

KS3 YEAR 8 AUTUMN CURRICULUM MAPPING

Autumn Term 1.1	Autumn Term 1.2	Autumn Term 2.1	Autumn 2.2
PROPORTIONAL REASONING <u>RATIO & SCALES (2 weeks)</u> -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 (H) -Compare ratios and fractions -Understand pi as a ratio -Understand gradient as a ratio (H) <u>MULTIPLICATIVE CHANGE</u> -Solve problems involving direct proportion	PROPORTIONAL REASONING <u>MULTIPLICATIVE CHANGE (2 weeks)</u> -Explore conversion graphs -Convert between currencies -Explore direct proportion graphs (H) -Explore relationships between similar shapes -Understand scale factors as multiplicative representations -Draw and interpret scale diagrams -Interpret maps using scale factors and ratios <u>MULTIPLYING AND DIVIDING FRACTIONS (2 weeks)</u> -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 -Divide any pair of fractions -Multiply and divide improper and mixed fractions (H) -Multiply and divide algebraic fractions (H)	REPRESENTATION <u>WORKING WITH THE CARTESIAN PLANE (2 weeks)</u> -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 (H) -Find the midpoint of a line segment (H)	REPRESENTATION <u>REPRESENTING DATA (2 weeks)</u> -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 <u>TABLES AND PROBABILITIES (1 week)</u> -Construct sample spaces for one or more events -Find probabilities from a sample space -Find probabilities from two-way tables -Find probabilities from Venn diagrams

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Extend your understanding using investigative methods: -Write/interpret a ratio to describe a situation such as 1 blue for every 2 red, 3 adults for every 10 children ... -Recognise that two paints mixed red to yellow 5: 4 and 20: 16 are the same colour. -When a quantity is split in the ratio 3:5, what fraction does each person get? -Find amounts for three people when amount for one given. -Solve problems involving sharing in a ratio that include percentages rather than specific numbers:	Extend your understanding using investigative methods: Express a given number as a fraction of another, including where the fraction is, for example, greater. than 1, e.g., $120/100 = 1 \frac{1}{5}$. -Answer the following: James delivers 56 newspapers. $\frac{3}{8}$ of the newspapers have a magazine. How	Extend your understanding using investigative methods: Can you draw the graph of $y=x$ after it has been rotated 90 degrees clockwise about (1,1)? -Can you find the area between this graph and the x-axis, between $x=3$ and $x=7$? -What statements can you make about the car that passes the school gates at 11am on Monday? How will you come up with statements and test your ideas?	Extend your understanding using investigative methods: Justify an estimate they have made using a line of best fit. -Identify outliers and explain why they may occur. -Given two sets of data in a table, model the relationship and make predictions. -Explore real-life situations that give rise to two variables to extrapolate and interpret the resulting relationship (if any) between the variables. -
<u>Revision Opportunities</u> • Create a Revision Card for each unit. Highlight any formulae you need to remember and key words, if possible, stick one question that helps you remember the topic and work it out explaining what steps you took to help you to remember how to solve the problem. • You can revise using video clips in Sparx Maths and Corbettmaths. • Complete the Revision homework booklets that compile KS3 assessment questions			

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Spring Term 1.1	Spring Term 1.2	Spring Term 2.1	Spring Term 2.2
<u>ALGEBRAIC TECHNIQUES</u> <u>BRACKETS, EQUATIONS & INEQUALITIES (4 weeks)</u> -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 (H) -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 (H) -Form and solve equations and inequalities with unknowns on both sides (H) -Identify and use formulae, expressions, identities and equations	<u>ALGEBRAIC TECHNIQUES</u> <u>SEQUENCES (1week)</u> -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) <u>INDICES (1 week)</u> -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 -Exploring powers of powers (H)	<u>DEVELOPING NUMBER</u> <u>FRACTIONS & PERCENTAGES (3 weeks)</u> -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% (H) -Choose appropriate methods to solve complex percentage problems (H)	<u>DEVELOPING NUMBER</u> <u>STANDARD INDEX FORM (2 weeks)</u> -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 -Multiply and divide numbers in standard form -Use a calculator to work with numbers in standard form -Understand and use negative indices (H) -Understand and use fractional indices (H) <u>NUMBER SENSE (1week)</u> -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 -Convert metric measures of lengths -Convert metric units of weight and capacity -Convert metric units of area (H) -Convert metric units of volume (H) -Solve problems involving time and the calendar

