



## **Year 7 Mathematics Curriculum Overview**

The Year 7 curriculum, as for all years, is a spiral curriculum which enables us to recap and build on topics covered in KS2. Ever mindful of the potential gaps or misconceptions caused by lost face-to-face learning, each topic recaps key skills that may not have been mastered.

Students in year 7 are in sets based on prior attainment, flightpaths, results from their Year 6 assessments, CATS testing and Year 7 teacher input. Sets 1-3 follow the main curriculum, with set 4 missing some of the higher-grade skills; this is with a view to Higher vs. Foundation trajectories. Sets are reviewed after every half term assessment to enable every student to succeed.

Topics that we will recap and build upon during Year 7 include:

- Numbers and the number system
- Counting and comparing
- Calculating with whole numbers, decimal, negative numbers and BIDMAS
- Checking, Approximating and Estimating
- Visualising and Constructing
- Investigating properties of shapes
- Algebraic Proficiency
- Fractions Decimals and Percentages
- Proportional Reasoning
- Pattern Sniffing
- Measuring space
- Investigating angles
- · Calculating with fractions
- Solving Equations and inequalities
- Calculating space
- Mathematical movement
- · Presentation of data
- · Measuring data

.





| Mathematics - Year 7 Unit 1   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                  |                                                                                                                        |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| What are we learning?         | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | What does mastery look like?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | How does this build on prior learning?                                           | What additional resources are available?                                                                               |
| Numbers and the number system | Knowledge: Prime, square and cube and triangle numbers Square roots Square and Square root notation Factors, Multiples Triangle numbers Highest common Factor Lowest common multiple Powers and roots Divisibility tests Understanding: Students will solve problems using common factors and highest common factors, and using multiples and lowest common multiples Skills: Know the first 10 square numbers and their square roots Know the first 10 cube numbers and their cube roots Know the first 10 prime numbers and square numbers Know the notation around powers and roots | Students will have instant recall of their multiplication facts up to 12 x 12 – this is key knowledge which is needed in many areas of mathematics.  Students can recall the first 10 primes, squares, cubes and their associated roots  Students can list the factors and multiples of any number, and can identify the highest common factor from two or more lists of factors, and the lowest common multiple from two or more lists of multiples.  Students can explain what a prime number is using appropriate language, and will know that 1 is not a prime number  Students can explain how to calculate a square number, and how to find a square root | Year 5/6 Multiples, factors, primes, multiplication facts, squares, cubes, roots | Hegarty Maths lessons BBC bitesize Mymaths Soft schools' prime numbers game Transum.org – pick the primes, HCF and LCM |





| Mathematics - Year 7 Unit 2 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                     |                                                                             |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| What are we learning?       | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | What does mastery look like?                                                                                                                                                                                                                                                                                                                  | How does this build on prior learning?                                                                                                                                                                              | What additional resources are available?                                    |
| Counting and Comparing      | Knowledge: Comparing numbers, ordering integers and decimals, ordering fractions, ordering integers, decimals, and fractions (including mixed numbers) Using comparison symbols in algebraic contexts Understanding: Students will understand what integers, decimals and fractions are bigger. Be able to convert to a common form enabling students to compare. Skills: Putting numbers in order of size, decimals, and fractions in order of size. Using the inequality sign to compare. Converting fractions from mixed to improper. | Identify and rectify an error in comparing numbers, decimals, and fractions. Students can find a decimal between two given decimals, and a fraction between two given fractions. Students can explain why 0.400 < 0.45 Students can explain how to change an improper fraction to a mixed number, and a mixed number to an improper fraction. | Year 5/6 Know negative numbers are less than zero. Ordering fractions where the denominator is the same. Know how to cancel fractions to their simplest form. Compare and order fractions, including fractions > 1. | Mymaths textbooks 1A,1B,1C  Mymaths.co.uk Hegarty Maths lessons Transum.org |





