

KS3 YEAR 7 AUTUMN CURRICULUM MAPPING

Autumn Term 1.1	Autumn Term 1.2	Autumn Term 2.1	Autumn 2.2
ALGEBRAIC THINKING <u>SEQUENCES (2 weeks)</u> -Describe and continue a sequence given diagrammatically - Predict and check next term(s) of a sequence - Represent sequences in tabular and graphical forms - Recognise the difference between linear and non-linear sequences. - Continue numerical linear sequences. -Explain the term-to term rule of numerical sequences in words. - Finding missing numbers within sequences. (H) <u>UNDERSTAND AND USE ALGEBRAIC NOTATION (1 week)</u> -Given a numerical input, find the output of a single function machine. -Use inverse operation to find the input given the output. -Use diagrams and letters to generalise number operations. -Use diagrams and letters with single function machines.	ALGEBRAIC THINKING <u>UNDERSTAND AND USE ALGEBRAIC NOTATION (2 week)</u> -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. -Generating a sequence given an algebraic rule. <u>EQUALITY AND EQUIVALENCE (2 weeks)</u> Understand the meaning of equality. -Understand and use fact families, numerically and algebraically. -Solve one-step linear equation involving $\pm$ using inverse operations. -Solve one-step linear equations involving $\times \div$ 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 $\equiv$ symbol.	PLACE VALUE AND ORDERING INEGERS AND DECIMALS (3 weeks) 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 $=, \neq, <, >, \leq, \geq$ -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 (H) -Write positive integers in the form $A \times 10$ (H)	PLACE VALUE AND PROPORTION <u>FRACTION, DECIMAL & PERCENTAGE EQUIVALENCE (3 weeks)</u> -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. -Convert between fractions and decimals - fifths and quarters. -Convert between fractions and decimals - eighths and thousandths (H). -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 (H).

Be a super CHSFG scholar:	Be a super CHSFG scholar:	Be a super CHSFG scholar:	Be a super CHSFG scholar:
Extend your understanding of sequences by researching: -The Nth term of a given linear sequence -Fibonacci Sequence -Curve Stitching -Investigate how you can work out what day of the week your birthday will be on next year, and the year after...	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? -Is there a temperature at which Celsius and Fahrenheit readings are the same?	Extend your understanding of different number systems by researching: – Egyptian numbers – Roman Numerals – Greek Letters in Maths – “The Story of the Number One”.	Extend your understanding using investigative methods: - two shops are offering different discounts. Shop A 1/3 of all prices, Shop B 1/5 off all the prices. Which shop offers the better discount. -A piece of A5 paper is a fraction of a piece of A4 paper. What fraction is it? -How many ways can you describe the shaded part of a given shape? -How would a doctor work out how much of a dose would be required for different weight patients.
<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			

KS3 YEAR 7 CURRICULUM MAPPING

Spring Term 1.1	Spring Term 1.2	Spring Term 2.1	Spring Term 2.2
<u>APPLICATIONS OF NUMBER</u> <u>Solving problems with addition & subtraction (2 weeks)</u> -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 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 (H)	<u>APPLICATIONS OF NUMBER</u> <u>Solving problems with multiplication & division (3 weeks)</u> -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 (H) -Convert metric units -Use formal methods to multiply integers -Use formal methods to multiply decimals -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 (H) -Solve problems using the mean -Explore multiplication and division in algebraic expressions (H)	<u>FRACTIONS & PERCENTAGES OF AMOUNTS</u> <u>(1 week)</u> -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 percentage of a given amount using a calculator -Solve problems with fractions greater than 1 and percentages greater than 100% (H) <u>OPERATIONS & EQUATIONS WITH DIRECTED NUMBER</u> <u>(3 weeks)</u> -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 (H) -Explore higher powers and roots (H)	<u>ADDITION & SUBTRACTION OF FRACTIONS</u> <u>(3 weeks)</u> - Understand representations of fractions - Convert between mixed numbers and fractions -Add and subtract unit fractions with the same denominator -Add and subtract fractions from integers expressing the answer as a single fraction -Understand and use equivalent fractions -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 (H)

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Extend your understanding using investigative methods: -Ben has five coins in his pocket. How much money might he have? -Egyptian numbers -Roman Numerals -Greek Letters in Maths - “The Story of the Number One”	Extend your understanding using investigative methods: -a rope is 20m long. A fisherman is cutting two pieces measuring 3.91m and 8.7m. What is the total length he cuts off? How much rope is left? - two decimals multiplied together always give a decimal. Is this true? - Why do shops use prices as £ 999.99?	Extend your understanding using investigative methods: -a negative sign represents a change in direction on a number line -using number lines can help with negative number calculations, especially addition and subtraction. -understanding that multiplication and division with negatives is an extension of addition and subtraction.	Extend your understanding using investigative methods: -Two shops are offering different discounts. Shop A 1/3 off all prices, Shop B 1/5 off all the prices. Which shop offers the better discount? -A piece of A5 paper is a fraction of a piece of A4 paper. What fraction is it? -How many ways can you describe the shaded part of a given shape? -How would a doctor work out how much of a dose would be required for different weight patients. -
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Summer Term 1.1	Summer Term 1.2	Summer Term 2.1	Summer Term 2.2
<u>CONSTRUCTING, MEASURING & USING GEOMETRIC NOTATION (3 weeks)</u> -Understand and use letter and labelling conventions including those for geometric figures -Draw and measure line segments including geometric 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 triangles -Recognise types of quadrilaterals -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	<u>DEVELOPING GEOMETRIC REASONING (2 weeks)</u> -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 -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 (H) -Investigate angles in parallel lines (H) -Understand and use parallel line angles rules (H) -Use known facts to obtain simple proofs (H)	<u>DEVELOPING NUMBER SENSE (2 weeks)</u> -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 <u>SETS (1 week)</u> -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 (H)	<u>PROBABILITY (1 week)</u> -Know and use the vocabulary of probability -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 <u>PRIME NUMBERS & PROOF (2 weeks)</u> -Find and use multiples -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 (H) -Make and test conjectures (mathematical statements) -Use counter examples to disprove a conjecture

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Extend your understanding using investigative methods: -A napkin is folded so that a corner coincides with the midpoint of an opposite edge. Investigate the three triangles formed. -Explore when it is possible to construct a circle which just touches all four sides of a quadrilateral.	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: -Draw a Venn diagram of students studying French, German or both, and then calculate the probability that a student studies French given that they also study German.	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.
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