Maths KS3 Progression Grid – Year 7 BRONZE

Students in Maths are taught about the following areas throughout Year 7:

1. Number
2. Algebra
3. Geometry
4. Statistics

Year 7 learning is built upon the mathematical foundations established in Key Stage 2 and extended to prepare students for their GCSE at the end of KS4.
Students are initially assessed at the beginning of Year 7 by using a Baseline Assessment supported by CATS that defines the setting. Students' knowledge and understanding are assessed at the end of each topic, at the end of each term and at the end of the academic year.
Students complete and keep a self-evaluation sticker for each topic in their exercise books to reflect on their learning and set themselves measurable targets to work on.
Please refer to the KS3 Maths SOW for a detailed guidance on the learning objectives for Gold (Depth), Silver (Core) and Bronze (Support).

Overview	Knowledge: What will they Learn?	Skills: Understanding - what will they be able to do?	Literacy - Key Terminology	Assessment
Autumn Term 1	**1 Number skills** **1.1 Mental maths** **1.2 Addition and subtraction**	• Use multiplication facts up to 10 × 10 up to 10 x 10 and the laws of arithmetic to do mental multiplication and division. • Multiply by multiples of 10, 100, 1000. • Use the priority of operations	• Operation • Inverse • Brackets • Indices • Order • Division • Multiplication • Addition • Subtraction • Place Value • Round	Baseline Assessment supported by CATS

	1.3 Multiplication **1.4 Division** **1.5 Money and time** **1.6 Negative numbers** **1.7 Factors, multiples and primes** **1.8 Square numbers**	• Use a written method to add and subtract whole numbers. • Round whole numbers to the nearest 10, 100, 1000 • Use a written method to multiply whole numbers. • Use a written method to divide numbers. • Round money to the nearest pound or penny. • Use a calculator to solve problems involving money and time. • Order positive and negative numbers. • Add and subtract positive and negative numbers. • Work out multiples and find the lowest common multiple. • Find all factor pairs of a number and highest common factor of two numbers. • Recognise prime numbers. • Recognise square numbers.	• Decimal Place • Significant Figure • Column Method • Long Multiplication • Grid Method • Long Division • Short Division • Partition • Whole Number • Hour • Minute • Second • Pound, Pence • Negative • Positive • Subtract • Add • Factor • Multiple • Prime • Square • Square root • Cube • Cube Root	

	2 Decimals and measures **2.1 Decimals and rounding** **2.2 Length, mass and capacity** **2.3 Scales and measures** **2.4 Working with decimals mentally** **2.5 Working with decimals** **2.6 Perimeter**	• Use a calculator to find squares and square roots. • Use the priority of operations including powers. • Measure and draw lines to the nearest millimetre. • Write decimals in order of size. • Round decimals to the nearest whole number • Multiply and divide by 10, 100 and 1000. • Convert between metric units of length, mass and capacity. • Read scales • Use scale diagrams • Multiply decimals by multiples of 10 and 100. • Understand where to position the decimal point by considering equivalent calculations. • Add and subtract decimals. • Multiply and divide decimals	• Decimal • Decimal Point • Unit Value • Place Value • Unit • Length • Mass • Capacity • Decimal point • Place value • Add • Subtract • Multiply • Divide	Unit Check, Strengthen & Extend End-of-unit Test: Number skills

	2.7 Area **2.8 More units of measure**	• Work out the perimeter of squares, rectangles and regular polygons. • Calculate the perimeter of shapes made from rectangles. • Find areas by counting squares. • Find the area of rectangles and squares. • Calculate the area of shapes made from rectangles. • Choose suitable units to measure area. • Use units of measurement to solve problems. • Use metric and imperial units.	• Area • Perimeter • Length • Metric unit • Formula • Rectangle • Square • Width • Compound shape • Capacity • Cube • Cuboid • Height • Litre • Volume • Imperial units metric units	Unit Check, Strengthen & Extend End-of-unit Test: Decimals and Measures

Autumn Term 2	**3 Expressions, functions and formulae** **3.1 Functions** **3.2 Simplifying expressions 1** **3.3 Simplifying expressions 2** **3.4 Writing expressions** **3.5 Substituting into formulae** **3.6 Writing formulae**	• Find outputs of simple functions written in words and using symbols. • Simplify linear algebraic expressions by collecting like terms. • Use brackets with numbers and letters. • Multiply and divide algebraic terms. • Write expressions from word descriptions using addition, subtraction and multiplication. • Write expressions to represent function machines. • Substitute positive integers into simple formulae written in words. • Substitute integers into formulae written in letters • Write simple formulae in words. • Write simple formulae using letters	• Input • Output • Function machine • Operation • Simplify • Collect • Like-terms • Unknown • Coefficient • Term • Bracket • Multiply • Divide • Expression • Add • Subtract • Multiply • Divide • Function machine • Substitute • Integer • Formulae • Unknown	

