

Year 7

Autumn Term

Unit 1 Algebra 1

6 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Generate and describe simple integer sequences.	Sequences and functions				
Lesson 2	Generate terms of a simple sequence, given a rule (e.g. finding a term from the previous term, finding a term given its position in the sequence).	Sequences and functions				
Lesson 3	Generate sequences from practical contexts and describe the general term in simple cases.	Sequences and functions				
Lesson 4	Express simple functions in words, then using symbols; represent them in mappings.	Sequences and functions				
Lesson 5	Use letter symbols to represent unknown numbers or variables.	Formulae and identities				
Lesson 6	Suggest extensions to problems by asking 'What if...?'; begin to generalise and to understand the significance of a counter-example.	Solving problems				

Starters	ICT	Keywords
<ul style="list-style-type: none"> • Read and write whole numbers in figures and words. • Multiply and divide whole numbers by 10, 100, 1000. • Count on and back in steps of 0.1, 0.2, 0.25, $\frac{1}{2}$, $\frac{1}{4}$... • Round whole numbers to the nearest 10 or 100. 		

What all should know	What most should know	What some should know
<ul style="list-style-type: none"> • Recognise and extend number sequences formed by counting from any number in steps of constant size, extending beyond zero when counting back. • Know squares to at least 10×10. 	<ul style="list-style-type: none"> • Generate and describe simple integer sequences. 	
	<ul style="list-style-type: none"> • Generate terms of a simple sequence, given a rule (e.g. finding a term from the previous term, finding a term given its position in the sequence). 	<ul style="list-style-type: none"> • Generate terms of a linear sequence using term-to-term and position-to-term definitions of the sequence, on paper and using a spreadsheet or graphical calculator.
	<ul style="list-style-type: none"> • Generate sequences from practical contexts and describe the general term in simple cases. 	<ul style="list-style-type: none"> • Begin to use linear expressions to describe the nth term of an arithmetic sequence.
	<ul style="list-style-type: none"> • Express simple functions in words, then using symbols; represent them in mappings. 	<ul style="list-style-type: none"> • Represent mappings expressed algebraically.
	<ul style="list-style-type: none"> • Use letter symbols to represent unknown numbers or variables. 	
	<ul style="list-style-type: none"> • Suggest extensions to problems by asking 'What if...?'; begin to generalise and to understand the significance of a counter-example. 	

Year 7

Autumn Term

Unit 2 Number 1

6 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Understand and use decimal notation and place value; multiply and divide integers and decimals by 10, 100, 1000, and explain the effect. Compare and order decimals in different contexts; know that when comparing measurements they must be in the same units.	Place value				
Lesson 2	Understand negative numbers as positions on a number line; order, add and subtract positive and negative integers in context.	Integers				
Lesson 3	Consolidate the rapid recall of number facts, including positive integer complements to 100 and multiplication facts to 10×10 , and quickly derive associated division facts.	Calculations				
Lesson 4	Make and justify estimates and approximations of calculations.	Calculations				
Lesson 5	Use standard column procedures to add and subtract whole numbers and decimals with up to two places. Enter numbers and interpret the display in different contexts (decimals, money).	Calculations Calculator methods				
Lesson 6	Solve word problems and investigate in a range of contexts: number; compare and evaluate solutions.	Solving problems				

Starters	ICT	Keywords
<ul style="list-style-type: none"> Order, add and subtract positive and negative numbers in context. Recognise multiples and use simple tests of divisibility. Know pairs of factors of numbers to 100. Know or derive quickly prime numbers less than 30. 		