|                                                                         | Mathematics - Year 7 Unit 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                    |                                                                                                          |  |  |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--|--|
| What are we learning?                                                   | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | What does mastery look like?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | How does this build on prior learning?                                                                             | What additional resources are available?                                                                 |  |  |
| Calculating with whole numbers, decimal and negative numbers and BIDMAS | Knowledge: Multiplying and dividing whole numbers and decimals by a power of 10  Adding, subtracting, multiplying and dividing whole numbers and decimals and negative Apply the order of operations to a. multi step calculation  Understanding: Students will be able to solve multi step problems involving the four rules with both whole numbers and decimals. Students will be able to explain the reason for an answer to a multi-step problem involving different operations  Skills: Multiply numbers with up to four digits together using a formal written method. Divide a number of up to four digits by a one or two digit number using a formal written method.  Multiply and divide a decimal or an integer by a power of 10 | Students will know that in BIDMAS – multiplication and division can be undertaken in either order, and addition and subtraction can be undertaken in either order Students will fluently be able to multiply and divide  numbers including decimals by 10,100 and 100 without a calculator, and without using a formal written method Students will be fluent in an efficient written method for multiplication and division. This is a skill which underlies much of what follows. Students will be able to identify what operations are needed when solving worded problems, and will know what strategy to adopt. | Year 5/6 BIDMAS, Four rules for whole numbers and decimals up to 2 decimal places, calculate intervals across zero | Mymaths textbooks 1A,1B,1C BBC bitesize  Mymaths.co.uk  Hegarty Maths lessons Transum.org Powten, BIDMAS |  |  |





| Mathematics - Year 7 Unit 4                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                      |                                                                                             |                                                                                                        |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| What are we learning?                        | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | What does mastery look like?                                                                                                                                                                                                                         | How does this build on prior learning?                                                      | What additional resources are available?                                                               |
| Checking,<br>Approximating and<br>Estimating | Knowledge: Rounding numbers to a specified number of decimal places. Rounding to 1 significant figure. Estimating calculations by rounding to 1 significant figure. Understanding: Students will be able to choose an appropriate degree of accuracy when rounding an answer to a calculation. Students will be able to select which numbers to round to 1 significant figure in worded questions, to make an estimated answer. Skills: Estimate an answer to a multistep quotient with numbers of any size. Round a number between 0 and 1 to 1 significant figure. | Students will be able to round numbers of any size to any given number of decimal places, or to 1 significant figure.  Students will be able to estimate the answer to a complex calculation by first rounding each element to 1 significant figure. | Year 5/6 round to a whole number and 1 or 2 decimal places, use estimation to check answers | Mymaths textbooks 1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org Powten, BIDMAS |





| Mathematics - Year 7 Unit 5  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                    |                                                                                         |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| What are we learning?        | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | What does mastery look like?                                                                                                                                                                                                                                                                                                                                                                         | How does this build on prior learning?                                                                                                             | What additional resources are available?                                                |
| Visualising and Constructing | Knowledge: Identify line and rotational symmetry in polygons. Label notation for shape. Constructing triangles and other shapes with various equipment. Understanding: To know how many times a shape can be folded and be the same each side. To know how many times a shape can fit when rotated. To be able to label shapes with correct notation. To distinguish between when to use a protractor and a compass when constructing triangles. To know the difference with SSS, ASA, SSA, AAS, AAA triangles.  Skills: To measure accurately with a ruler. To measure accurately with a protractor. To be able to use a compass and set it up correctly. Using correct notation when solving problems. | Identify and rectify an error in a triangle Create an appropriate question to construct a triangle allowing others to come to a solution. Identify which triangle you are given and use the correct equipment. Students will be able to explain why a triangle cannot be drawn with sides length 8cm, 4cm and 3cm Students will be able to describe a triangle, point or line using correct notation | Year 5/6 Using a ruler to measure and draw lengths to the nearest millimeter. Using a protractor to measure and draw angles to the nearest degree. | Mymaths textbooks 1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org |





