ICKNIELD HIGH SCHOOL **KEY STAGE 3 CURRICULUM MAP**

'Raising the Achievement of All'

WELL-SEQUENCED CONTEXUALISED/INCLUSIVE AMBITIOUS

SUBJECT: MATHS **Year: 7**

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	U1: Place Value **U2: Properties of Arithmetic** **U3: Factors and Multiples** **U4: Order of Operations**	**U5: Positive and Negative Numbers** **U6: Expressions and Inequalities**	**U7: Angles** **U8: Classifying 2D Shapes** **U10: Coordinates**	**U11: Area of 2D Shapes** **U12: Transforming 2D Shapes** **U13: Prime Factor Decomposition**	**U14: Conceptualising and Comparing Fractions** **U15: Manipulating and Calculating with Fractions**	**U16: Ratio** **U17: Percentages**
Key Questions	**U1: What is place value and what do we mean by "base ten"?** **U2: What does it mean to exchange?** **U3: When is a number prime?** **U4: What is the order of operations?**	**U5: When do we use negative numbers and how can we add and subtract them?** **U6: Why do we use algebra? How do we use algebra to write expressions? How can we simplify an expression?**	**U7: What do the angle facts tell us about lines and shapes?** **U8: What is a polygon?** **U9: What equipment do you need to construct triangles and quadrilaterals?**	**U10: How does algebra relate to drawing graphs?** **U11: What is the difference between area and perimeter?** **U12: Does transforming a 2D shape ever change the size of the shape?**	**U13: Can every number be written as a product of its prime factors?** **U14: How do you know if a fraction is bigger?** **U15: If you divide by a fraction is the answer always smaller?**	**U16: How is ratio linked to fractions and percentages?** **U17: What examples of percentages are there in our everyday world?**
Content: 'Know what'	-Recognise the value of digits in the place value columns for integers and decimals -Understand that commutativity only applies to addition and multiplication **-** Understand the	-Recognise negative numbers -Difference is distance between numbers on a number line Letters represent numbers in algebra - Substitution is replacing letters with	-Names of angles and their size -Acute angle, right angle, obtuse angle, reflex angle -Angles on a straight line equal 180° - Angles around a point add up to 180°	-Coordinate axes are a pair of equally spaced number lines -Identify the four quadrants -The x axis is horizontal and the y axis is vertical -gradient is the steepness of the line	-Know the terms factor, multiple, prime, square, square root -A prime number is a number with no factors other than itself and one -List the prime numbers between 1 and 20	**-**Ratio notation : **-**Definition of ratio -The definition of the constant of proportionality and scale factor -Know percentages are useful for comparisons

	definition of associativity and distributivity -List the first 10 prime numbers -State the order of priority in operations	numbers -Algebra can be manipulated	- Vertically opposite angles are equal -Angles in a triangle add up to 180° -Angles in a quadrilateral add up to 360° -Name the polygons and their number of sides -Know the triangles, scalene, isosceles and right angled -Recognise and name the quadrilaterals -Names the parts of a circle -The difference between a triangle and non-triangle -The congruent triangles rules SSS, SAS, ASA	-parallel lines are in the same direction -perpendicular lines are at right angles -Perimeter is the distance around the outside of the shape -Area is the space inside the shape -Know the four transformations: translation, reflection, rotation and enlargement -Enlargement is the only transformation that changes the size of the shape	-Know the definition of a composite number -Fractions are used to represent parts -The numerator is the top part and the denominator is the bottom part -Key fraction and decimal facts including 0.2 = 2/10 = 1/5 and ¼ = 0.25 -The relationship between the place value table, decimals and fractions	-Decimal multipliers
Expertise: 'Know how'	-Exchange between columns -Use column method for the addition and subtraction of integers and decimals -Multiply and divide by 10, 100 and 1000 - Find factor pairs –Square and square root a number	-Compare and order positive and negative numbers -Add and subtract negative numbers -Multiply and divide negative numbers -Simplify an expression by collecting like terms -Expand brackets -Factorise expressions	-Estimate an angle -Measure and draw angles using a protractor -Calculate angles on a straight line and around a point in a triangle and in a quadrilateral - Calculate angles in parallel lines -Identify lines of symmetry and	-Accurately draw axes -Plot and label coordinates in all four quadrants -Draw horizontal and vertical graphs -Draw the graphs $y=x$ and $y=-x$ -use a table of values to plot a graph -Identify parallel and perpendicular	-Square and square root a number -Write a number as a product of its primes -Find common factors -Find the HCF of two numbers -Find the LCM of two numbers -Identify fractions from a diagram	-Simplify ratio -Find equivalent ratios -Compare ratios -Share an amount into a given ratio -Describe one part of a ratio as a fraction -Solve ratio worded problems -Convert between

