

Trinity Academy Upper Site – MATHS Curriculum 26-27

	Autumn Term		Spring Term		Summer Term	
	HT1	HT2	HT3	HT4	HT5	HT6
Year 8	Place value Numbers to 1,000,000 Numbers to 10,000,000 Read and write numbers to 10,000,000 Powers of 10 Compare and order any integers Round any integer Negative numbers <u>Place value, ordering and rounding</u> Write intervals in numerals and words Intervals on a number line Place value for decimals Decimals on a number line Compare and order decimals Round to powers of 10 Round to decimal places <u>Addition, subtraction, multiplication and division</u> Add and subtract integers Common factors	Four operations Add and subtract decimals Multiply and divide by 10, 100 and 1000 Multiply integers Divide integers Multiply decimals Divide decimals by integers <u>Fractions A</u> Equivalent fractions and simplifying Equivalent fractions on a number line Compare and order (denominator) Compare and order (numerator) Add and subtract simple fractions Add and subtract any two fractions Add mixed numbers Subtract mixed numbers Multi-step problems <u>Fractions B</u> Multiply fractions by integers	<u>Fractions, decimals and percentages</u> Decimal and fraction equivalents Fractions as division Understand percentages Fractions to percentages Equivalent fractions, decimals and percentages Order fractions, decimals and percentages Percentage of an amount – one step Percentage of an amount – multi step Percentages – missing values Represent tenths and hundredths Number lines with fractions and decimals Tenths, hundredths, fifths and quarters Eighths and thousandths	<u>Algebraic notation and substitution</u> 1-step function machines (algebra) Find a function (one step) Find a substitution (one step) 2-step function machines (algebra) Find a function (two step) Substitution (two step) <u>Statistics</u> Line graphs Dual bar charts Read and interpret pie charts Pie charts with percentages Draw pie charts The mean <u>Perimeter and area</u> Convert metric units of length Perimeter of a polygon Perimeter of a compound shape Area of rectangles and parallelograms Area of a triangle	<u>Add and subtract fractions</u> Simplify fractions Convert between mixed numbers and improper fractions Add and subtract fractions with the same denominator Add and subtract fractions and integers Add and subtract fractions where the denominators share a simple common multiple Add and subtract fractions with any denominator Add and subtract improper fractions and mixed numbers <u>Multiply and divide fractions</u> Multiply a fraction by an integer Multiply fractions Understand reciprocals Divide an integer by a fraction	<u>Interpret and represent data</u> Types of data Averages and range Outliers and errors Choose the most appropriate average Compare distributions using averages and the range Averages from an ungrouped frequency table Represent and interpret grouped discrete data Represent and interpret continuous data grouped into equal classes <u>Graphs and charts</u> Pictograms and bar charts Vertical line charts Draw pie charts Interpret pie charts Line graphs Choose the most appropriate graph or chart

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	Common multiples Rules of divisibility Primes to 100 Square and cube numbers Multiply up to a 4-digit number by a 2-digit number Solve problems with multiplication Short division Division using factors Solve problems with division Solve multi-step problems Order of operations	Multiply fractions by fractions Divide a fraction by an integer Divide any fraction by an integer Mixed questions with fractions Fraction of an amount	Understand percentages Convert simple fractions, decimals and percentages Convert fractions, decimals and percentages Algebra 1-step function machines 2-step function machines Form expressions Substitution Formulae Form equations Solve 1-step equations Solve 2-step equations Find pairs of values Solve problems with 2 unknowns	Area of a trapezium Solve problems with perimeter and area	Divide a fraction by an integer Divide a fraction by a unit fraction Divide fractions Multiply and divide mixed numbers Averages and range Mode Mean Median Range Solve problems with averages and range	Compare distributions using graphs Misleading graphs and charts Sequences Describe and continue sequences Find the next term(s) Linear and non-linear sequences Continue linear sequences Continue non-linear sequences Term-to-term rules Step 2 Step 3 Step 4 Generate and describe a sequence given a rule in words Generate a sequence given a simple algebraic rule nth term of a linear sequence
	<i>Year 8 Learners have 1 IXL timetabled lesson per week</i>					
Year 9	<u>Place value, ordering and rounding</u> Write integers in numerals and words Intervals on a number line	<u>Algebraic notation and substitution</u> 1-step function machines (number) 1-step function machines (algebra)	<u>Fractions, decimals and percentages</u> Represent tenths and hundredths Number lines with fractions and decimals	<u>Standard form</u> Positive and negative powers of 10 Numbers greater than 1 in standard form Numbers between 0 and 1 in standard form	<u>Equations and inequalities</u> Solve 1- and 2-step equations Solve more complex equations	<u>Angles and polygons</u> Draw and measure line segments and angles Understand and use geometric notation Angles around a point

