Curriculum Progression Map Project

	Term 1 – 7 weeks	Term 2 – 7 weeks	Term 3 – 7 weeks	Term 4 – 6 weeks	Term 5 – 5 weeks	Term 6 – 7 weeks
Stage 1	Knowledge & Skills: **Numbers and the Number System** • Show the value of a number using objects or pictures • Read numbers to 20 in numerals and words • Write numbers to 20 and beyond in numerals • Write numbers to 20 in words • Identify and represent numbers on the number line • Identify and represent numbers using pictorial representations • Compare the value of numbers explaining if they are more/ less than or equal to another number or numbers • Read and write numbers to 100 in numerals • Count on to or back from numbers in ones from any given number up to 100 • Count in multiples of two starting from zero • Count in multiples of five starting from zero • Count in multiples of ten starting from zero **Addition and Subtraction** • Identify the number that is one more than a given number • Identify the number that is one less than a given number • Know addition facts to 10 • Know subtraction facts from 10 • Know addition facts within 10 • Know subtraction facts within 10 • Know addition facts to 20 • Know subtraction facts from 20 • Know addition facts within 20 • Know subtraction facts within 20 • Count to and across 100 and beyond in ones from any number • Count back from 100 and beyond in ones from any number • Add two one-digit numbers to 20, including zero • Add a one-digit and two-digit numbers to 20, including zero • Read and interpret statements involving the symbols '+' and '=' involving numbers up to 20 • Write statements involving the symbols '+' and '=' involving numbers up to 20 • Subtract one-digit number (a) from another one-digit number (b, a<b) within 20, including zero • Subtract a one-digit number from a two-digit numbers within 20, including zero • Read and interpret statements involving the symbols '-' and '=' involving numbers up to 20 • Write statements involving the symbols '-' and '=' involving numbers up to 20 • Solve one-step problems calculations involving numbers up to 20 using concrete objects and pictorial representations • Solve missing number problems involving adding numbers to 20 • Solve missing number problems involving subtracting numbers within 20	Knowledge & Skills: **Visualising and Constructing** • Recognise 2-D shapes • Recognise and name rectangles • Recognise and name squares • Recognise and name circles • Recognise and name triangles • Compare 2-D shapes and explain how they are similar or different • Recognise 3-D shapes • Recognise and name cuboids • Recognise and name cubes • Recognise and name pyramids • Recognise and name sphere • Compare 3-D shapes and explain how they are similar or different **Measuring Lengths** • Measure length using appropriate equipment • Measure mass using appropriate equipment • Measure capacity using appropriate equipment • Measure time using hours, minutes and seconds using appropriate equipment • Record measurements using a system of non-standard or standard units • Compare and order lengths using long/short, longer/shorter, tall/short, double/half • Compare and order masses using heavy/light, heavier than, lighter than • Compare and order capacities using full/empty, more than, less than, half, half full, quarter • Compare and order times using quicker, slower, earlier, later • Select appropriate language when making comparisons • Solve practical problems involving length, height, mass, volume • Solve practical problems involving time	Knowledge & Skills: **Exploring Fractions** • Recognise a half as one of two equal parts of an object or shape • Recognise a half as one of two equal parts of a quantity • Recognise a quarter as one of four equal parts of an object or shape • Recognise a quarter as one of four equal parts of a quantity • Use fraction notation to write one half • Use fraction notation to write one quarter • Identify half of a set of objects • Identify quarter of a set of objects **Mathematical Movement** • Use mathematical language to describe position • Use mathematical language to describe movement along a straight line • Use mathematical language to describe a turn, including whole and half turns • Use mathematical language to describe a turn, including quarter turns • Use mathematical language to describe a turn, including three-quarter turns • Describe position, direction and movement, including whole turns • Describe position, direction and movement, including half turns • Describe position, direction and movement, including quarter and three-quarter turns	Knowledge & Skills: **Exploring Money** • Recognise the coins: 1p, 2p, 5p, 10p, 20p, 50p, £1 and £2 • Read and say amounts of money using the coins 1p, 2p, 5p, 10p, 20p, 50p • Recognise the coins: £1 and £2 • Read and say amounts of money using the coins £1 and £2 • Count, say and record amounts of money using the coins 1p, 2p, 5p, 10p, 20p, 50p, £1 and £2 • Recognise the notes: £5 and £10 • Read and say amounts of money using the notes £5 and £10 • Solve simple problems involving money **Multiplication and Division** • Double numbers up to at least 10 • Halve numbers up to (at least) 20 • Count (from zero) in equal steps of 2s • Count (from zero) in equal steps of 5s • Count (from zero) in equal steps of 10s • Use concrete objects to solve one-step problems involving multiplication • Use concrete objects to solve one-step problems involving division (grouping) • Use concrete objects to solve one-step problems involving division (sharing equally) • Use pictorial representations to solve one-step problems involving multiplication • Use pictorial objects to solve one-step problems involving division (grouping) • Use pictorial objects to solve one-step problems involving division (sharing equally) • Use arrays to solve one-step problems involving multiplication	Knowledge & Skills: **Exploring Time** • Know and use the days of the week • Know and use the months of the year • Know the number of days in each month • Recognise and use language relating to dates, including days of the week, weeks, months and years • Tell the time to the hour **Numbers and the Number System** • Solve problems involving: - reading and writing numbers from 1 to 20 in numerals and words. - identifying and representing numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least - counting, reading and writing numbers to 100 in numerals; count in multiples of twos, fives and tens	Knowledge & Skills: **Addition and Subtraction** • Solve problems involving: - given a number, identify one more and one less - counting to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number - representing and using number bonds and related subtraction facts within 20 Solve problems involving: - reading , writing and interpreting mathematical statements involving addition (+), subtraction (–) and equals (=) signs - adding and subtracting one-digit and two-digit numbers to 20, including zero - one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ – 9

Stage 2

Knowledge & Skills:

Numbers and the Number System

- Explain the value of each digit in a two- digit number
- Read numbers to 100 in numerals and words
- Read numbers to 500 in numerals and words
- Write numbers to 100 in numerals and words
- Write numbers to 500 in numerals and words
- Represent and estimate numbers using a number line
- Compare the value of numbers explaining if they are more/ less than or equal to another number or numbers
- Represent numbers different ways using partitioning

Counting and Comparing

- Order numbers (0 to up to 100) from lowest to greatest value and vice versa
- Use = symbol
- Use < symbol when comparing numbers from 0 up to 100
- Use > symbol when comparing numbers from 0 up to 100
- Count on and back in steps of 2 from 0
- Count on and back in steps of 3 from 0
- Count on and back in steps of 5 from 0
- Count on and back in tens from any number

Addition and Subtraction

- Recall and use addition facts within 20
- Derive addition facts within 100
- Understand why addition is commutative
- Add a two-digit number and ones using concrete objects, pictorial representations, and mentally
- Add a two-digit number and tens using concrete objects, pictorial representations, and mentally
- Add two two-digit numbers using concrete objects, pictorial representations, and mentally
- Add three one-digit numbers using concrete objects, pictorial representations, and mentally
- Recall and use subtraction facts within 20
- Derive subtraction facts within 100
- Understand why subtraction is not commutative
- Subtract ones from a two-digit number using concrete objects, pictorial representations, and mentally
- Subtract tens from a two-digit number using concrete objects, pictorial representations, and mentally
- Subtract two two-digit number using concrete objects, pictorial representations, and mentally
- Solve problems involving addition or subtraction using concrete objects and pictorial representations
- Solve missing number problems
- Check calculations using the correct inverse operation