	4 Analysing and displaying data **4.1 Mode, median and range**	• Find the mode of a set of data, numerical and non-numerical. • Find the median of a set of data (odd and even number of values). • Find the range of a set of data.	• Mode • Median • Range • Average • Mean	Unit Check, Strengthen & Extend End-of-unit Test: Expressions, functions and formulae
	4.2 Displaying data	• Read pictograms, read and draw bar charts. • Read and construct tally charts and frequency tables. • Find the mode and range from a chart or table.	• Pictogram • Bar chart • Bar-line chart • Tally chart • Frequency table	
	4.3 Grouping data	• Read and construct grouped tally charts and frequency tables. • Read and construct grouped bar charts for discrete and continuous data. • Find the modal class from a frequency table.	• Grouped tally chart • Grouped frequency table • Discrete • Continuous • Modal class	

	4.4 Averages and comparing data **4.5 Line graphs and more bar charts**	• Calculate the mode, median, mean and range of a set of values. • Compare two sets of data using an average and the range. • Read and draw a line graph. • Read and draw a dual bar chart. • Read and draw a compound bar chart.	• Compare • Average • Range • Line graph • Dual bar chart • Compound bar chart	Unit Check, Strengthen & Extend End-of-unit Test: Analysing and displaying data End of term test
Progress check	What measurable criteria will you use to determine who is Above Expected, Expected, Expected, Below Expected?			

	End-of-Term test Above Expected - from 70% Expected - from 30-70% Below Expected - 20-30% Cause for Concern - <20% Please refer to the hyper-link shared at the top of the page. The style and wording of the questions may vary between Gold, Silver and Bronze.			
Spring Term 1	**5 Fractions and percentages** **5.1 Comparing fractions** **5.2 Simplifying fractions** **5.3 Working with fractions** **5.4 Fractions and decimals**	• Use fraction notation to describe parts of a shape. • Compare simple fractions. • Change an improper fraction to a mixed number. • Identify equivalent fractions. • Simplify fractions by dividing numerator and denominator by common factors. • Add and subtract simple fractions. • Calculate simple fractions of quantities. • Work with equivalent fractions and decimals. • Write one quantity as a fraction of another.	• Fraction • Numerator • Denominator • Greater • Less • Equal • Part • Improper • Proper • Equivalent • Simplify • Common • Add • Subtract • Denominator • Common • Decimal • Fraction • Numerator • Denominator • Equivalent	

	5.5 Understanding percentages **5.6 Percentages of amounts**	• Understand percentage as 'the number of parts per 100'. • Convert a percentage to a fraction or decimal. • Calculate percentages		Unit Check, Strengthen & Extend End-of-unit Test: Fractions and percentages
	6 Probability **6.1 The language of probability** **6.2 Calculating probability** **6.3 More probability calculations**	• Use the language of probability. • Use a probability scale with words. • Understand the probability scale from 0 to 1. • Identify outcomes of an event. • Calculate probabilities. • Use probability notation. • Calculate the probability of an event not happening.	• Probability • Scale • Outcome • Event • Even • Likely • Impossible • Equally • Fraction • Numerator • Denominator • Or • Mutually • Exclusive	

	6.4 Experimental probability **6.5 Expected outcomes**	• Estimate probability based on experimental data. • Use probability to estimate the expected number of outcomes. • Apply probabilities from experimental data in simple situations.	• Data • Experiment • Estimate • Probability • Experimental • Event • Trial • Wins • Expected • Experimental • Theoretical	Unit Check, Strengthen & Extend End-of-unit Test: Probability
Spring Term 2	**7 Ratio and proportion** **7.1 Direct proportion** **7.2 Writing ratios** **7.3 Using ratios**	• Use direct proportion in simple contexts. • Solve simple problems involving direct proportion. • Use ratio notation. • Reduce a ratio to its simplest form. • Find equivalent ratios.	• Proportion • Constant • Multiply • Direct • Unitary • Ratio • Part • Equal • Simplify • Divide	

