

# LEVEL 7 MATHS

## SHAPE & SPACE

**Angles:**

**I can**

- \* Understand that Bearings are three figures and always go from the North line in a clockwise direction
- \* Use Bearings to find the position of something on a map

**Perimeter Area and Volume:**

**I can....**

- \* Find the area and perimeter of a shape made from smaller shapes
- \* Find the surface area of a three-dimensional shape
- \* Convert between units given in areas
- \* Find the volume of a cylinder
- \* Find the volume of any prism

**Pythagoras Theorem:**

**I can....**

- \* Understand what Pythagoras Theorem is and how to use it
- \* Find the length of a short or long side using Pythagoras Theorem
- \* Solve word problems using Pythagoras Theorem
- \* Understand what is meant by the term Pythagorean triple

**Transformations:**

**I can....**

- \* Enlarge shapes with fractional and negative scale factors
- \* Find a mirror line by drawing lines from the original shape to the image
- \* Find the centre of rotation of having seen the original and rotated shape
- \* Find the angle of rotation having seen the original and rotated shape

**Constructions:**

**using a ruler, pair of compasses, and pencil, I can....**

- \* Draw a rhombus given the length of its sides
- \* Draw any of the angles, 30 degrees 60 degrees or 45 degrees
- \* Draw triangles given two sides and one angle, or three angles
- \* Draw a perpendicular bisector of a line and an angle bisector

**Error in Measurement:**

**I can....**

- \* Write measures down to the nearest unit
- \* Say what a rounded measure was by un-rounding half a unit

**Loci:**

**I can....**

- \* Find the path made around a point or shape
- \* Find a feasible region by finding multiple paths around points and lines

## ALGEBRA

**Sequences:**

**I can .....**

- \* Turn a sequence of numbers into an algebraic rule
- \* Find the rule for a Quadratic sequence using the difference method
- \* Find rules for sequences that are not linear or quadratic

**Inequalities:**

**I can.....**

- \* Understand the signs used in inequalities (<> etc.)
- \* Show an inequality using a number line
- \* Solve inequality equations displayed by graphs

**Simultaneous Equations:**

**I can.....**

- \* Understand what is meant by simultaneous equations
- \* Use the elimination of method of solving simultaneous equations
- \* Use substitution to solve simultaneous equations
- \* Find the solution to a pair of simultaneous equations using a graph

## NUMBER

**Approximation and Estimation:**

**I can. ....**

- \* Round numbers to a given number of significant figures
- \* Estimate answers to calculations

**Calculation:**

**I can....**

- \* Multiply two numbers between zero and one
- \* Divide two numbers between zero and one
- \* Multiply and divide numbers with decimal parts
- \* Use a calculator effectively with brackets and memory functions
- \* Use negative numbers within other areas of mathematics

**Proportional Changes:**

**I can ....**

- \* Calculate a fractional increase or decrease of a given number
- \* Increase an amount using a ratio
- \* Calculate percentage changes of amounts
- \* Calculate percentage increases and decreases

**Compound Measures:**

**I can....**

- \* Calculate speed given a distance and time
- \* Understand what a distance time graph shows me
- \* Draw a distance time graph to solve problems
- \* Understand problems using mass density and volume
- \* Calculate with unusual values: (population and area)

## DATA HANDLING

**Scatter diagrams:**

**I can ....**

- \* Draw a scatter diagram
- \* Read a scatter diagram and use it to answer predictive questions
- \* Draw an appropriate line of best fit on a scatter diagram

**Analysing data:**

**I can....**

- \* Find the mean, median and mode for a set of data
- \* Find the mean median and mode for grouped data which is discrete
- \* Find the mean median and mode for grouped data which is continuous
- \* Estimate that median of grouped data
- \* Turn a set of a continuous data into a frequency polygon

**Estimating probability:**

**I can....**

- \* Work out what a probability should be from a table of data
- \* Calculate how many successful outcomes I would expect from an increased number of trials

**Surveys:**

**I can....**

- \* Understand there are lots of ways of collecting organising and analysing data
- \* Complete observation sheets to collect data
- \* Write an unbiased, relevant questionnaire
- \* Understand what a hypothesis is
- \* Perform surveys to collect data to test hypotheses
- \* Perform experiments to test hypotheses