Knowledge & Skills:

Investigating Properties of Shape

- Identify and describe the properties of pentagons
- Identify and describe the properties of hexagons
- Identify and describe the properties of octagons
- Identify symmetry properties of 2-D shapes using vertical lines
- Compare and sort 2-D shapes
- Identify and describe 2-D shapes on the surface of 3-D shapes
- Identify and describe the properties of 3-D shapes including the number of edges
- Identify and describe the properties of 3-D shapes including the number of vertices
- Identify and describe the properties of cylinders
- Identify and describe the properties of cones
- Compare and sort 3-D shapes

Multiplication and Division

- Recall and use multiplication facts for the 2 times table
- Recall and use multiplication facts for the 5 times table
- Recall and use multiplication facts for the 10 times table, linking multiplying by 10 to place value
- Understand that multiplication is commutative
- Recall and use division facts for the 2 times table
- Recall and use division facts for the 5 times table
- Recall and use division facts for the 10 times table
- Understand that division is not commutative
- Create mathematical statements for multiplication
- Create mathematical statements for division
- Recognise odd and even numbers
- Use knowledge of commutativity when multiplying and dividing mentally
- Understand the connection between multiplication and repeated addition
- Identify the correct operation(s) required in order to solve a problem

Knowledge & Skills:

Multiplication and Division

- Solve missing number problems involving multiplication
- Solve missing number problems involving division

Exploring Fractions

- Recognise one quarter as one of four equal parts of an object, shape or quantity and use fraction notation
- Recognise two quarters as two of four equal parts, or two of one quarter, of an object, shape or quantity and use fraction notation
- Recognise a three quarters as three of four equal parts, or three of one quarter of an object, shape or quantity and use fraction notation
- Recognise one third as one of three equal parts of an object, shape or quantity and use fraction notation
- Find one quarter of an object, shape or set of objects
- Find two quarters of an object, shape or set of objects
- Find three quarters of an object, shape or set of objects
- Find one third of an object, shape or set of objects
- Recognise that a half is equivalent to two quarters
- Write simple fraction statements involving the fraction $^1/_2$ such as $^1/_2$ of 6 = 3
- Write simple fraction statements involving the fractions $^1/_4$, $^2/_4$ or $^3/_4$, such as $^1/_4$ of 8 = 2
- Write simple fraction statements involving the fractions $^1/_3$ such as $^1/_3$ of 6 = 2

Knowledge & Skills:

Mathematical Movement

- Use mathematical language to describe position
- Use mathematical language to describe movement along a straight line
- Use mathematical language to describe direction of a turn, including meaning of clockwise and anti-clockwise
- Understand and use the language of right angles to describe the size of turn
- Interpret instructions for following a simple route
- Devise instructions for following a simple route
- Order combinations of mathematical objects in patterns and sequences
- Arrange combinations of mathematical objects in patterns and sequences

Measuring Space

- Choose appropriate units to measure a given length
- Choose appropriate units to measure a given height
- Choose appropriate units to measure a given mass
- Choose appropriate units to measure a given capacity
- Measure a given distance choosing the appropriate equipment
- Measure a given mass choosing the appropriate equipment
- Measure a given capacity choosing the appropriate equipment
- Measure a given temperature choosing the appropriate equipment
- Estimate a given distance
- Estimate a given mass
- Estimate a given capacity
- Compare and order lengths
- Compare and order masses
- Compare and order capacities
- Compare and order temperatures
- Compare and order measurements using >, < and =

Knowledge & Skills:

Exploring Time

- Know that there are 60 minutes in one hour
- Know that there are 24 hours in one day
- Tell the time using quarter past/to the hour on an analogue clock
- Write the time using quarter past/to the hour on an analogue clock
- Tell the time to five minute intervals on an analogue clock
- Write the time to five minute intervals on an analogue clock
- Draw the hands on a clock face to show times to five minutes, including quarter past/to the hour
- Compare and order a selection of times from earliest to latest or vice versa

Exploring Money

- Recognise and use the symbols for pounds (£) and pence (p)
- Read and say amounts of money combining the coins 1p, 2p, 5p, 10p, 20p, 50p, £1 and £2
- Count, say and record amounts of money combining the coins 1p, 2p, 5p, 10p, 20p, 50p, £1 and £2
- Find different combinations of coins that equal the same amounts of money
- Solve practically simple problems involving addition of money
- Solve practically simple problems of money, including giving change

Knowledge & Skills:

Presentation of Data

- Interpret a pictogram where the symbol represents a single item
- Interpret a pictogram where the symbol represents a multiple of 2 items
- Interpret a pictogram where the symbol represents a multiple of 5 items
- Construct a pictogram where the symbol represents a single item
- Construct a pictogram where the symbol represents a multiple of 2 items
- Construct a pictogram where the symbol represents a multiple of 5 items
- Interpret and construct a tally chart
- Interpret and construct a block diagram
- Interpret information in a simple table
- Create a table to show information
- Ask and answer simple questions by counting the number of objects in each category
- Ask and answer questions about totalling and comparing categorical data