What all should know	What most should know	What some should know
<ul style="list-style-type: none"> Read and write whole numbers in figures and words. Use decimal notation for tenths and hundredths; know what each digit represents in numbers with up to two decimal places. 	<ul style="list-style-type: none"> Understand and use decimal notation and place value; multiply and divide integers and decimals by 10, 100, 1000, and explain the effect. 	
	<ul style="list-style-type: none"> Compare and order decimals in different contexts; know that when comparing measurements they must be in the same units. 	
<ul style="list-style-type: none"> Calculate a temperature rise and fall across 0 °C. 	<ul style="list-style-type: none"> Understand negative numbers as positions on a number line; order, add and subtract positive and negative integers in context. 	<ul style="list-style-type: none"> Add, subtract, multiply and divide integers.
<ul style="list-style-type: none"> Know squares to at least 10×10. 	<ul style="list-style-type: none"> Consolidate the rapid recall of number facts, including positive integer complements to 100 and multiplication facts to 10×10, and quickly derive associated division facts. 	<ul style="list-style-type: none"> Recall known facts, including fraction to decimal conversions; use known facts to derive unknown facts, including products such as 0.7 and 6, and 0.03 and 8.
<ul style="list-style-type: none"> Use informal pencil and paper methods to support, record or explain additions and subtractions. 	<ul style="list-style-type: none"> Make and justify estimates and approximations of calculations. Use standard column procedures to add and subtract whole numbers and decimals with up to two places. 	
<ul style="list-style-type: none"> Develop calculator skills and use a calculator effectively. 	<ul style="list-style-type: none"> Enter numbers and interpret the display in different contexts (decimals, money). 	
	<ul style="list-style-type: none"> Solve word problems and investigate in a range of contexts: number; compare and evaluate solutions. 	

Year 7

Autumn Term

Unit 3 SSM1

4 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Use 2-D representations to visualise 3-D shapes and deduce some of their properties. Use names and abbreviations of units of measurement to measure, estimate, calculate and solve problems in everyday contexts involving length, area.	Mensuration				
Lesson 2	Know and use the formula for the area of a rectangle; calculate the perimeter and area of shapes made from rectangles.	Mensuration				
Lesson 3	Calculate the surface area of cubes and cuboids.	Mensuration				
Lesson 4	Solve word problems and investigate in a range of contexts: length, perimeter and area.	Solving problems				

Starters	ICT	Keywords
<ul style="list-style-type: none"> • Know or derive quickly squares to at least 12×12 and the corresponding roots. • Convert between fractions, decimals and percentages. • Find simple fractions of quantities. <ul style="list-style-type: none"> • Know addition and subtraction facts to 20 and whole number complements of 100. 		

What all should know	What most should know	What some should know
<ul style="list-style-type: none"> • Identify different nets for an open cube. 	<ul style="list-style-type: none"> • Use 2-D representations to visualise 3-D shapes and deduce some of their properties. 	
<ul style="list-style-type: none"> • Measure and draw lines to the nearest millimetre. • Record estimates and readings from scales to a suitable degree of accuracy. 	<ul style="list-style-type: none"> • Use names and abbreviations of units of measurement to measure, estimate, calculate and solve problems in everyday contexts involving length, area. 	
<ul style="list-style-type: none"> • Understand that area is measured in square centimetres (cm^2). • Understand, measure and calculate perimeters of rectangles and regular polygons. 	<ul style="list-style-type: none"> • Know and use the formula for the area of a rectangle; calculate the perimeter and area of shapes made from rectangles. 	<ul style="list-style-type: none"> • Make simple scale drawings. • Deduce and use formulae for the area of a triangle, parallelogram and trapezium.
	<ul style="list-style-type: none"> • Calculate the surface area of cubes and cuboids. • Solve word problems and investigate in a range of contexts: length, perimeter and area. 	<ul style="list-style-type: none"> • Know and use the formula for the volume of a cuboid.