| Mathematics - Year 7 Unit 6        |                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                 |                                                                                          |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| What are we learning?              | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                           | What does mastery look like?                                                                                                                                                                                                                                                                                                                                                                                          | How does this build on prior learning?                                                                                                                                                                                                                          | What additional resources are available?                                                 |
| Investigating properties of shapes | Ianguage of 3D shapes. Properties of quadrilaterals and triangles. Understanding: The connection between faces, edges, and vertices. Recognise and use nets of 3D shapes. Know and solve problems using the properties of triangles and quadrilaterals. Skills: Making the distinction between shapes and what makes them unique. Being able to construct shapes using the nets. | Identify different 3D shapes and their properties. To be able to see the connection between faces, edges and vertices extending to algebra. Explain the solution to a problem using appropriate language or notation or properties of the shape. Match a net with a 3D shape and sketch the net of a given shape Students are able to discuss the similarities and differences between a rhombus and a parallelogram? | Year 5/6 Know the names of common 3D shapes. Know the meaning of a face, edge, and vertex. Know the names of special triangles and quadrilaterals. Know the meaning of parallel, perpendicular. Know the notation for equal sides, parallel sides, right angles | Mymaths textbooks  1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org |





| Mathematics - Year 7 Unit 7 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                      |                                                                                         |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| What are we learning?       | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | What does mastery look like?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | How does this build on prior learning?                                                                               | What additional resources are available?                                                |
| Algebraic<br>Proficiency    | Knowledge: Understand the vocabulary and notation of algebra. Manipulate algebraic expressions. Explore functions.  Evaluate algebraic statements. Understanding: Know the meaning of expression, term, formula, equation, function. To know the rules of algebra. Simplify expressions by collecting like terms. To be able to manipulate expressions by expanding brackets. Substituting positive and negative numbers into expressions. Using function machines to find outputs. Skills: Multiplying terms and adding terms. Multiplying over a bracket. Apply the four operations to substitution. Know that only like terms can be added and subtracted. ab = axb | Students can identify where an error has been made in a method, and explain the misconception shown. Be able to write a question which needs to be simplified by collecting like terms. Identify a value given a set of algebraic criteria Students will be able to give an example of an expression, a formula, an equation. Students will be able to translate a worded, or a geometric problem into an algebraic problem and solve it. Explaining what would happen if one element of a question was altered. | Year 5/6 Using symbols to represent numbers. Substitute numbers into a worded formula. Know the order of operations. | Mymaths textbooks 1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org |





| Mathematics - Year 7 Unit 8                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                         |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| What are we learning?                              | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | What does mastery look like?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | How does this build on prior learning?                                                                                                                                                                                                                                                                                                                                                | What additional resources are available?                                                |
| Exploring fractions<br>Decimals and<br>Percentages | Knowledge: Express one quantity as another, where the fraction is <1 or >1. Define percentage as a part in hundred. Express one quantity as a percentage of another.  Understanding: Concept of a fraction as a proportion. Concept of equivalent fractions. The relationship between decimals, fractions and percentages.  Skills: Write one quantity as a fraction of another where the fraction is less than 1. Write one quantity as another where the quantity is greater than 1. Write a percentage as a fraction. Write a quantity as a percentage of another. | Students are able express one amount as another by making it into a fraction, then simplifying it.  Know that percentages, decimals and fractions are different ways of expressing proportions.  They extend their knowledge of fractions to thousandths and connect to decimals and percentages.  Work with percentages greater than 100% and know how to show equivalent fraction and decimal of these and vice versa.  Students will be fluent in finding equivalent fractions and converting mixed numbers into improper fractions and using these to add, subtract, multiply and divide.  Solving worded problems where fractions are required. | Year 5: Read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$ associate a fraction with division and calculate decimal fraction equivalents solve problems which require knowing percentage and decimal equivalents of, $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{1}{5}$ , $\frac{2}{5}$ , and those fractions with a denominator of a multiple of 10 or 25. | Mymaths textbooks 1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org |