Stage 3	Knowledge & Skills: **Number and the Number System** • Understand place value in numbers up to 1000 • Write numbers up to 1000 • Read numbers up to 1000 • Use zero as a place holder in numbers up to 1000 • Interpret numbers up to 1000 on a number line • Represent numbers up to 1000 using a number line • Interpret and use scales representing measurements with numbers up to 1000 • Use scales to represent measurements with numbers up to 1000 **Counting and Comparing** • Order numbers up to 1000 • Compare numbers up to 1000 • Count (from 0) in multiples of 4 • Count (from 0) in multiples of 8 • Count (from 0) in multiples of 50 • Count (from 0) in multiples of 100 • Find 10 more than a given number • Find 10 less than a given number • Find 100 more than a given number • Find 100 less than a given number **Addition and Subtraction** • Add three-digit numbers and ones or tens mentally • Add three-digit numbers and hundreds mentally • Subtract three-digit numbers and one or tens mentally • Subtract three-digit numbers and hundreds mentally • Use column addition for numbers with up to three digits when carrying is not required • Use column addition for three-digit and two-digit numbers when carrying is required • Use column addition for numbers with three-digits when carrying is required • Use column subtraction for numbers with up to three digits when exchanging is not required • Use column subtraction for three-digit and two-digit numbers when exchanging is required • Use column subtraction for numbers with up to three-digits when exchanging is required • Estimate the answer to a calculation • Identify when addition or subtraction is needed as part of solving a problem	Knowledge & Skills: **Visualising and Constructing** • Identify and draw horizontal and vertical lines • Identify and draw parallel lines • Identify and draw perpendicular lines • Sketch common 2D shapes • Draw and measure a line in centimetres • Construct common 2D shapes using a ruler • Make and identify 3D shapes using modelling materials • Describe 3D shapes using mathematical language **Multiplication and Division** • Recall and use multiplication facts for the 3 times table • Recall and use multiplication facts for the 4 times table • Recall and use multiplication facts for the 8 times table • Recall and use division facts for the 3 times table • Recall and use division facts for the 4 times table • Recall and use division facts for the 8 times table • Understand the distributive law applied to a multiplication of a two-digit number by a one-digit number • Identify the correct operation(s) required in order to solve a problem and create mathematical statements • Use known and derived facts when multiplying and dividing mentally • Use efficient methods to multiply a two-digit number by a one-digit number • Identify when a scaling (or correspondence problem) can be solved using multiplication or division	Knowledge & Skills: **Measuring Space** • Use a ruler to measure lengths to the nearest millimetre • Use a ruler to measure lengths to the nearest centimetre • Use measuring equipment to measure lengths to the nearest metre • Use digital and mechanical scales to measure mass to the nearest kg • Use digital and mechanical scales to measure mass to the nearest g • Use measuring vessels to measure a volume of liquid • Choose appropriate units to state the result of a measurement • Compare the length of two or more objects • Compare the mass of two or more objects • Compare the volume of two or more objects • Compare the capacity of two or more objects • Find the perimeter of a 2-D shape by measuring **Exploring Fractions** • Recognise a unit fraction of a set of objects • Recognise a non-unit fraction of a set of objects • Write a fraction of a set of objects • Understand a unit fraction as a number • Understand a non-unit fraction as a number • Understand the concept of equivalent fractions • Recognise equivalent fractions from diagrams • Complete diagrams to show equivalent fractions • Create diagrams to show equivalent fractions • Compare a set of unit fractions • Compare a set of fractions which have the same denominator	Knowledge & Skills: **Investigating Angles** • Understand that angle is a description of turn • Understand that angles are a feature of shapes • Identify a right angle as a quarter turn and when a shape has a right angle • Recognise that two right angles make a half-turn • Recognise that three right angles make three quarters of a turn • Recognise that four right angles make a complete turn • Identify angles that are less than right angle • Identify angles that are greater than a right angle **Calculating Fractions** • Recognise that tenths arise from dividing a number or object into ten equal parts • Write tenths as a fraction and as a decimal • Count up in tenths • Count down in tenths • Add fractions with the same denominator within one whole • Subtract fractions with the same denominator within one whole	Knowledge & Skills: **Exploring Time** • Read Roman numerals up to XII • Know the vocabulary of telling the time • Know the number of seconds in a minute • Know the number of days in each month, year and leap year • Tell the time from a 12-hour analogue clock to the nearest minute • Tell the time from a 24-hour analogue clock to the nearest minute • Tell the time from a clock using Roman numerals to the nearest minute • Write times using 12-hour format • Estimate times • Compare times given in seconds, minutes and/or hours • Calculate the time taken by particular events or tasks **Exploring Money** • Recognise the value of coins • Add amounts of money when the units are the same • Add amounts of money when the units are different • Subtract amounts of money when the units are the same • Subtract amounts of money when the units are different • Record a practical money problem using £ and/or p notation • Solve practical problems that involve calculating change in manageable amounts	Knowledge & Skills: **Presentation of Data** • Interpret a pictogram where the symbol represents multiple items • Construct a pictogram where the symbol represents multiple items • Interpret a bar chart • Construct a bar chart • Interpret data in a table • Create a table to show data • Answer one-step questions about data in charts and tables (e.g. 'How many?') • Answer two-step questions about data in charts and tables (e.g. 'How many more?')

Stage 4	Knowledge & Skills: **Numbers and the Number System** • Order numbers up to and including those with four digits • Write numbers up to and including those with four digits • Read numbers up to and including those with four digits • Read Roman numerals up to C • Understand the difference between the Roman numeral system and the decimal number system • Interpret numbers up to 10 000 on a number line • Represent numbers up to 10 000 using a number line • Use and interpret scales representing measurements with numbers up to 10 000 **Checking, approximating and estimating** • Approximate any number by rounding to the nearest 10, 100 or 1000 • Approximate any number with one decimal place by rounding to the nearest whole number • Understand checking as the process of working backwards from the answer to ensure that it makes sense • Understand estimating as the process of finding a rough value of an answer or calculation **Counting and Comparing** • Order numbers up to 10 000 • Compare numbers up to 10 000 • Count in multiples of 6 • Count in multiples of 7 • Count in multiples of 9 • Count in multiples of 25 • Count in multiples of 1000 • Understand the concept of a negative number • Count backwards through zero in whole number step • Compare and order numbers with one decimal place • Compare numbers with two decimal places • Order numbers with two decimal places **Addition and Subtraction** • Find 1000 more than a given number • Find 1000 less than a given number • Use columnar addition for numbers with up to four digits with no carrying required • Use columnar addition for four-digit and two-digit numbers with carrying required • Use columnar addition for four-digit and three-digit numbers with carrying required • Use columnar addition for four-digit numbers with carrying required	Knowledge & Skills: **Addition and Subtraction** • Use columnar subtraction for numbers with up to four digits with no exchanging required • Use columnar subtraction for four-digit and two-digit numbers with exchanging required • Use columnar subtraction for four-digit and three-digit numbers with exchanging required • Use columnar subtraction for four-digit and four-digit numbers with exchanging require • Solve two-step problems involving addition and/or subtraction **Measuring Space** • Convert between kilometres and metres • Convert between centimetres and millimetres **Calculating Space** • Measure and calculate the perimeter of 2D shapes when dimensions are unknown • Calculate the perimeter of rectangles (including squares) when dimensions are known • Calculate the perimeter of other rectilinear shapes when dimensions are known • Find the area of rectangles (including squares) by counting squares **Multiplication and Division** • Recall and use multiplication and division facts for the 6, 7, 9, 11 and 12 times table • Use knowledge of factor pairs (commutativity) when multiplying and dividing mentally including multiplying three numbers together	Knowledge & Skills: **Multiplication and Division** • Know the effect of multiplying by 0 and 1 and dividing by 1 • Use the distributive law to multiply a two-digit number by a one-digit number • Use short multiplication to multiply a two-digit number by a one-digit number • Use short multiplication to multiply a three-digit number by a one-digit number • Identify when a scaling or correspondence problem can be solved using multiplication or division **Calculating Space** • Find the area of other rectilinear shapes by counting squares • Solve problems involving perimeter • Solve problems involving area **Exploring fractions, decimals and percentages** • Recognise that hundredths arise from dividing a number or object into one hundred equal parts • Write hundredths as a fraction and as a decimal • Write decimal equivalents of any number of tenths and hundredths • Count up in hundredths • Count down in hundredths • Divide a one-digit number by 10 • Divide a one-digit number by 100 • Divide a two-digit number by 10 • Divide a two-digit number by 100 • Know and use the decimal equivalents to $^1/_4$, $^1/_2$, $^3/_4$	Knowledge & Skills: **Calculating fractions, decimals and percentages** • Add fractions with the same denominator within and beyond one whole • Subtract fractions with the same denominator within and beyond one whole • Calculate a unit fraction of an amount when the answer is a whole number • Calculate a non-unit fraction of an amount when the answer is a whole number • Identify equivalent fractions from diagrams • Find families of equivalent fractions • Create diagrams to show families of equivalent fractions • Solve problems with increasingly harder fractions to calculate quantities	Knowledge & Skills: **Exploring Time and Money** • Solve money problems involving fractions • Solve measurement problems involving decimals to two decimal places • Solve money problems involving decimals to two decimal places • Read digital 24-hour clocks • Write times using digital 24-hour clock • Write times using analogue 12-hour clock • Convert between 12-hour time and 24-hour notation • Solve problems involving converting from hours to minutes and minutes to seconds; • Solve problems involving converting from weeks to days • Solve problems involving converting from years to months • Solve problems involving decimal notation to record money **Presentation of Data** • Interpret a pictogram where the symbol represents multiple items • Interpret a bar chart • Interpret bar charts with different scales on the frequency axis • Create a bar chart with different scales on the frequency axis • Interpret a time graph • Create a time graph • Solve problems involving the data in charts and graphs • Solve problems involving the data in tables	Knowledge & Skills: **Investigating Angles** • Identify acute angles • Identify obtuse angles • Identify acute angles in shapes • Identify obtuse angles in shapes • Identify right angles in shapes • Compare angles up to two right angles in size • Order angles up to two right angles in size **Investigating Properties of Shape** • Identify and describe an equilateral triangle • Identify and describe an isosceles triangle • Identify and describe a scalene triangle • Identify and describe a parallelogram • Identify and describe a rhombus • Identify and describe a trapezium • Identify and describe a kite • Classify 2D shapes • Identify lines of symmetry of a 2D shape • Identify a line of symmetry of a pattern and for a diagram of a reflection • Use a line of symmetry to produce a symmetrical pattern • Use a line of symmetry to complete a symmetrical shape **Mathematical Movement** • Use coordinates to describe the position of a point in the first quadrant • Plot points in the first quadrant using co-ordinates • Use coordinates to plot a set of points to construct a polygon • Solve problems involving coordinates • Describe movements between positions as translations of a given unit to the left/right • Describe movements between positions as translations of a given unit to the up/down • Describe movements between positions as translations of a given unit to the left/right and up/down • Solve problems involving translation