Year 7

Autumn Term

Unit 4 Number 2

6 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Use fraction notation to describe parts of shapes and to express a smaller whole number as a fraction of a larger one; simplify fractions by cancelling all common factors and identify equivalent fractions ; convert terminating decimals to fractions e.g. $0.23 = \frac{23}{100}$; use a diagram to compare two or more simple fractions.	Fractions, decimals, percentages				
Lesson 2	Begin to add and subtract simple fractions and those with common denominators; calculate simple fractions of quantities and measurements (whole-number answers); multiply a fraction by an integer.	Fractions, decimals, percentages				
Lesson 3	Understand percentage as the 'number of parts per 100' ; recognise the equivalence of percentages, fractions and decimals; calculate simple percentages . Consolidate and extend mental methods of calculation to include decimals, fractions and percentages , accompanied where appropriate by suitable jottings; solve simple word problems mentally.	Fractions, decimals, percentages Calculations				
Lesson 4	Check a result by considering whether it is of the right order of magnitude and by working the problem backwards.	Calculations				
Lesson 5	Break a complex calculation into simpler steps, choosing and using appropriate and efficient operations, methods and resources, including ICT.	Solving problems				
Lesson 6	Present and interpret solutions in the context of the original problem; explain and justify methods and conclusions , orally and in writing.	Solving problems				

Starters	ICT	Keywords
<ul style="list-style-type: none"> Find two decimals (one decimal place) with a sum of 1. Add and subtract several small numbers or several multiples of 10, e.g. $50 - 40 + 80 - 100$. Add and subtract pairs of numbers, e.g. 76 ± 38, 760 ± 380. Find doubles and halves of numbers, e.g. 670, 5.6. 		

What all should know	What most should know	What some should know
<ul style="list-style-type: none"> Change an improper fraction to a mixed number; recognise when two simple fractions are equivalent, including relating hundredths to tenths. Use decimal notation for tenths and hundredths. 	<ul style="list-style-type: none"> Use fraction notation to describe parts of shapes and to express a smaller whole number as a fraction of a larger one; simplify fractions by cancelling all common factors and identify equivalent fractions; convert terminating decimals to fractions e.g. $0.23 = \frac{23}{100}$; use a diagram to compare two or more simple fractions. 	<ul style="list-style-type: none"> Know that a recurring decimal is a fraction; use division to convert a fraction to a decimal; order fractions by converting them to decimals.
	<ul style="list-style-type: none"> Begin to add and subtract simple fractions and those with common denominators; calculate simple fractions of quantities and measurements (whole-number answers); multiply a fraction by an integer. 	<ul style="list-style-type: none"> Calculate fractions of quantities and measurements (fraction answers); multiply and divide an integer by a fraction.
	<ul style="list-style-type: none"> Understand percentage as the 'number of parts per 100'; recognise the equivalence of percentages, fractions and decimals; calculate simple percentages. 	<ul style="list-style-type: none"> Find the outcome of a given percentage increase or decrease.
<ul style="list-style-type: none"> Find a difference by counting up through the next multiple of 10, 100 or 1000. Add and subtract mentally pairs of two-digit numbers. 	<ul style="list-style-type: none"> Consolidate and extend mental methods of calculation to include decimals, fractions and percentages, accompanied where appropriate by suitable jottings; solve simple word problems mentally. 	<ul style="list-style-type: none"> Recall fraction to decimal conversions.
	<ul style="list-style-type: none"> Check a result by considering whether it is of the right order of magnitude and by working the problem backwards. 	
	<ul style="list-style-type: none"> Break a complex calculation into simpler steps, choosing and using appropriate and efficient operations, methods and resources, including ICT. 	
	<ul style="list-style-type: none"> Present and interpret solutions in the context of the original problem; explain and justify methods and conclusions, orally and in writing. 	

Year 7

Autumn Term

Unit 5 Handling Data 1

6 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	<ul style="list-style-type: none"> Calculate statistics for small sets of discrete data: <ul style="list-style-type: none"> find the mode, median and range, and the modal class for grouped data; calculate the mean, including from a simple frequency table, using a calculator for a larger number of items. 	Handling data				
Lesson 2	Interpret diagrams and graphs (including pie charts), and draw conclusions based on the shape of graphs and simple statistics for a single distribution.	Handling data				
Lesson 3	Use vocabulary and ideas of probability, drawing on experience.	Probability				
Lesson 4	Understand and use the probability scale from 0 to 1; find and justify probabilities based on equally likely outcomes in simple contexts; identify all the possible mutually exclusive outcomes of a single event.	Probability				
Lesson 5	As above	Probability				
Lesson 6	Collect data from a simple experiment and record in a frequency table; estimate probabilities based on this data.	Probability				

Starters	ICT	Keywords
<ul style="list-style-type: none"> Recall multiplication facts to 10×10 and derive associated division facts. Multiply and divide a two-digit number by a one-digit number. Visualise, describe and sketch 2-D shapes in different orientations. Estimate and order acute and obtuse angles. 		