	7.4 Ratios, proportions and fractions **7.5 Proportions and percentages**	• Divide a quantity into two parts in a given ratio. • Solve word problems involving ratio. • Use fractions to describe proportions. • Understand the relationship between ratio and proportion. • Use percentages to describe proportions. • Use percentages to compare simple proportions. • Understand and use the relationship between ratio and proportion.	• Common • Part • Ratio • Divide • Common • Simplify • Fraction • Proportion • Ratio • Part • Equal • Percentage • Grater • Less • Ratio • Proportion • Common • Divide	Unit Check, Strengthen & Extend End-of-unit Test: Ratio and proportion End of term test
Progress check	What measurable criteria will you use to determine who is Above Expected, Expected, Expected, Below Expected? End-of-Term test Above Expected - from 70% Expected - from 30-70% Below Expected - 20-30% Cause for Concern - <20%			

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Summer Term 1	**8 Lines and angles** **8.1 Measuring and drawing angles** **8.2 Lines, angles and triangles** **8.3 Drawing triangles accurately** **8.4 Calculating angles** **8.5 Angles in a triangle** **8.6 Quadrilaterals**	• Use a protractor to measure and draw angles. • Name and label lines, angles and triangles. • Estimate the size of angles. • Use a ruler and protractor to draw triangles accurately. • Find missing angles on a straight line and around a point. • Use vertically opposite angles. • Work out the size of unknown angles in triangles. • Identify and name types of quadrilaterals. • Use the rule for the sum of angles in a quadrilateral. • Solve angle problems involving quadrilaterals.	• Line • Angle • Triangle • Symmetry • Scalene • Equilateral • Rectangle • Isosceles • Estimate • Size • Straight • Line • Angle • Length • Degrees • Straight line • Point • Degrees • Turn • Vertically opposite • Triangle • Angle • Degrees • Interior • Exterior • Line • Quadrilateral • Sum • Angle • Straight line	

			• Shape	
	9 Sequences and graphs **9.1 Sequences**	• Recognise, describe and continue number sequences. • Generate terms of a sequence using a one-step term-to-term rule.	• Sequence • Term • Rule • Position • Pattern	Unit Check, Strengthen & Extend End-of-unit Test: Lines and angles
	9.2 Pattern sequences	• Find missing terms in a sequence. • Find patterns and rules in sequences. • Describe how a pattern sequence grows.	• Rule • Sequence • Term	
	9.3 Coordinates and midpoints	• Read and plot coordinates. • Generate and plot coordinates from a rule • Find the midpoint of a line segment.	• Coordinate • Grid • Point • Shape • Midpoint • x-value • y-value	
	9.4 Extending sequences	• Use the term-to-term rule to work out more terms in a sequence.	• Axis • Term • Sequences • Square • Triangle • Position	

	9.5 Straight-line graphs **9.6 Position-to-term rules**	• Recognise an arithmetic sequence and a geometric sequence. • Recognise, name and plot graphs parallel to the axes. • Recognise, name and plot the graphs of y = x. • Plot straight line graphs using a table of values. • Generate terms of a sequence using a position-to-term rule.	• Arithmetic • Difference • Common • Parallel • Straight • Line • Axis • Coordinate • Linear • Quadrant • Graph • Equation • nth term	Unit Check, Strengthen & Extend End-of-unit Test: Sequences and graphs
Summer Term 2	**10 Transformations** **10.1 Congruency and enlargements** **10.2 Symmetry**	• Identify congruent shapes. • Enlarge shapes using given scale factors. • Work out the scale factor given an object and its image. • Recognise line and rotational symmetry in 2D shapes.	• Congruent • Side • Angle • Enlargement • Scale factor • Image • Object • Symmetry • Line • Rotational	

	10.3 Reflection **10.4 Rotation** **10.5 Translations and combined transformations**	• Identify all the symmetries of 2D shapes. • Identify reflection symmetry in 3D shapes. • Recognise and carry out reflections in a mirror line. • Reflect a shape on a coordinate grid. • Find the mirror line for a reflection on a coordinate grid. • Draw and describe rotations. • Translate 2D shapes. • Transform 2D shapes by combinations of translations.	• Shape • Reflective • Line • Distance • Horizontal • Vertical • Grid • Coordinate • Rotation • Direction • Degrees • Turn • Centre • Translation • Horizontal • Vertical	Unit Check, Strengthen & Extend End-of-unit Test: Transformations End of year assessment
Progress check	What measurable criteria will you use to determine who is Above Expected, Expected, Expected, Below Expected? End of Year Test Above Expected - from 70% Expected - from 30-70%			

	Below Expected - 20-30% Cause for Concern - <20% Please refer to the hyper-link shared at the top of the page. The style and wording of the questions may vary between Gold, Silver and Bronze.