Stage 5	Knowledge & Skills: **Counting and Comparing** • Understand place value in numbers with up to seven digits • Order numbers up to and including those with seven digits • Write and read numbers up to and including those with seven digits • Read Roman numerals to 1000 (M) • Recognise years written in Roman numerals • Count forwards and backwards in whole number steps when negative numbers are included • Count forwards and backwards in whole number steps including through zero • Understand and use negative numbers in context, including temperatures below 0°C • Count forwards in tens and hundreds from any positive number up to 1 000 000 • Count forwards in thousands from any positive number up to 1 000 000 • Count backwards in tens and hundreds from any positive number up to 1 000 000 • Count backwards in thousands from any positive number up to 1 000 000 • **Checking, Approximating and Estimating** • Approximate any number by rounding to the nearest 10 000 or 100 000 • Approximate any number with two decimal place by rounding to the nearest whole number or rounding to one decimal place • Understand estimating as the process of finding a rough value of an answer or calculation • Estimate calculations with up to four digits **Addition and Subtraction** • Add four-digit numbers and ones, tens and hundreds mentally • Add four-digit numbers and thousands mentally • Subtract four-digit numbers and ones, tens and hundreds mentally • Subtract four-digit numbers and thousands mentally • Use columnar addition for numbers with more than four digits with no carrying required • Use columnar addition for numbers with more than four digits with carrying required	Knowledge & Skills: **Addition and Subtraction** • Use columnar subtraction for numbers with more than four digits with no exchanging required • Use columnar subtraction for numbers with more than four digits with exchanging required **Statistics** • Solve a problem involving converting between different units of time • Read and interpret information given in a table • Read and interpret information given in a timetable • Solve problems that involve interpreting timetables **Numbers and the Number System** • Know and identify multiples of a given number • Know the identify factors of a given number • Find the 'common factor' of two numbers • Know the meaning of 'prime number' and recall the prime numbers less than 20 • Know the prime factors of a given number • Know how to test if a number up to 100 is prime • Know and identify square numbers • Know and identify cube numbers **Calculating Space** • Calculate the perimeter of composite rectilinear shapes • Calculate the area of a rectangles, including squares • Convert between square centimetres (cm^2) and square metres (m^2) • Estimate the area of irregular shapes bounded by straight lines • Estimate the area of irregular shapes that include curved lines • Estimate volume by using 1 cm^3 blocks to build cuboids, including cubes • Estimate capacity • Solve problems involvjng area and perimeter **Visualising and Constructing** • Identify 3D-shapes from photographs and sketches • Identify 3D-shapes from nets • Identify 3D-shapes from diagrams on isometric paper • Construct diagrams of 3D-shapes on isometric paper	Knowledge & Skills: **Multiplication and Division** • multiply and divide numbers mentally drawing upon known facts • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 • multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers • divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign **Exploring Fractions, Decimals and Percentages** • Compare fractions whose denominators are multiples of the same number • Order fractions whose denominators are multiples of the same number • Identify equivalent fractions represented using tenths and hundredths • Understand and use thousandths • Write a number (less than1) with one decimal place as a fraction • Write a number (less than 1) with two decimal places as a fraction • Recognise that thousandths arise from dividing a number (or object) into one thousand equal parts and dividing hundredths by ten	Knowledge & Skills: **Calculating Fractions** • Convert a mixed number into an improper fraction (and vice versa) • Add fractions when one denominator is a multiple of the other including mixed numbers as part of the question and/or answer. • Subtract fractions when one denominator is a multiple of the other including mixed numbers as part of the question and/or answer • Multiply a proper fraction by a whole number • Multiply a mixed number by a whole number • Know percentage equivalents of $^1/_2$, $^1/_4$, $^1/_5$, $^2/_5$, $^4/_5$ and fractions with a denominator of 10 and 100 • Establish percentage equivalents of fractions with a denominator of 20, 25, 40 and 50 • Know decimal equivalents of $^1/_2$, $^1/_4$, $^1/_5$, $^2/_5$, $^4/_5$ and fractions with a denominator of 10 and 100 • Establish decimal equivalents of fractions with a denominator of 20, 25, 40 and 50 **Decimals** • Solve problems involving number up to three decimal places • Read a number with three decimal places • Compare and order a set of numbers written to three decimal places • Compare and order a set of numbers with a mixed number of decimal places • Understand that per cent relates to number of parts per hundred • Write any percentage as a decimal • Write any percentage as a decimal	Knowledge & Skills: **Investigating Angles** • Know that angles are measured in degrees and estimate acute, obtuse and reflex angles • Know that a reflex angle is greater than 180° and estimate reflex angles • Identify and find angles at a point • Identify and find angles at a point on a straight line • Use a protractor to measure angles less than 180° • Use a protractor to measure angles greater than 180° • Use a protractor to draw angles less than 180° • Use a protractor to draw angles greater than 180° **Investigating Properties of Shapes** • Use the properties of rectangles to find missing lengths and angles • Use the properties of rectangles to find points on a coordinate grid • Know the difference between a regular and an irregular polygon • Use the properties of regular polygons to find points on a coordinate grid **Measuring Space** • Convert between kilometres and metres • Convert between centimetres and metres • Convert between centimetres and millimetres • Convert between kilograms and grams • Convert between litres and millilitres • Use decimal notation when converting between metric units of length, mass and volume / capacity • Know approximate equivalencies between metric and imperial units • Solving problems involving measures, including money	Knowledge & Skills: **Mathematical Movement** • Carry out a translation described using mathematical language • Describe a translation using mirror lines parallel to the axes • Carry out a reflection using a mirror line parallel to the axes • Carry out a reflection using a mirror line parallel to the axes and touching the object • Carry out a reflection using a mirror line parallel to the axes and crossing the object • Describe a reflection using mirror lines parallel to the axes • Understand that a translations and reflections produce a congruent image • Solve problems involving transformations