What all should know	What most should know	What some should know
	<ul style="list-style-type: none"> Calculate statistics for small sets of discrete data: <ul style="list-style-type: none"> find the mode, median and range, and the modal class for grouped data; calculate the mean, including from a simple frequency table, using a calculator for a larger number of items. 	<ul style="list-style-type: none"> Recognise when it is appropriate to use the range, mean, median and mode; calculate a mean using an assumed mean.
<ul style="list-style-type: none"> Solve a problem by representing, extracting and interpreting data in tables, graphs, charts and diagrams, for example: <ul style="list-style-type: none"> line graphs; frequency tables and bar charts. 	<ul style="list-style-type: none"> Interpret diagrams and graphs (including pie charts), and draw conclusions based on the shape of graphs and simple statistics for a single distribution. 	
	<ul style="list-style-type: none"> Use vocabulary and ideas of probability, drawing on experience. 	
	<ul style="list-style-type: none"> Understand and use the probability scale from 0 to 1; find and justify probabilities based on equally likely outcomes in simple contexts; identify all the possible mutually exclusive outcomes of a single event. 	<ul style="list-style-type: none"> Know that if the probability of an event occurring is p, then the probability of it not occurring is $1 - p$; find and record all possible mutually exclusive outcomes for two successive events in a systematic way, using diagrams and tables.
	<ul style="list-style-type: none"> Collect data from a simple experiment and record in a frequency table; estimate probabilities based on this data. 	

Year 7

Autumn Term

Unit 6 Algebra 2

5 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Use letter symbols to represent unknown numbers or variables; know the meanings of the words <i>term, expression</i> and <i>equation</i> .	Equations, formulae and identities				
Lesson 2	Understand that algebraic operations follow the same conventions and order as arithmetic operations.	Equations, formulae and identities				
Lesson 3	Simplify linear algebraic expressions by collecting like terms; begin to multiply a single term over a bracket (integer coefficients).	Equations, formulae and identities				
Lesson 4	Use simple formulae from mathematics and other subjects, substitute positive integers into simple linear expressions and formulae and, in simple cases, derive a formula.	Equations, formulae and identities				
Lesson 5	Identify the necessary information to solve a problem; represent problems mathematically, making correct use of symbols, words, diagrams and tables.	Solving problems				

Starters	ICT	Keywords
<ul style="list-style-type: none"> Use metric units (length, mass, capacity) and units of time for calculations. Use metric units for estimation (length, mass, capacity). Convert between m, cm and mm, km and m, kg and g, litres and ml. Know rough metric equivalents of common imperial units. 		

What all should know	What most should know	What some should know
	<ul style="list-style-type: none"> Use letter symbols to represent unknown numbers or variables; know the meanings of the words <i>term</i>, <i>expression</i> and <i>equation</i>. 	<ul style="list-style-type: none"> Begin to distinguish the different roles played by letter symbols in equations, formulae and functions; know the meanings of the words <i>formula</i> and <i>function</i>.
<ul style="list-style-type: none"> Understand and use the relationships between the four operations, and the principles (not the names) of the arithmetic laws. Use brackets. 	<ul style="list-style-type: none"> Understand that algebraic operations follow the same conventions and order as arithmetic operations. 	<ul style="list-style-type: none"> Know that algebraic operations follow the same conventions and order as arithmetic operations; use index notation for small positive integer powers.
	<ul style="list-style-type: none"> Simplify linear algebraic expressions by collecting like terms; begin to multiply a single term over a bracket (integer coefficients). 	<ul style="list-style-type: none"> Simplify or transform linear expressions by collecting like terms; multiply a single term over a bracket.
	<ul style="list-style-type: none"> Use simple formulae from mathematics and other subjects, substitute positive integers into simple linear expressions and formulae and, in simple cases, derive a formula. 	<ul style="list-style-type: none"> Substitute integers into simple formulae, including examples that lead to an equation to solve, and positive integers into expressions involving small powers (e.g. $3x^2 + 4$ or $2x^3$).
	<ul style="list-style-type: none"> Identify the necessary information to solve a problem; represent problems mathematically, making correct use of symbols, words, diagrams and tables. 	