|                          | Mathematics - Year 7 Unit 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                      |                                                                                         |  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--|
| What are we<br>learning? | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | What does mastery look like?                                                                                                                                                                                   | How does this build on prior learning?                                                                                                                                                                                                                                                               | What additional resources are available?                                                |  |
| Proportional Reasoning   | Knowledge: Understand and use ratio notation. Solve problems that involve dividing in a ratio  Understanding: Describe a comparison of measurements or objects using ratio notation a:b. Simplify a ratio by cancelling common factors. Divide a quantity in two parts in a given ratio. Divide a quantity in two parts in a given part: whole ratio. Do an investigation using ratios.  Skills: Show a ratio in three ways: number to number (1 to 2) expressed as a fraction (1/2) or using a colon 1:2  Represent the ratio of objects to the total number of objects Part-to-whole.  Represent the ratio of the number of one object to the number of other objects from a set of objects Part-to-part. Understand concept and vocabulary: ratio, rate, proportion, prices, portions per person. | Students are able to visually demonstrate a given ratio, for example. 3:2. Students are able to convert from one type of measurement to another to make them the same and then cancel down to its lowest form. | Year 4: Find common factors of pairs of numbers. Convert between standard metric units of measurement. Convert between units of time. Recall multiplication facts for multiplication tables up to 12 x 12. Recall division facts for multiplication tables up to 12 x 12. Solve comparison problems. | Mymaths textbooks 1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org |  |





|                       | Mathematics - Year 7 Unit 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                              |                                                                                                                                                                 |                                                                                         |  |  |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--|--|
| What are we learning? | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | What does mastery look like?                                                                                                                                                                                                                 | How does this build on prior learning?                                                                                                                          | What additional resources are available?                                                |  |  |
| Pattern Sniffing      | Knowledge: Knowing that a pattern increases or decreases by the same amount. Recognising familiar sequences; odd, even, square, cube, prime, triangle numbers Understanding: Why a sequence follows a pattern and by how much – by increasing or decreasing the same number each time, or by the same factor such as multiplying by 2. Skills: To continue a sequence or to find missing terms of a sequence by finding a common difference. To research famous sequences; find out what the sequence is and how they became famous. | Students will be able to explain how to extend a sequence with appropriate vocabulary Students will be able to explain how to find the next number in the Fibonacci sequence Students will be able to determine the first 5 triangle numbers | Year 5/6 Students will have learnt about basic sequences. They should know how to continue a sequence when given the first few terms by finding the difference. | Mymaths textbooks 1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org |  |  |





|                       | Mathematics - Year 7 Unit 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                     |                                                                                                                                       |  |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--|
| What are we learning? | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | What does mastery look like?                                                                                                                                                                                                                                                                                                                           | How does this build on prior learning?                                                                                                                                                                                                                                                              | What additional resources are available?                                                                                              |  |
| Measuring space       | Knowledge: Know that the metric system is in base 10; how to multiply and divide by 10, 100, 1000, etc.; the conversion factors between metric units, units of time and units of money; how to use a ruler.  Understanding: The prefixes of keywords such as centi-metre; how to use conversion factors to change between related standard units.  Skills: Able to measure lines accurately to the nearest millimetre using a ruler; able to choose the most appropriate metric measure for a given context; to freely convert between standard units of metric measure, time and money. | Student can demonstrate they understand the prefixes of metric measures and apply this knowledge Student is able to convert fluently between standard units Student can solve problems involving measurement, particularly worded problems Create an appropriate question to match a given answer - If this is the answer, what could the question be? | Year 5/6: students will have learnt how to calculate/convert between standard units of length, mass, volume and time using decimal notation up to three decimal places. They will also have converted between common imperial units and between miles and kilometres. Use of 12- and 24-hour clock. | Mymaths textbooks 1A,1B,1C BBC Bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org Corbettmaths videos and associated worksheets |  |