Curriculum Progression Map KS3 and 4

	Term 1 – 8 weeks	Term 2 – 7 weeks	Term 3 – 6 weeks	Term 4 – 6 weeks	Term 5 – 5 weeks	Term 6 – 7 weeks
Stage 6	**Place Value** **Numbers to 10,000** Numbers to 100,000 Numbers to a million Numbers to 10 million Compare and order any numbers Round numbers to 10, 100 and 1,000 Round any number Negative numbers **Four Operations** Add whole numbers with more than 4 digits (column method) Subtract whole numbers with more than 4 digits (column method) Inverse operations (addition and subtraction) Multi-step addition and subtraction problems Add and subtract integers Multiply 4-digits by 1-digit Multiply 2-digits (area model) Multiply 2-digits by 2-digits, Multiply 3-digits by 2-digits, Multiply up to a 4-digit number by a 2-digit number Divide 4-digits by 1-digit Divide with remainders Short division Division using factors Long division Factors Common factors Common multiples Primes to 100 Squares and cubes Order of operations	**Fractions** Equivalent fractions Simplify fractions Improper fractions to mixed numbers Mixed numbers to improper fractions Fractions on a number line Compare and order (denominator) Compare and order (numerator) Add and subtract fractions Add and subtract fractions Add mixed numbers Add fractions Subtract mixed numbers Subtract fractions Mixed addition and subtraction Multiply fractions by integers Multiply fractions by fractions Divide fractions by integers Four rules with fractions Fraction of an amount Fraction of an amount - find the whole **Position & Direction** The first quadrant Four quadrants Translations Reflections	**Decimals** Decimals up to 2 d.p. Understand thousandths Three decimal places Multiply by 10, 100 and 1,000 Divide by 10, 100 and 1,000 Multiply decimals by integers Divide decimals by integers Division to solve problems Decimals as fractions Fractions to decimals **Percentages** Understand percentages Fractions to percentages Equivalent FDP Order FDP Percentage of an amount (1) Percentage of an amount (2) Percentages - missing values **Algebra** Find a rule - one step Find a rule - two step Forming expressions Substitution Formulae Forming equations Solve simple one-step equations Solve two-step equations Find pairs of values	**Converting Units** Metric measures Convert metric measures Calculate with metric measures Miles and kilometres Imperial measures **Area, Perimeter & Volume** Shapes - same area Area and perimeter Area of a triangle Area of a parallelogram What is volume? Volume - counting cubes Volume of a cuboid **Ratio** Use ratio language Ratio and fractions Introducing the ratio symbol Calculating ratio Using scale factors Calculating scale factors Ratio and proportion problems	**Statistics** Read and interpret line graphs Draw line graphs Use line graphs to solve problems Circles Read and interpret pie charts Pie charts with percentages Draw pie charts The mean **Properties of Shape** Measure with a protractor Draw lines and angles accurately Introduce angles Angles on a straight line Angles around a point Calculate angles Vertically opposite angles Angles in a triangle Angles in a triangle - special cases Angles in a triangle - missing angles Angles in special quadrilaterals Angles in regular polygons Draw shapes accurately Draw nets of 3-D shapes	**Rounding and estimating** Approximate any number by rounding to a specified degree of accuracy; e.g. nearest 1, 10, 100, 1000, decimal place, etc Understand estimating as the process of finding a rough value of an answer or calculation Use estimation to predict the order of magnitude of the solution to a decimal calculation, including decimals Check the order of magnitude of the solution to a calculation, including decimals **Sequences** Recognise and describe a linear sequence Find the next terms in a linear sequence Find a missing term in a linear sequence Generate a linear sequence from its description

	Mental calculations and estimation Reason from known facts					
Stage 7	**Sequences** Describe and continue sequences Predict and check next term(s) Sequences in a table and graphically Linear and non-linear sequences Continue linear sequences Continue non-linear sequences Explain the term-to-term rule Find missing terms **Understand & Use Algebraic Notation** Given a numerical input, find the output of a single function machine Use inverse operations to find the input given the output Use diagrams and letters to generalise number operations Use diagrams and letters with single function machines Find the function machine given a simple expression Substitute values into single operation expressions Find numerical inputs and outputs for a series of two function machines Use diagrams and letters with a series of two function machines Find the function machines given a two-step expression Substitute values into two-step expressions Generate sequences given an algebraic rule Represent one- and two-step functions graphically **Equality & Equivalence**	**Place Value & Ordering** Recognise the place value of any number in an integer up to one billion Understand and write integers up to one billion in words and figures Work out intervals on a number line Position integers on a number line Round integers to the nearest power of ten Compare two numbers using =, ≠, <, >, ≤, ≥ Order a list of integers Find the range of a set of numbers Find the median of a set of numbers Understand place value for decimals Position decimals on a number line Compare and order any number up to one billion Round a number to 1 significant figure Write 10, 100, 1000 etc. as powers of 10 Write positive integers in the form Ax10n Investigate negative powers of ten Write decimals in the form Ax10n **FDP Equivalence** Represent tenths and hundredths as diagrams Represent tenths and hundredths on number line Interchange between fractional and decimal number lines Convert between fractions and decimals - tenths and hundredths	**Addition & Subtraction** Properties of addition and subtraction Mental strategies for addition and subtraction Use formal methods for addition of integers Use formal methods for addition of decimals Use formal methods for subtraction of integers Use formal methods for subtraction of decimals Choose the most appropriate method: mental strategies, formal written or calculator Solve problems in the context of perimeter Solve financial maths problems Solve problems involving tables and timetables Solve problems with frequency trees Solve problems with bar charts and line charts Add and subtract numbers given in standard form **Multiplication & Division** Properties of multiplication & division Understand and use factors Understand and use multiples Multiply and divide integers and decimals by powers of 10 Multiply by 0.1 and 0.01 Convert metric units Use fomal methods to multiply integers Use formal methods to multiply decimals	**Directed Number** Understand and use representations of directed numbers Order directed numbers using lines and appropriate symbols Perform calculations that cross zero Add directed numbers Subtract directed numbers Multiplication of directed numbers Multiplication and division of directed numbers Use a calculator for directed number calculations Evaluate algebraic expressions with directed number Introduction to two-step equations Solve two-step equations Use order of operations with directed numbers Roots of positive numbers Explore higher powers and roots **Addition & Subtraction of Fractions** Understand representations of fractions Convert between mixed numbers and fractions Add and subtract unit fractions with the same denominator Add and subtract fractions with the same denominator Add and subtract fractions from integers expressing the answer as a single fraction Understand and use equivalent fractions	**Constructing, Measuring & Using Geometric Notation** Understand and use letter and labelling conventions including those for geometric figures Draw and measure line segments including geomteric figures Understand angles as a measure of turn Classify angles Measure angles up to 180° Draw angles up to 180° Draw and measure angles between 180° and 360° Identify perpendicular and parallel lines Recognise types of triangle Recognise types of quadrilateral Identify polygons up to a decagon Construct triangles using SSS Construct triangles using SSS, SAS and ASA Construct more complex polygons Interpret simple pie charts using proportion Interpret pie charts using a protractor Draw pie charts **Develop Geometric Reasoning** Understand and use the sum of angles at a point Understand and use the sum of angles on a straight line Understand and use the equality of vertically opposite angles Know and apply the sum of angles in a triangle	**Developing Number Sense** Know and use mental addition and subtraction strategies for integers Known and use mental multiplication and division strategies for integers Know and use mental arithmetic strategies for decimals Know and use mental arithmetic strategies for fractions Use factors to simplify calculations Use estimation as a method for checking mental calculations Use known number facts to derive other facts Use known algebraic facts to derive other facts Know when to use a mental strategy, formal written method or a calculator **Sets and Probability** Identify and represent sets Interpret and create Venn diagrams Understand and use the intersection of sets Understand and use the union of sets Understand and use the complement of a set Know and use the vocabulary of probablity Generate sample spaces for single events Calculate the probability of a single event Understand and use the probability scale Know that the sum of probabilities for all possible outcomes is 1 **Prime Numbers & Proof** Find and use multiples