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Extend your understanding using investigative methods: -Think of a number and follow my instructions. Tell me your answer, and I'll tell you what you started with! Can you explain how I know? -Jane made a mistake when writing down a multiplication, and she multiplied by 54 instead of 45. Her answer was 198 more than it should have been. What number did she multiply 54 by?	Extend your understanding using investigative methods: -Know how to test if a number up to 120 is prime. -Understand that every number can be written as a unique product of its prime factors. -Recall prime numbers up to 100. -Understand the meaning of prime factor. -Write a number as a product of its prime factors. -Use a Venn diagram to sort information. -Evaluate statements and justify which answer is correct by providing a counterargument by way of a correct solution. -Use standard form is used in science	Extend your understanding using investigative methods: -Express a given number as a fraction of another, including where the fraction is, for example, greater than 1, e.g., $120/100 = 1 \frac{1}{5}$. -Answer the following: James delivers 56 newspapers. $\frac{3}{8}$ of the newspapers have a magazine. How many of the newspapers have a magazine? -Work out the price of a deposit, given the price of a sofa is £480 and the deposit is 15% of the price, without a calculator. -Find fractional percentages of amounts, with and without using a calculator. -Convince me that 0.125 is $\frac{1}{8}$. -Work out percentages in real-life contexts	Extend your understanding using investigative methods: -Calculate original values and evaluate statements in relation to this value justifying which statement is. --Work out the price of a deposit, given the price of a sofa is £480 and the deposit is 15% of the price, without a calculator. -Find fractional percentages of amounts, with and without using a calculator. -Convince me that 0.125 is $\frac{1}{8}$. -Work out percentages in real-life contexts,
Revision Opportunities • Create a Revision Card for each unit. Highlight any formulae you need to remember and key words, if possible, stick one question that helps you remember the topic and work it out explaining what steps you took to help you to remember how to solve the problem. • You can revise using video clips in Mathswatch and Corbettmaths. • Complete the Revision homework booklets that compile KS3 assessment questions			

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Summer Term 1.1	Summer Term 1.2	Summer Term 2.1	Summer Term 2.2
<u>NUMBER SENSE (1 week)</u> -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 (H) -Convert metric units of volume (H) - Solve problems involving time and the calendar <u>ANGLES IN PARALLEL LINES & POLYGONS (2 weeks)</u> 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	<u>ANGLES IN PARALLEL LINES & POLYGONS (2 weeks)</u> -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 -Understand and use the sum of the interior angles in any polygon - Calculate missing interior angles in regular polygons -Prove simple geometric facts (H) -Construct an angle bisector (H) -Construct a perpendicular bisector of a line segment (H)	<u>AREA OF TRAPEZIA & CIRCLES (2 weeks)</u> - 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 - Calculate the perimeter and area of compound shapes (2) <u>LINE SYMMETRY & REFLECTION (1 week)</u> -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)	<u>THE DATA HANDLING CYCLE (3 week)</u> 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 a given set of data -Represent and interpret grouped quantitative data -Find and interpret the range -Compare distributions using charts -Identify misleading graphs

Be a super CHSFG scholar:	Be a super CHSFG scholar:	Be a super CHSFG scholar:	Be a super CHSFG scholar:
Extend your understanding using investigative methods: -Name all quadrilaterals that have a specific property. · -Given the size of its exterior angle, how many sides does the polygon have? · -What is the same, and what is different between families of polygons?	Extend your understanding using investigative methods: -Name all quadrilaterals that have a specific property. · -Given the size of its exterior angle, how many sides does the polygon have? · -What is the same, and what is different between families of polygons?	Extend your understanding of sequences by researching: -Calculate the area and/or perimeter of shapes with different units of measurements -Multi-steps problems, including the requirement to form and solve equations.	Extend your understanding using investigative methods: -Make comparisons between two data sets. -Choose which type of graph or chart to use for a specific data set and justify its use. -Evaluate statements in relation to data displayed in a graph/chart.
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