| Mathematics - Year 7 Unit 12 |                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                             |                                                                                         |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| What are we learning?        | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                             | What does mastery look like?                                                                                                                                                                                               | How does this build on prior learning?                                                                                                                                                                                                                                                                                      | What additional resources are available?                                                |
| Investigating<br>Angles      | Knowledge: Angles on a straight line total 180. Angles in a triangle add up to 180. Angles around a point total 360, Angles in a quadrilateral total 360. Vertically opposite angles are equal.  Understanding: Solve problem involving angle facts in a variety of contexts, with and without associated diagrams  Skills: Use two or more angle facts to find missing angles in a variety of shapes and diagrams | Students will feel confident answering such questions as Can a triangle have two obtuse angles? Is the largest angle in a triangle always a right angle? If one angle in a triangle is 40, what could the other angles be? | Students should be familiar with the language of angles from primary school.  Angle measurement, Angle notation and construction were covered in unit 0 and unit 5 earlier in the year. The unit builds on and formalises students' knowledge of angles on a straight line, around a point and in a triangle covered at KS2 | Mymaths textbooks 1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org |





| Mathematics - Year 7 Unit 13 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                          |                                                                                         |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| What are we<br>learning?     | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | What does mastery look like?                                                                                                                                                                                                                                  | How does this build on prior learning?                                                                                                                                                                                                                                                                                                   | What additional resources are available?                                                |
| Calculating Fractions        | Knowledge: • apply the four operations, including formal written methods, to simple fractions (proper and improper), and mixed numbers Understanding: Apply addition and subtraction to proper fractions, improper fractions and mixed numbers. Apply addition and subtraction to improper fractions and mixed numbers. Multiply proper and improper fractions. Multiply mixed numbers. Divide a proper fraction by a proper fraction. Apply division to improper fractions and mixed numbers  Skills: Finding common denominators when need and carrying out the four operations on proper and improper fractions and mixed numbers. Able to change mixed numbers to improper fractions to carry out a subtraction. | Fluent in doing calculations with proper and improper fractions and mixed numbers in one calculation.  Know that when adding and subtracting a common denominator is needed.  Can solve worded problems with proper and improper fractions and mixed numbers. | Year 3: compare and order fractions, including fractions > 1. Year 6: add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. Year 5: multiply simple pairs of proper fractions, writing the answer in its simplest form. Year 6: divide proper fractions by whole numbers. | Mymaths textbooks 1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org |





| Mathematics - Year 7 Unit 14       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                       |                                                                                                                                                              |                                                                                         |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| What are we learning?              | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | What does mastery look like?                                                                                                                                                                                                                                                                          | How does this build on prior learning?                                                                                                                       | What additional resources are available?                                                |
| Solving equations and Inequalities | Knowledge: Explore way of solving equations. Solve two-step equations. Solve three-step equations Understanding: Choose the required inverse operation when solving an equation. Identify the correct order of undoing the operations in an equation. Solve one-step equations when the solution is a whole number (fraction). Check the solution to an equation by substitution. Solve two-step equations (including the use of brackets) when the solution is a whole number. Solve two-step equations (including the use of brackets) when the solution is a fraction. Solve two-step equations involving fractions when solutions can be integers or fractions.  Skills: Be able to solve equations by using the inverse operations to leave the unknown on one side and the number on the other. | Know the concept of balancing both sides in an equation and use it confidently Continue using inverse operations to solve when the variable is on the right-hand side rather than the left. Solve equations where the solution is a decimal Identify mistakes in the working out of a wrong solution. | Years 4-6: number skills of the four operations and know what their respective inverse operations are. How to use inverse operations to solve a calculation. | Mymaths textbooks 1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org |