	Understand the meaning of equality Understand and use fact families, numerically and algebraically Solve one-step linear equations involving +/- using inverse operations Solve one-step linear equations involving x/÷ using inverse operations Understand the meaning of like and unlike terms Understand the meaning of equivalence Simplify algebraic expressions by collecting like terms, using the ≡ symbol	Convert between fractions and decimals - fifths and quarters Convert between fractions and decimals - eighths and thousandths Understand the meaning of percentage using a hundred square Convert fluently between simple fractions, decimals and percentages Use and interpret pie charts Represent any fraction as a diagram Represent fractions on number lines Identify and use simple equivalent fractions Understand fractions as division Convert fluently between fractions, decimals and percentages Explore fractions above one, decimals and percentages	Use formal methods to divide integers Use formal methods to divide decimals Understand and use order of operations Solve problems using the area of rectangles and parallelograms Solve problems using the area of triangles Solve problems using the area of trapezia Solve problems using the mean Explore multiplication and division in algebraic expressions **Fractions & Percentages of Amounts** Find a fraction of a given amount Use a given fraction to find the whole and/or other fractions Find a percentage of a given amount using mental methods Find a pecentage of a given amount using a calculator Solve problems with fractions greater than 1 and percentages greater than 100%	Add and subtract fractions where denominators share a simple common multiple Add and subtract fractions with any denominator Add and subtract improper fractions and mixed numbers Use fractions in algebraic contexts Use equivalence to add and subtract decimals and fractions Add and subtract simple algebraic fractions	Know and apply the sum of angles in a quadrilateral Solve angle problems using properties of triangles and quadrilaterals Solve complex angle problems Find and use the angle sum of any polygon Investigate angles in parallel lines Understand and use parallel line angles rules Use known facts to obtain simple proofs	Identify factors of numbers and expressions Recognise and identify prime numbers Recognise square and triangular numbers Find common factors of a set of numbers including the HCF Find common multiples of a set of numbers including the LCM Write a number as a product of its prime factors Use a Venn diagram to calculate the HCF and LCM Make and test conjectures Use counter examples to disprove a conjecture

Stage 8	**Ratio and scale** Understand the meaning and representation of ratio Understand and use ratio notation Solve problems involving ratios of the form 1 : n (or n : 1) Solve problems involving ratios of the form m : n Divide in a given ratio Express ratios in their simplest integer form Express ratios in the form 1 : n Compare ratios and fractions Understand pi as a ratio Understand gradient as a ratio **Multiplicative change** Solve problems involving direct proportion Explore conversion graphs Convert between currencies Explore direct proportion graphs Explore relationships between similar shapes Understand scale factors as multiplicative representations Draw and interpret scale diagrams Interpret maps using scale factors and ratios **Multiplying and dividing fractions** Represent multiplication of fractions Multiply a fraction by an integer Find the product of a pair of unit fractions Find the product of a pair of any fractions Divide an integer by a fraction Divide a fraction by a unit fraction Understand and use the reciprocal	**Working in the Cartesian Plane** Work with coordinates in all four quadrants Identify and draw lines that are parallel to the axes Recognise and use the line y=x Recognise and use lines of the form y=kx Link y=kx to direct proportion problems Explore the gradient of the line y=kx (H) Recognise and use lines of the form y=x+a Explore graphs with negative gradient (y=-kx, y=a-x, x+y=a) Link graphs to linear sequences Plot graphs of the form y=mx+c Explore non-linear graphs Find the midpoint of a line segment **Representing data** Draw and interpret scatter graphs Understand and describe linear correlation Draw and use line of best fit Identify non-linear relationships Identify different types of data Read and interpret ungrouped frequency tables Read and interpret grouped frequency tables Represent grouped discrete data Represent continuous data grouped into equal classes Construct and interpret two-way tables **Probability** Construct sample spaces for one or more events	**Brackets, Equations & Inequalities** Form algebraic expressions Use directed number with algebra Multiply out a single bracket Factorise into a single bracket Expand multiple single brackets and simplify Expand a pair of binomials Solve equations, including with brackets Form and solve equations with brackets Understand and solve simple inequalities Form and solve inequalities Solve equations and inequalities with unknowns on both sides Form and solve equations and inequalities with unknowns on both sides Identify and use formulae, expressions, identities and equations **Sequences** Generate sequences given a rule in words Generate sequences given a simple algebraic rule Generate sequences given a complex algebraic rule Find the rule for the nth term of a linear sequence (H) **Indices** Adding and subtracting expressions with indices Simplifying algebraic expressions by multiplying indices Simplifying algebraic expressions by dividing indices Using the addition law for indices Using the addition and subtraction law for indices	**Fractions & Percentages** Convert fluently between key fractions decimals and percentages Calculate key fractions, decimals and percentages of an amount without a calculator Calculate fractions, decimals and percentages of an amount using calculator methods Convert between decimals and percentages greater than 100% Percentage decrease with a multiplier Calculate percentage increase and decrease using a multiplier Express one number as a fraction or a percentage of another without a calculator Express one number as a fraction or a percentage of another using calculator methods Work with percentage change Choose appropriate methods to solve percentage problems Find the original amount given the percentage less than 100% (H) Find the original amount given the percentage greater than 100% Choose appropriate methods to solve complex percentage problems **Standard Form** Investigate positive powers of 10 Work with numbers greater than 1 in standard form Investigate negative powers of 10 Work with numbers between 0 and 1 in standard form Compare and order numbers in standard form Mentally calculate with numbers in standard form Add and subtract numbers in standard form	**Angles in parallel lines and polygons** Understand and use basic angle rules and notation Investigate angles between parallel lines and the transversal Identify and calculate with alternate and corresponding angles Identify and calculate with co-interior, alternate and corresponding angles Solve complex problems with parallel line angles Constructions triangles and special quadrilaterals Investigate the properties of special quadrilaterals Identify and calculate with sides and angles in special quadrilaterals Understand and use the properties of diagonals of quadrilaterals Understand and use the sum of exterior angles of any polygon Calculate and use the sum of the interior angles in any polygon Calculate missing interior angles in regular polygons Prove simple geometric facts Construct an angle bisector Construct a perpendicular bisector of a line segment **Area of Trapezia & Circles** Calculate the area of triangles, rectangles and parallelograms Calculate the area of a trapezium Calculate the perimeter and area of compound shapes (1) Investigate the area of a circle Calculate the area of a circle and parts of a circle without a calculator Calculate the area of a circle and parts of a circle with a calculator	**The Data Handling Cycle** Set up a statistical enquiry Design and criticise questionnaires Draw and interpret pictograms, bar charts and vertical line charts Draw and interpret multiple bar charts Draw and interpret pie charts Draw and interpret line graphs Choose the most appropriate diagram for given set of data Represent and interpret grouped quantitative data Find and interpret the range Compare distributions using charts Identify misleading graphs **Measures of location** Understand and use the mean, median and mode Choose the most appropriate average Find the mean from an ungrouped frequency table (H) Find the mean from a grouped frequency table Identify outliers Compare distributions using averages and the range