Year 7

Autumn Term

Unit 7 SSM 2

3 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Use correctly the vocabulary, notation and labelling conventions for lines, angles and shapes. Identify parallel and perpendicular lines; know the sum of angles at a point, on a straight line and in a triangle and recognise vertically opposite angles.	Geometrical reasoning: lines, angles and shapes				
Lesson 2	Begin to identify and use angle, side and symmetry properties of triangles and quadrilaterals. Use conventions and notation for 2-D coordinates in all four quadrants; find coordinates of points determined by geometric information.	Geometrical reasoning: lines, angles and shapes Coordinates				
Lesson 3	Use angle measure; distinguish between and estimate the size of acute, obtuse and reflex angles.	Mensuration				

Starters	ICT	Keywords
Apply mental skills to solve simple problems.		

What all should know	What most should know	What some should know
<ul style="list-style-type: none"> Recognise positions. 	<ul style="list-style-type: none"> Use correctly the vocabulary, notation and labelling conventions for lines, angles and shapes. 	
	<ul style="list-style-type: none"> Identify parallel and perpendicular lines; know the sum of angles at a point, on a straight line and in a triangle and recognise vertically opposite angles. 	<ul style="list-style-type: none"> Identify alternate and corresponding angles; understand a proof that: <ul style="list-style-type: none"> - the sum of the angles of a triangle is 180° and of a quadrilateral is 360°; - the exterior angle of a triangle is equal to the sum of the two interior opposite angles.
<ul style="list-style-type: none"> Recognise properties of rectangles. Classify triangles (isosceles, equilateral, scalene), using criteria such as equal sides, equal angles, lines of symmetry. 	<ul style="list-style-type: none"> Begin to identify and use angle, side and symmetry properties of triangles and quadrilaterals. 	<ul style="list-style-type: none"> Classify quadrilaterals by their geometric properties.
<ul style="list-style-type: none"> Read and plot coordinates in the first quadrant. 	<ul style="list-style-type: none"> Use conventions and notation for 2-D coordinates in all four quadrants; find coordinates of points determined by geometric information. 	
	<ul style="list-style-type: none"> Use angle measure; distinguish between and estimate the size of acute, obtuse and reflex angles. 	

Year 7

Spring Term

Unit 1 Handling Data 2

5 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	<p>Given a problem that can be addressed by statistical methods, suggest possible answers.</p> <p>Decide which data would be relevant to an enquiry and possible sources.</p> <p>Plan how to collect and organise small sets of data; design a data collection sheet or questionnaire to use in a simple survey; construct frequency tables for discrete data, grouped where appropriate in equal class intervals.</p>	Handling data				
Lesson 2	<p>Collect small sets of data from surveys and experiments, as planned.</p>	Handling data				
Lesson 3	<ul style="list-style-type: none">Construct, on paper and using ICT, graphs and diagrams to represent data, including:<ul style="list-style-type: none">- bar-line graphs;- frequency diagrams for grouped discrete data;use ICT to generate pie charts.	Handling data				
Lesson 4	<p>Interpret diagrams and graphs (including pie charts), and draw simple conclusions based on the shape of graphs.</p>	Handling data				
Lesson 5	<p>Solve word problems and investigate in a range of contexts: handling data.</p>	Solving problems				

Starters	ICT	Keywords
<ul style="list-style-type: none"> • Read and write whole numbers in figures and words. • Multiply and divide decimals by 10, 100, 1000. • Count on and back in steps of 0.4, 0.75, $\frac{3}{4}$... • Order decimals in different contexts. <p>Round decimals to the nearest whole number.</p>		