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Compare and order integers Place value for decimals Decimals on a number line Compare and order decimals Round to powers of 10 Round to the nearest integer Round to decimal places <u>Properties of numbers</u> Factors, multiples and primes Write a number as a product of prime factors Highest common factor (HCF) and lowest common multiple (LCM) Venn diagrams Use a Venn diagram to calculate HCF and LCM Integers, real numbers and rational numbers <u>Percentages</u> Percentage increase and decrease Express a change as a percentage Find the original value after a percentage change	Find a function (one step) Substitution (one step) 2-step function machines (number) 2-step function machines (algebra) Find a function (two step) Substitution (two step) <u>Algebraic manipulation</u> Form algebraic expressions Identify and use formulae, expressions, identities and equations Simplify expressions Use directed number with algebra Substitution with directed algebra Substitution with directed number Expand a single bracket Factorise a single bracket Expand single brackets and simplify <u>Equations, inequalities and formulae</u>	Tenths, hundredths, fifths and quarters Eighths and thousandths Understand percentages Convert simple fractions, decimals and percentages Fractions as diagrams Fractions on a number line Equivalent fractions Compare and order fractions Fractions as division Convert fractions, decimals and percentages <u>Multiply and divide fractions</u> Multiply a fraction by an integer Multiply fractions Understand reciprocals Divide an integer by a fraction Divide a fraction by an integer Divide a fraction by a unit fraction Divide fractions	Standard form on a calculator Numbers in standard form Compare and order numbers in standard form Multiply and divide numbers in standard form Add and subtract numbers in standard form <u>Area, volume and density</u> Name 2-D and 3-D shapes Area of a 2-D shape Area of a compound shape Recognise prisms Volume of cubes and cuboids Convert metric units of mass and capacity Understand the units of density, mass and volume Solve problems with density, mass and volume	Solve fractional equations Form and solve equations Solve equations with unknowns on both sides Understand and use inequalities Inequalities on a number line Solve inequalities Form and solve inequalities <u>Indices</u> Add and subtract expressions with indices Multiply and divide expressions with indices Addition law for indices Subtraction law for indices Addition and subtraction laws for indices <u>Algebraic manipulation</u> Expand single brackets and simplify Factorise into a single bracket	Angles on a straight line Vertically opposite angles Recognise and name polygons Angles in a triangle Angles in a quadrilateral Solve problems with angles Parallel and perpendicular lines <u>Angles in parallel lines and polygons</u> Basic angle rules and notation Angles in parallel lines Alternate and corresponding angles Alternate, corresponding and co-interior angles Solve problems with angles in parallel lines Properties of special quadrilaterals and their diagonals Find unknown lengths and angles in special quadrilaterals
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	Solve problems with percentages (non-calculator) Solve problems with percentages (calculator) Repeated percentage change Understand interest Simple interest Compound interest	Solve equations and inequalities Solve equations and inequalities with brackets Solve equations and inequalities with unknowns on both sides Solve problems with equations and inequalities Substitute into formulae and equations Change the subject of a formula (one step) Change the subject of a formula (two steps)	Multiply and divide mixed numbers Fractions Fraction of an amount		Expand double brackets Expand more complex double brackets Use identities Factorise quadratic expressions	Exterior angles of a polygon Interior angles of a polygon Interior angles of a regular polygon
<i>Year 9 learners have 1 IXL timetabled lesson per week</i>						
Year 10	<u>Properties of number</u> Factors, multiples and primes Write a number as a product of prime factors Highest common factor (HCF) and lowest common multiple (LCM) Venn diagrams Use a Venn diagram to calculate HCF and LCM Integers, real numbers and rational numbers	<u>Quadratic expressions and equations</u> Expand double brackets Factorise quadratic expressions (positive only) Factorise quadratic expressions Solve quadratic equations equal to 0	<u>Percentages</u> Percentage of an amount Percentage increase and decrease Express one number as a fraction or percentage of another Express a change as a percentage Find the original value after a percentage change	<u>Straight line graphs</u> Lines parallel to the axes, $y = x$ and $y = -x$ Explore gradients Explore intercepts $y = mx + c$ Find the equation of a line from a graph Interpret gradients and intercepts of real-life graphs Draw straight line graphs	<u>Angles</u> Angles around a point, on a straight line and vertically opposite Angles in a triangle Angles in a quadrilateral Exterior angles of a polygon Interior angles of a polygon	<u>Factors, powers and surds</u> Factors, multiples and primes Prime factorisation HCF and LCM Square and cube numbers Powers and roots Rational and irrational numbers, including surds <u>Pythagoras theorem</u>