	Divide any pair of fractions Multiply and divide improper and mixed fractions Multiply and divide algebraic fractions	Find probabilities from a sample space Find probabilities from two-way tables Find probabilities from Venn diagrams Use the product rule for finding the total number of possible outcomes	Exploring powers of powers	Multiply and divide numbers in standard form Use a calculator to work with numbers in standard form Understand and use negative indices Understand and use fractional indices **Number Sense** Round numbers to powers of 10 and 1 significant figure Round numbers to a given number of decimal places Estimate the answer to a calculation Understand and use error interval notation (H) Calculate using the order of operations Calculate with money Convert metric measures of lengths Convert metric units of weight and capacity Convert metric units of area Convert metric units of volume Solve problems involving time and the calendar	Calculate the perimeter and area of compound shapes (2) **Line Symmetry & Reflection** Recognise line symmetry Reflect a shape in a horizontal or vertical line 1 (shapes touching the line) Reflect a shape in a horizontal or vertical line 2 (shapes not touching the line) Reflect a shape in a diagonal line 1 (shapes touching the line) Reflect a shape in a diagonal line 2 (shapes not touching the line)	

Stage 9	Knowledge and skills: **Straight Line Graphs** Lines parallel to the axis, y=x and y=-x Using tables of values Compare gradients Compare intercepts Understand and use y=mx+c Write an equation in the form y=mx+c Find the equation of a line from a graph Interpret gradients and intercepts of real-life graphs Model real-life graphs involving inverse proportion Explore perpendicular lines **Forming and Solving Equations** One and two-step equations and inequalities Equations and inequalities with brackets Inequalities with negative numbers Solve equations with unknowns on both sides Solve inequalities with unknowns on both sides Equations and inequalities in other mathematical contexts Formulae and equations Rearrange formulae (one-step) Rearrange formulae (two-step) Rearrange complex formulae **Testing Conjectures** Factors, multiples and primes True or false Always, sometimes, never true Show that Conjectures about number	Knowledge and skills **Three-dimensional Shapes** Know names of 2D and 3D shapes Recognise prisms (including language of edges and vertices) Accurate nets of cuboids and other 3D shapes Sketch and recognise nets of cuboids and other 3D shapes Plans and elevations Find area of 2D shapes Surface area of cubes and cuboids Surface area of triangular prisms Surface area of a cylinder Volume of cubes and cuboids Volume of other 3D shapes - prisms and cylinders Explore volumes of cones, pyramids and spheres **Constructions and Congruency** Draw and measure angles Construct and interpret scale drawings Locus of distance from a point Locus of distance from a straight line Locus equidistant from two points Construct a perpendicular bisector Construct a perpendicular from a point Construct a perpendicular to a point Locus of distance from two lines Construct an angle bisector Construct triangles from given information Identify congruent figures Explore congruent triangles Identify congruent triangles	Knowledge and skills **Numbers** Integers, real and rational numbers Understand and use surds Work with directed number Solve problems with integers Solve problems with decimals HCF and LCM Adding and subtracting fractions Multiplying and dividing fractions Solve problems with fractions Numbers in standard form **Using Percentages** Use the equivalence of fractions, decimals and percentages Calculate percentage increase and decrease Express a change as a percentage Solve reverse percentage problems Recognise and solve percentage problems (non-calculator) Recognise and solve percentage problems (calculator) Solve problems with repeated percentage change **Maths and Money** Solve problems with bills and bank statements Calculate simple interest Calculate compound interest Solve problems with Value Added Tax Calculate wages and taxes Solve problems with exchange rates Solve unit pricing problems	Knowledge and skills **Deduction** Angles in parallel lines Solve angle problems using chains of reasoning Angle problems with algebra Conjectures with angles Conjectures with shapes Link constructions and geometrical reasoning **Rotation and Translation** Identify the order of rotational symmetry of a shape Compare and contrast rotational symmetry with line symmetry Rotate a shape about a point on a shape Rotate a shape about a point not on a shape Translate points and shapes by a given vector Compare rotation and reflection of shapes Find the result of a series of transformations **Pythagoras' Theorem** Squares and square roots Identify the hypotenuse of a right-angled triangle Determine whether a triangle is right-angled Calculate the hypotenuse of a right-angled triangle Calculate missing sides in right-angled triangles Use Pythagoras' theorem on coordinate axes Explore proofs of Pythagoras' theorem Use Pythagoras' theorem in 3D shapes	Knowledge and skills **Enlargement and Similarity** Recognise enlargement and similarity Enlarge a shape by a positive integer scale factor Enlarge a shape by a positive integer scale factor from a point Enlarge a shape by a positive fractional scale factor Enlarge a shape by a negative scale factor Work out missing sides and angles in a pair of given similar shapes Solve problems with similar triangles Explore ratios in right-angled triangles **Solving Ratio and Proportion Problems** Solve problems with direct proportion Direct proportion and conversion graphs Solve problems with inverse proportion Graphs of inverse relationships Solve ratio problems given the whole or a part Solve best buy problems Solve problems involving ratio and algebra **Rates** Solve speed, distance and time problems without a calculator Solve speed, distance and time problems with a calculator Use distance-time graphs Solve problems with density, mass and volume Solve flow problems and their graphs Rates of change and their units Convert compound units	Knowledge and skills **Probability** Single event probability Relative frequency - including convergence Expected outcomes Independent events Use tree diagrams Use tree diagrams to solve without replacement problems Use diagrams to work out probabilities **Algebraic Representation** Draw and interpret quadratic graphs Interpret graphs, including reciprocal and piece-wise Investigate graphs of simultaneous equations Represent inequalities Solve two linear simultaneous equations Solve two linear simultaneous equations in two variables in very simple cases (addition but no multiplication required) Solve two linear simultaneous equations in two variables in very simple cases (subtraction but no multiplication required) Solve two linear simultaneous equations in two variables in very simple cases (addition or subtraction but no multiplication required) Solve two linear simultaneous equations in two variables in simple cases (multiplication of one equation only required with addition) Solve two linear simultaneous equations in two variables in simple cases (multiplication of one equation only required with subtraction) Solve two linear simultaneous equations in two variables in simple cases (multiplication of one equation only required with addition or subtraction) Derive and solve two simultaneous equations Solve problems involving two simultaneous equations and interpret the solution

