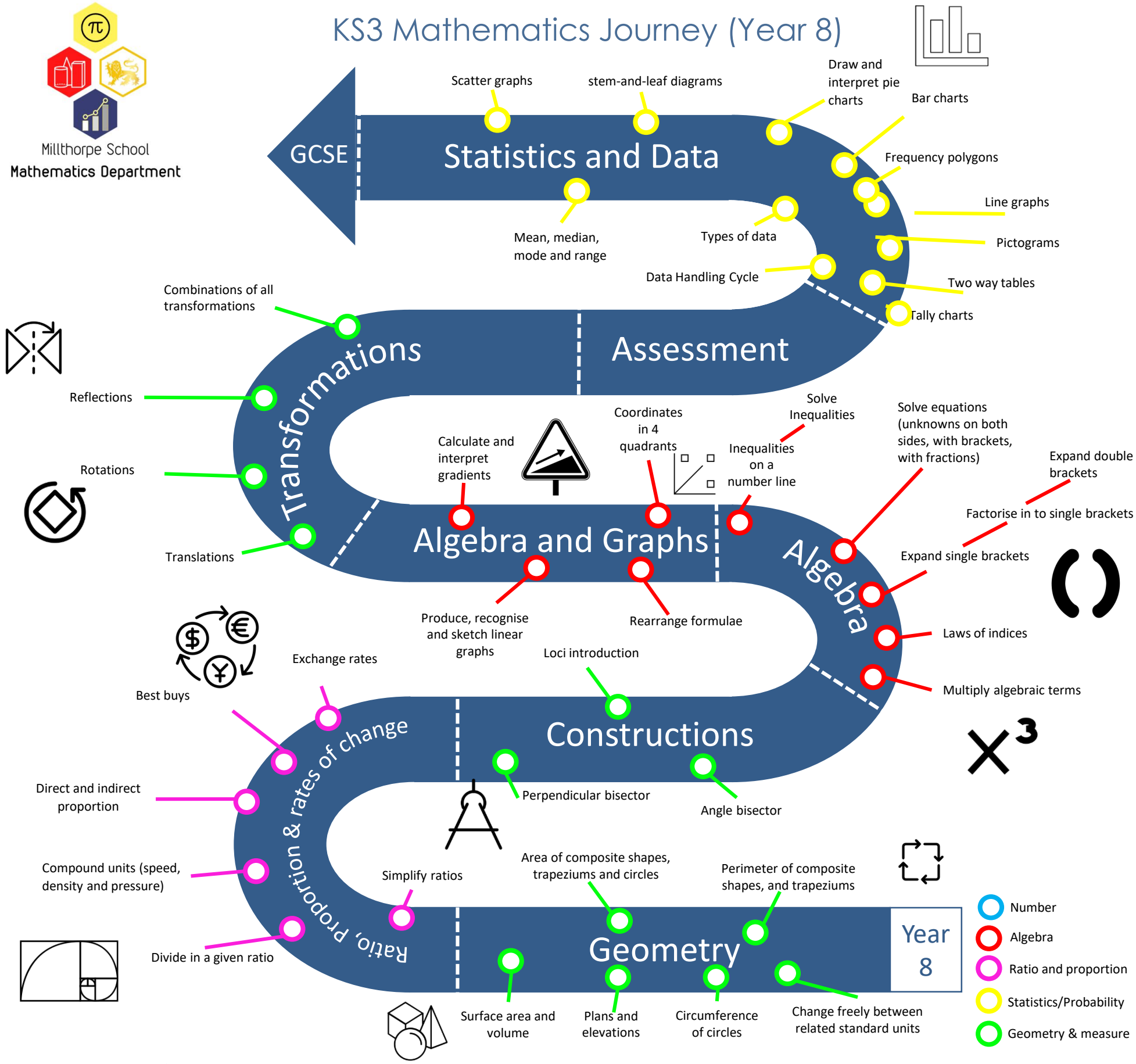
$$3 + (-2) = 1$$

- Write and order numbers up to 10 million
- Use negative numbers in context
- Round any whole number to a required degree of accuracy
- Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000
- Perform mental calculations, including with mixed operations and large numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
- Divide up to 4 digit numbers by up to 2 digit numbers and interpret remainders as whole number remainders or fractions

- Use equivalence to order, add and subtract fractions
- Multiply proper fractions and mixed numbers by whole numbers
- Divide a proper fraction by a whole number
- Identify the value of the digits up to 3 decimal places
- Multiply 1 digit numbers with up to 2 decimal places by whole numbers
- Solve problems involving decimals up to 3 decimal places
- Use written division in cases where the answer has up to 2 decimal places
- solve problems involving the calculation of percentages
- solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts

- compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
- Convert between metric units
- Appreciate that shapes can have the same area but different perimeters
- Calculate volume of cubes and cuboids
- Calculate area and perimeter of shapes including parallelograms, triangles and rectangles.
- Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
- recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles

KS3 Mathematics Journey (Year 8)



- order positive and negative integers, decimals and fractions; using number lines an inequality
- Understand and use prime numbers, highest common factor, lowest common multiple, prime factorisation.
- $\times, \div, +, -$ integers, decimals, fractions, all both positive and negative
- use conventional notation for the priority of operations.
- work interchangeably with terminating decimals and their corresponding fractions
- Calculate percentages of amounts
- interpret fractions and percentages as operators
- use standard units of mass, length, time, money and other measures
- round numbers and measures (dp and sf)

- express one quantity as a fraction of another
- solve problems involving percentage change, including: increase, decrease and original value problems and simple interest in financial mathematics
- use and interpret algebraic notation
- substitute numerical values into formulae and expressions
- understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors
- Simplify algebraic expressions by collecting like terms
- Solve linear equations
- Recognise a quadratic graph
- generate terms of a sequence from either a term-to-term or a position-to-term rule
- recognise arithmetic sequences and find the n th term

- calculate and solve problems involving: perimeter and area of triangles, and parallelograms
- draw and measure line segments and angles in geometric figures, including interpreting scale drawings
- describe, sketch and draw using conventional terms and notations
- derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures using appropriate language
- apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles
- alternate and corresponding angles
- derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons

- discrete, continuous and grouped data
- mean, mode, median, range, consideration of outliers)
- frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data