What all should know	What most should know	What some should know
<ul style="list-style-type: none"> • Solve a problem by representing, extracting and interpreting data in tables, graphs, charts and diagrams. 	<ul style="list-style-type: none"> • Given a problem that can be addressed by statistical methods, suggest possible answers. 	
	<ul style="list-style-type: none"> • Decide which data would be relevant to an enquiry and possible sources. 	<ul style="list-style-type: none"> • Decide the degree of accuracy needed for the data.
	<ul style="list-style-type: none"> • Plan how to collect and organise small sets of data; design a data collection sheet or questionnaire to use in a simple survey; construct frequency tables for discrete data, grouped where appropriate in equal class intervals. 	<ul style="list-style-type: none"> • Plan how to collect the data, including sample size; construct frequency tables with given equal class intervals for sets of continuous data.
	<ul style="list-style-type: none"> • Collect small sets of data from surveys and experiments, as planned. 	
	<ul style="list-style-type: none"> • Construct, on paper and using ICT, graphs and diagrams to represent data, including: <ul style="list-style-type: none"> - bar-line graphs; - frequency diagrams for grouped discrete data; use ICT to generate pie charts. 	<ul style="list-style-type: none"> • Construct on paper and using ICT: <ul style="list-style-type: none"> - pie charts for categorical data; - simple line graphs for time series.
<ul style="list-style-type: none"> • Solve problems by representing data in a bar chart and line graph. 	<ul style="list-style-type: none"> • Interpret diagrams and graphs (including pie charts), and draw simple conclusions based on the shape of graphs. 	
	<ul style="list-style-type: none"> • Solve word problems and investigate in a range of contexts: handling data. 	

Year 7

Spring Term

Unit 2 Number 3

8 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Round positive whole numbers to the nearest 10, 100 or 1000 and decimals to the nearest whole number or one decimal place. Understand addition, subtraction, multiplication and division as they apply to whole numbers and decimals; know how to use the laws of arithmetic and inverse operations.	Place value Calculations (82–87, 92–103, 104–107, 110–111)				
Lesson 2	Know and use the order of operations , including brackets.	Calculations				
Lesson 3	Consolidate and extend mental methods of calculation to include decimals, fractions and percentages , accompanied where appropriate by suitable jottings; solve simple word problems mentally.	Calculations)				
Lesson 4	Make and justify estimates and approximations of calculations. Multiply and divide three-digit by two-digit whole numbers; extend to multiplying and dividing decimals with one or two places by single-digit whole numbers.	Calculations				
Lesson 5	Check a result by considering whether it is of the right order of magnitude and by working the problem backwards.	Calculations				
Lesson 6	Carry out calculations with more than one step using brackets and the memory; use the square root and sign change keys. Use names and abbreviations of units of measurement to measure, estimate, calculate and solve problems in everyday contexts involving length, area, mass, capacity and time; convert one metric unit to another (e.g. grams to kilograms); read and interpret scales on a range of measuring instruments.	Calculator methods Measures				
Lesson 7	Break a complex calculation into simpler steps, choosing and using appropriate and efficient operations, methods and resources, including ICT.	Solving problems				

Lesson 8	Present and interpret solutions in the context of the original problem; explain and justify methods and conclusions , orally and in writing.	Solving problems				
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JAMMIA SOLW

Starters	ICT	Keywords
<ul style="list-style-type: none"> Order, add and subtract integers. Recognise multiples and use tests of divisibility. Know pairs of factors of numbers to 100. Know or derive quickly prime numbers less than 30. Know or derive quickly squares to at least 12×12 and the corresponding roots. 		