	Expand a pair of binomials Conjectures with algebra Explore the 100 grid					
Stage 10 (Higher)	**Congruence, Similarity and Enlargement** Enlarge a shape by a positive integer scale factor Enlarge a shape by a fractional scale factor Enlarge a shape by a negative scale factor Identify similar shapes Work out missing sides and angles in a given pair of similar shapes Use parallel line rules to work out missing angles Establish a pair of triangles are similar Explore areas of similar shapes Explore volumes of similar shapes Solve mixed problems involving similar shapes Understand the difference between congruence and similarity Understand and use conditions for congruent triangles Prove a pair of triangles are congruent **Trigonometry** Explore ratio in similar right-angled triangles Work fluently with the hypotenuse, opposite and adjacent sides Use the tangent ratio to find missing side lengths	**Equations and Inequalities** Understand the meaning of a solution Form and solve one-step and two-step equations Form and solve one-step and two-step inequalities Show solutions to inequalities on a number line Interpret representation on number lines as inequalities Represent solutions to inequalities using set notation Draw straight line graphs Find solutions to equations using straight line graphs Represent solutions to single inequalities on a graph Represent solutions to multiple inequalities on a graph Form and solve equations with unknowns on both sides Form and solve inequalities with unknowns on both sides Form and solve more complex equations and inequalities Solve quadratic equations by factorisation Solve quadratic inequalities in one variable **Simultaneous Equations** Understand that equations can have more than one solution	**Angles and Bearings** Use cardinal directions and related angles Draw and interpret scale diagrams Understand and represent bearings Measure and read bearings Make scale drawings using bearings Calculate bearings using angle rules Solve bearings problems using Pythagoras and trigonometry Solve bearings problems using the sine and cosine rules **Working with Circles** Recognise and label parts of a circle Calculate fractional parts of a circle Calculate the length of an arc Calculate the area of a sector Circle theorem: Angles at the centre and circumference Circle theorem: Angles in a semi-circle Circle theorem: Angles in the same segment Circle theorem: Angles in a cyclic quadrilateral Understand and use the volume of a cylinder and cone Understand and use the volume of a sphere	**Ratio and Fractions** Compare quantities using a ratio Link ratios and fractions Share in a ratio (given total or one part) Use ratios and fractions to make comparisons Link ratios and graphs Solve problems with currency conversion Link ratios and scales Use and interpret ratios of the form 1 : n and n : 1 Solve best buy problems Combine a set of ratios Link ratio and algebra Ratio in area problems Ratio in volume problems Mixed ratio problems **Percentages and Interest** Convert and compare fractions, decimals and percentages Work out percentages of amounts (with and without a calculator) Increase and decrease by a given percentage Express one number as a percentage of another	**Collecting, Representing and Interpreting Data** Understand populations and samples Construct a stratified sample Primary and secondary data Construct and interpret frequency tables and frequency polygons Construct and interpret two-way tables Construct and interpret line and bar charts (including composite bar charts) Construct and interpret pie charts Criticise charts and graphs Construct histograms Interpret histograms Find and interpret averages from a list Find and interpret averages from a table Construct and interpret time series graphs Construct and interpret stem-and-leaf diagrams Construct and interpret cumulative frequency diagrams Use cumulative frequency diagrams to find measures Construct and interpret box plots Compare distributions using charts and measures	**Types of Number and Sequences** Understand the difference between factors and multiples Understand primes and express a number as a product of its prime factors Find the HCF and LCM of a set of numbers Describe and continue arithmetic and geometric sequences Explore other sequences Describe and continue sequences involving surds Find the rule for the nth term of a linear sequence Find the rule for the nth term of a quadratic sequence **Indices and Roots** Square and cube numbers Calculate higher powers and roots Powers of ten and standard form The addition and subtraction rules for indices Understand and use the power zero and negative indices Work with powers of powers Understand and use fractional indices Calculate with numbers in standard form **Manipulating expressions** Add and subtract algebraic fractions

	Use the sine and cosine ratio to find missing side lengths Use the sine, cosine and tangent to find missing side lengths Use the sine, cosine and tangent to find missing angles Calculate sides in right-angled triangles using Pythagoras' Theorem Select the appropriate method to solve right-angled triangle problems Work with key angles in right-angled triangles Use trigonometry in 3-D shapes Use the formula 1/2absinC to find the area of non-right angled triangles Understand and use the sine rule to find missing lengths Understand and use the sine rule to find missing angles Understand and use the cosine rule to find missing lengths Understand and use the cosine rule to find missing angles Choose and use the sine and cosine rules	Determine whether a given (x, y) is a solution to a pair of linear simultaneous equations Solve a pair of linear simultaneous equations by substituting a know variable Solve a pair of linear simultaneous equations by substituting an expression Solve a pair of linear simultaneous equations using graphs Solve a pair of linear simultaneous equations by subtracting equations Solve a pair of linear simultaneous equations by adding equations Use a given equation to derive related facts Solve a pair of linear simultaneous equations by adjusting one equation Solve a pair of linear simultaneous equations by adjusting both equations Form a pair of linear simultaneous equations from given information Form and solve pair of linear simultaneous equations from given information Determine whether a given (x, y) is a solution to both a linear and quadratic equation Solve a pair of simultaneous equations (one linear, one quadratic) using graphs Solve a pair of simultaneous equations (one linear, one quadratic) algebraically Solve a pair of simultaneous equations involving a third unknown	Understand and use the surface area of a sphere Understand and use the surface area of a cylinder and cone Solve area and volume problems involving similar shapes **Vectors** Understand and represent vectors Use and read vector notation Draw and understand vectors multiplied by a scalar Draw and understand addition of vectors Draw and understand addition and subtraction of vectors Explore vector journeys in shapes Explore quadrilaterals using vectors Understand parallel vectors Explore co-linear points using vectors Use vectors to construct geometric arguments and proofs	Calculate simple and compound interest Repeated percentage change Find the original value after a percentage change Solve problems involving growth and decay Understand iterative processes Solve problems involving percentages, ratios and fractions **Probability** Know how to add, subtract and multiply fractions Find probabilities using equally likely outcomes Use the property that probabilities sum to 1 Using experimental data to estimate probabilities Find probabilities from tables, Venn diagrams and frequency trees Construct and interpret sample spaces for more than one event Calculate probability with independent events Use tree diagrams for independent events Use tree diagrams for dependent events Construct and interpret conditional probabilities (tree diagrams) Construct and interpret conditional probabilities (Venn diagrams and two-way tables)	Compare distributions using complex charts and measures Construct and interpret scatter graphs Draw and use a line of best fit Understand extrapolation **Non-calculator Methods** Mental/written methods of integer/decimal addition and subtraction Mental/written methods of integer/decimal multiplication and division The four rules of fraction arithmetic Exact answers Rational and irrational numbers Understand and use surds Calculate with surds Rounding to decimal places and significant figures Estimating answers to calculations Understand and use limits of accuracy Upper and lower bounds Use number sense Solve financial maths problems Break down and solve multi-step problems	Multiply and divide algebraic fractions Simplify an algebraic fraction Expand the product of three binomials Expand the product of two binomials involving surds Factorise an expression involving the difference of two squares Factorise a quadratic expression of the form $ax^2 + bx + c$ (a is prime) Factorise a quadratic expression of the form $ax^2 + bx + c$ (a is composite) Identify when factorisation of the numerator and/or denominator is needed to simplify an algebraic fraction Simplify an algebraic fraction that involves factorisation Change the subject of a formula when more than two steps are required Change the subject of a formula when the required subject appears twice Assessment: To be undertaken every 6 weeks