| Mathematics - Year 7 Unit 15 |                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                          |                                                                                         |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| What are we learning?        | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                       | What does mastery look like?                                                                                                                                                                                                                                                                                                                                            | How does this build on prior learning?                                                                                                                                                   | What additional resources are available?                                                |
| Calculating Space            | Knowledge: Know the definition of perimeter and area. Know how to find the area of rectangles, triangles, parallelograms, trapezia. Know how to find the volume and surface area of a cuboid Understanding: Solve complex worded problems involving a different area formulae.  Skills: Apply the formula for area of a rectangle to compound shapes made from rectangles. Find an unknown length given the area of a shape, | Students will be able to explain two methods for finding the area of a right - angled trapezium Students will be able to find two different trapezia which have the same given area. Students will be able to find a missing length in a shape given the area of the shape. Student will be able to explain different methods for finding the surface area of a cuboid. | This unit builds on concept of area and perimeter introduced at KS1 and 2. It builds on the work done on area of triangles rectangles and trapezia, and volume completed in year 5 and 6 | Mymaths textbooks 1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org |





| Mathematics - Year 7 Unit 16 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                |                                                                                         |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| What are we learning?        | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                    | What does mastery look like?                                                                                                                                                                                                                                                                                                                                       | How does this build on prior learning?                                                                                                                                                                                                                                                                                                         | What additional resources are available?                                                |
| Mathematical<br>Movement     | Knowledge: To explore lines on the coordinate grid, use transformations to move shapes, describe transformations.  Understanding: Solving geometrical problems on a set of axis. Write the equation of a line parallel to either axis. To know y=x and y=-x. To construct and describe reflections. Construct and describe translations. Skills: To be able to plot coordinates, drawing straight line graphs, reflecting shapes in a mirror line, and translating shapes using a vector. | Students will be able to solve problems involving shapes on a pair of axis To be able to identify and draw different vertical and horizontal graphs and explain why they have a different equation of the line. To be able to do multi step transformations with more than one transformation in a question. To understand and explain the use of a column vector. | Year 5/6 - identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. describe positions on the full coordinate grid (all four quadrants) Draw and translate simple shapes on the coordinate plane and reflect them in the axes. | Mymaths textbooks 1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org |





| Mathematics - Year 7 Unit 17 |                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                    |                                                                                                                                                         |                                                                                         |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| What are we learning?        | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                    | What does mastery look like?                                                                                                                                                                                                                                                       | How does this build on prior learning?                                                                                                                  | What additional resources are available?                                                |
| Presentation of Data         | Knowledge: Know what bar charts and pie charts are and that they represent a way of presenting information. Understanding: Read information from a bar chart or pie chart and state facts about what the diagrams show. Skills: How to construct a bar chart and pie chart to represent data. Scales may be used for larger sets of data. | Students will be able to construct comparative and composite bar charts Students will be able to construct pie charts for total frequencies that are not recognisable factors of 360 Students will be able to accurately use scales for their diagrams for very large sets of data | Y3/4 students should be able to draw a bar chart and answer questions by reading from a bar chart. Y6 students should be able to construct a pie chart. | Mymaths textbooks 1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org |





| Mathematics - Year 7 Unit 18 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                |                                                                                         |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| What are we learning?        | What knowledge, understanding and skills will we gain?                                                                                                                                                                                                                                                                                                                                                                                                                                        | What does mastery look like?                                                                                                                                                                                                                                                                                                                       | How does this build on prior learning?                                                                         | What additional resources are available?                                                |
| Measuring Data               | Knowledge: Know how to find the mean, median, mode and range for a set of data. Know what a frequency table is. Understanding: Explain what the average says about a set of data. Mean is the average including all values. Range is the difference between biggest and smallest values. Skills: To calculate the mean, median, mode and range for sets of data. To compare sets of data using these averages. To calculate the mean, median, mode and range from a discrete frequency table. | Students will be able to use the mean for a set of data to calculate a missing value Understand that the range being small means data is more accurate, being large means data is more spread out Students can compare sets of data and make statements and consider the reasons. Find a set of numbers with a given mean, median, mode and range. | Y5/6 students should be able to calculate averages of mean, median, mode and range for a set of discrete data. | Mymaths textbooks 1A,1B,1C BBC bitesize Mymaths.co.uk Hegarty Maths lessons Transum.org |