What all should know	What most should know	What some should know
	<ul style="list-style-type: none"> Round positive whole numbers to the nearest 10, 100 or 1000 and decimals to the nearest whole number or one decimal place. 	<ul style="list-style-type: none"> Round positive numbers to any given power of 10; round decimals to the nearest whole number or to one or two decimal places.
<ul style="list-style-type: none"> Understand and use the relationships between the four operations, and the principles (not the names) of the arithmetic laws. 	<ul style="list-style-type: none"> Understand addition, subtraction, multiplication and division as they apply to whole numbers and decimals; know how to use the laws of arithmetic and inverse operations. 	
	<ul style="list-style-type: none"> Know and use the order of operations, including brackets. 	
<ul style="list-style-type: none"> Know multiplication facts up to 10×10. 		<ul style="list-style-type: none"> Recall products such as 0.7 and 6, and 0.03 and 8.
<ul style="list-style-type: none"> Add several numbers. Use doubling and halving. Partition to multiply mentally $TU \times U$. 	<ul style="list-style-type: none"> Consolidate and extend mental methods of calculation to include decimals, fractions and percentages, accompanied where appropriate by suitable jottings; solve simple word problems mentally. 	
	<ul style="list-style-type: none"> Make and justify estimates and approximations of calculations. 	
<ul style="list-style-type: none"> Extend written methods to: <ul style="list-style-type: none"> $HTU \times U$ and $U.t \times U$; $TU \times TU$; $HTU \div U$. Divide $\pounds.p$ by a two-digit number to give $\pounds.p$. Round up or down after division, depending on the context. 	<ul style="list-style-type: none"> Multiply and divide three-digit by two-digit whole numbers; extend to multiplying and dividing decimals with one or two places by single-digit whole numbers. 	<ul style="list-style-type: none"> Multiply and divide integers and decimals including by decimals such as 0.6 and 0.06; understand where to position the decimal point by considering equivalent calculations.
	<ul style="list-style-type: none"> Check a result by considering whether it is of the right order of magnitude and by working the problem backwards. 	
<ul style="list-style-type: none"> Develop calculator skills and use a calculator effectively. 	<ul style="list-style-type: none"> Carry out calculations with more than one step using brackets and the memory; use the square root and sign change keys. 	
<ul style="list-style-type: none"> Use, read and write standard metric units of length, mass and capacity. Suggest suitable units and measuring equipment to estimate or measure length, mass or capacity. 	<ul style="list-style-type: none"> Use names and abbreviations of units of measurement to measure, estimate, calculate and solve problems in everyday contexts involving length, area, mass, capacity and time; convert one metric unit to another (e.g. grams to kilograms); read and interpret scales on a range of measuring instruments. 	<ul style="list-style-type: none"> Know rough metric equivalents of imperial measures in daily use.
<ul style="list-style-type: none"> Use all four operations to solve word problems, including time. 	<ul style="list-style-type: none"> Break a complex calculation into simpler steps, choosing and using appropriate and efficient operations, methods and resources, including ICT. 	

	<ul style="list-style-type: none"> Present and interpret solutions in the context of the original problem; explain and justify methods and conclusions, orally and in writing. 	<ul style="list-style-type: none"> Give solutions to an appropriate degree of accuracy in the context of the problem.
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Year 7

Spring Term

Unit 3 Algebra 3

6 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Recognise and use multiples, factors (divisors), common factor and primes (less than 100); use simple tests of divisibility.	Integers, powers and roots				
Lesson 2	Recognise the first few triangular numbers, squares of numbers to at least 12×12 , and the corresponding roots. Use the square root key.	Integers, powers and roots Calculator methods				
Lesson 3	Generate terms of a simple sequence, given a rule (e.g. finding a term from the previous term, finding a term given its position in the sequence). Generate sequences from practical contexts and describe the general term in simple cases.	Sequences, functions and graphs				
Lesson 4	Express simple functions in words, then using symbols; represent them in mappings.	Sequences, functions and graphs				
Lesson 5	Generate coordinate pairs that satisfy a simple linear rule; plot the graphs of simple linear functions , where y is given explicitly in terms of x , on paper and using ICT; recognise straight-line graphs parallel to the x -axis or y -axis.	Sequences, functions and graphs				

Lesson 6	<p>Solve word problems and investigate in a range of contexts: number and algebra.</p> <p>Identify the necessary information to solve a problem; represent problems mathematically, making correct use of symbols, words, diagrams, tables and graphs.</p>	Solving problems				
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JAMMIA SOLN

Starters	ICT	Keywords
<ul style="list-style-type: none"> Find simple equivalent fractions. Know whole-number complements of 50 and 100. Find two decimals with a sum of 1 or 0.1 (two decimal places). Add several small numbers and find their mean. Add and subtract pairs of numbers, e.g. 7.6 ± 3.8 , 760 ± 380 .		