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	Algebraic manipulation Substitution Collect like terms Simplify expressions Addition and subtraction laws for indices Powers of powers Expand a single bracket Factorise into a single bracket Equations, inequalities and formulae Solve equations Solve fractional equations Solve equations with unknowns on both sides Understand inequalities Solve inequalities Change the subject of a simple formula Change the subject of a known formula	Solve quadratic equations by factorisation Quadratic graphs of the form $y = x^2 + a$ Ratio Understand ratio Ratio problems (whole given) Ratio problems (part given) Ratio problems (difference given) Simplify ratios Compare ratios and fractions Solve problems with ratio Ratio and scale Equivalent ratios Share in a ratio (whole given) Share in a ratio (part or difference given) Link ratios and fractions Ratios and scales	Simple interest Choose appropriate methods to solve percentage problems Non-calculator methods Place value for integers and decimals Compare and order numbers Add and subtract integers and decimals Multiply and divide integers and decimals Four operations with directed number Order of operations Related calculations Solve multi-step problems	Find solutions to equations using straight lines graphs Explore gradients $y = mx + c$ Find the midpoint of a line segment Equation of a straight-line graph given one point and a gradient Probability Probability of a single event Use the property that probabilities sum to 1 List outcomes Relative frequency Sample spaces for 1 or more events Two-way tables Frequency trees Independent events Tree diagrams for independent events Interpret and represent data Averages and range Averages from an ungrouped frequency table Mean from a grouped frequency table Averages from a grouped frequency table	Alternate and corresponding angles Co-interior, alternate and corresponding angles Circles Circle vocabulary Pi as a ratio Circumference of a circle Perimeter of parts of a circle Area of a circle Area of parts of a circle Area and circumference of a circle Perimeter of a compound shape with circles Perimeter and area of compound shapes with circles Vectors Understand and represent vectors Vector notation Vectors multiplied by a scalar Add vectors Add and subtract vectors	Solve equations with squares and square roots Identify the hypotenuse Determine whether a triangle is right-angled Pythagoras' theorem (find the hypotenuse) Pythagoras' theorem (find any side) Use Pythagoras' theorem on coordinate axes Pythagoras theorem and trigonometry Identify the hypotenuse, opposite and adjacent sides Ratios in right-angled triangles Use the tangent ratio to find an unknown side length Use the sine and cosine ratio to find an unknown side length Use trigonometric ratios to find an unknown side length Use trigonometric ratios to find an unknown angle
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				Types of data Sampling Scatter graphs		<u>Perimeter, area and volume</u> Name 2-D and 3-D shapes Perimeter of a 2-D shape Area of a 2-D shape Area of a compound shape Recognise and label parts of a circle Circumference of a circle Area of a circle Volume of a prism Nets Surface area of a prism
<i>Year 10 learners have 1 IXL timetabled lesson per week</i>						
Year 11	<u>Ratio and proportion</u> Solve problems with ratio Direct proportion Best buy problems Conversion graphs Exchange rates Inverse proportion <u>Area and volume</u> Isometric drawings Plans and elevations Volume of a cylinder Volume of a sphere	<u>Standard form</u> Numbers greater than 1 in standard form Numbers between 0 and 1 in standard form Adjust a number to standard form <u>Work with circles</u> Area and circumference of a circle Fractional parts of a circle (area)	<u>Functions and graphs</u> Function machines Write an expression or formula from a function machine Quadratic graphs Cubic graphs Reciprocal graphs Recognise and sketch graphs <u>Equations and formulae</u> Solve equations	<u>Angles, bearings and trigonometry</u> Angles in lines and shapes Solve problems with angles in parallel lines Compass points and related angles Understand and represent bearings Measure and read bearings Scale drawings using bearings	Revision	

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	Volume of cones and pyramids Surface area of a sphere Similarity and congruence Identify similar shapes Find unknown lengths and angles in similar shapes Identify similar triangles Solve problems with similar shapes Similarity and congruence Congruent triangles Sequences and proof Describe and continue arithmetic and geometric sequences Explore other sequences Generate a sequence given an algebraic rule nth term of a linear sequence	Fractional parts of a circle (perimeter) Area and perimeter of compound shapes with circles Solve problems with circles Set notation and Venn diagrams Venn diagrams Set notation Probabilities from Venn diagrams	Form and solve equations Solve inequalities Solve simultaneous equations Solve problems with simultaneous equations Rates Convert between hours and minutes Speed, distance and time Interpret distance-time graphs Draw distance-time graphs Density and pressure	Choose appropriate methods to solve problems with right-angled triangles Constructions and loci Use geometrical equipment Accurately draw triangles Construct an angle bisector Construct a perpendicular bisector Construct a perpendicular from or to a point Locus of distance from a point or a straight line Locus equidistant from two points Locus equidistant from two lines Solve loci problems Transformations Enlargement (positive scale factor) Enlargement (fractional scale factor) Line symmetry and rotational symmetry Reflection Rotation Translation		
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				Describe a transformation		
	Year 11 learners have 1 IXL timetabled lesson per week					