	-Do calculations using the order of operations		rotational symmetry -Identify properties of quadrilaterals -Construct a triangle and a quadrilateral	lines on axes -Find the perimeter of 2D shapes -Find the area of 2D shapes -Calculate the perimeter and area of compound shapes -Translate a 2D shape -Rotate a 2D shape -Reflect a 2D shape -Enlarge a 2D shape	-Work out which fraction is bigger -Recognise and find equivalent fractions -Simplify fractions -Convert between improper fractions and mixed numbers -Order decimals -Find a fraction of an amount -Multiply fractions -Write the reciprocal of a given fraction -Add and subtract fractions	fractions, decimals and percentages -Find a percentage of an amount -Increase and decrease by a percentage -Write one number as a percentage of another – Manipulate percentage calculations
SMSC	-Recognise importance of decimals in the context of money and medicine	-The importance of negative numbers in temperature and debt -Opportunities to explore where we use algebra in a real-life context e.g. pricing	**-**The use of angles in graphics and construction careers	**-** students question “why” and avoid assumption when analysing angle problems -Angles in the context of the architecture around us	**-**The logical organisation of information and having resilience to solve problems independently	**-**Recognise where we use percentages in real life context -Use percentages to make comparisons recognising their use is retail and nutrition
Disciplinary Literacy	-Guided reading of questions -Students explain reasoning -What is the same and what is different activities	-Guided reading of questions -Students explain reasoning -What is the same and what is different activities	-Guided reading of questions -Students explain reasoning -What is the same and what is different activities	Guided reading of questions -Students explain reasoning -What is the same and what is different activities	Guided reading of questions -Students explain reasoning -What is the same and what is different activities	Guided reading of questions -Students explain reasoning -What is the same and what is different activities

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	-Talk tasks to develop oracy -Identify and explain key concepts and keywords **Keywords:** **U1:** integer, decimal, base ten, even, odd, inequality, **U2:** addition, subtraction, multiplication, division, operation, commutative, associative, distributive, **U3:** factor, multiple, common multiple, divisor, divisible, prime, square, square root, **U4:** priority, brackets, indices	-Talk tasks to develop oracy -Identify and explain key concepts and keywords **Keywords:** **U4:** direction, magnitude, greater than, less than, positive, negative, absolute value, number line, translating, adding, subtracting, commutative, zero pair, priority, scale factor, axiom, **U5:** expression, substitute, simplify, expand, distributive, equation, bar model, balance, inequality	-Talk tasks to develop oracy -Identify and explain key concepts and keywords **Keywords:** **U7:** acute, obtuse, right angle, degrees, measure, estimate, parallel lines, corresponding, congruent, transversal, interior angles, intersect **U8**: isosceles, scalene, right angled, trapezium, square, rectangle, rhombus, parallelogram, kite **U9:** circle, circumference, diameter, radius, construct, compass,	-Talk tasks to develop oracy -Identify and explain key concepts and keywords **Keywords:** **U10:** horizontal, vertical, position, origin, coordinate, axes, **U11**: area, length, units, cm, cm^2, perimeter, compound **U12:** translate, reflect, rotate, enlarge	-Talk tasks to develop oracy -Identify and explain key concepts and keywords **Keywords:** **U13:** prime, square, square root, integer, factor, multiple, composite **U14:** numerator, denominator, equivalent, improper, simplify **U15:** multiply, divide, reciprocal	-Talk tasks to develop oracy -Identify and explain key concepts and keywords **Keywords:** **U16:** constant of proportionality, ratio, equivalent, simplify **U17:** fraction, decimal, percentage, simplest, convert
Careers Links	**Develops numerical fluency used by** accountants, financial advisers, engineers, pharmacists, retail managers, and computer programmers**. Accurate calculation forms the basis of budgeting, coding, engineering design and scientific work.**	**Supports careers involving modelling and problem-solving, including** economists, meteorologists, electricians, software developers, data analysts, and scientists**. Algebra and directed numbers are used to represent and solve real-world problems.**	**Links to** architects, surveyors, civil engineers, pilots, graphic designers, game developers, and GIS mapping specialists**. Geometry and coordinates are fundamental in design, navigation, construction and digital technologies.**	**Relevant to** construction workers, architects, interior designers, manufacturing engineers, product designers, and cryptographers**. Measurement and transformations are essential in design and construction, while prime numbers underpin aspects of digital security and computing.**	**Develops proportional reasoning used by** chefs, nurses, pharmacists, laboratory technicians, builders, and financial professionals**. Fractions are applied when measuring, scaling, calculating dosages and managing finances.**	**Supports careers in** business, finance, marketing, engineering, science, healthcare, and retail management**. Ratios and percentages are used to analyse data, calculate profit and loss, interpret statistics, prepare mixtures and understand financial products.**