What all should know	What most should know	What some should know
<ul style="list-style-type: none"> Recognise multiples up to 10×10; know and apply simple tests of divisibility. Identify factors of two-digit numbers. 	<ul style="list-style-type: none"> Recognise and use multiples, factors (divisors), common factor and primes (less than 100); use simple tests of divisibility. 	<ul style="list-style-type: none"> Find the prime factor decomposition of a number.
	<ul style="list-style-type: none"> Recognise the first few triangular numbers, squares of numbers to at least 12×12, and the corresponding roots. 	<ul style="list-style-type: none"> Use squares, and positive and negative square roots.
<ul style="list-style-type: none"> Use a calculator to square numbers. 	<ul style="list-style-type: none"> Use the square root key. 	<ul style="list-style-type: none"> Use the function keys for sign change, powers and roots.
<ul style="list-style-type: none"> Recognise and extend number sequences. 	<ul style="list-style-type: none"> Generate terms of a simple sequence, given a rule (e.g. finding a term from the previous term, finding a term given its position in the sequence). 	<ul style="list-style-type: none"> Generate terms of a linear sequence using term-to-term and position-to-term definitions, on paper and using a spreadsheet or graphical calculator.
	<ul style="list-style-type: none"> Generate sequences from practical contexts and describe the general term in simple cases. 	<ul style="list-style-type: none"> Begin to use linear expressions to describe the nth term of an arithmetic sequence.
	<ul style="list-style-type: none"> Express simple functions in words, then using symbols; represent them in mappings. 	<ul style="list-style-type: none"> Express simple functions in symbols; represent mappings expressed algebraically.
<ul style="list-style-type: none"> Read and plot coordinates in the first quadrant. Represent and interpret data in a graph (e.g. for a multiplication table). 	<ul style="list-style-type: none"> Generate coordinate pairs that satisfy a simple linear rule; plot the graphs of simple linear functions, where y is given explicitly in terms of x, on paper and using ICT; recognise straight-line graphs parallel to the x-axis or y-axis. 	<ul style="list-style-type: none"> Generate points in all four quadrants and plot the graphs of linear functions; recognise that equations of the form $y = mx + c$ correspond to straight-line graphs.
<ul style="list-style-type: none"> Solve mathematical problems, explaining patterns and relationships. 	<ul style="list-style-type: none"> Solve word problems and investigate in a range of contexts: number and algebra. 	<ul style="list-style-type: none"> Solve more complex problems by breaking them into smaller steps.
	<ul style="list-style-type: none"> Identify the necessary information to solve a problem; represent problems mathematically, making correct use of symbols, words, diagrams, tables and graphs. 	<ul style="list-style-type: none"> Represent problems and interpret solutions in algebraic or graphical form, using correct notation.

Year 7

Spring Term

Unit 4 SSM3

5 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Begin to identify and use angle, side and symmetry properties of triangles and quadrilaterals; solve geometrical problems involving these properties, using step-by-step deduction and explaining reasoning with diagrams and text.	Geometrical reasoning: lines, angles and shapes				
Lesson 2	As above	Geometrical reasoning: lines, angles and shapes				
Lesson 3	Use 2-D representations to visualise 3-D shapes and deduce some of their properties.	Geometrical reasoning: lines, angles and shapes				
Lesson 4	<ul style="list-style-type: none">Use a ruler and protractor to:<ul style="list-style-type: none">- measure and draw lines to nearest millimetre and angles, including reflex angles, to the nearest degree;- construct a triangle given two sides and the included angle (SAS) or two angles and the included side (ASA); explore these constructions using ICT.	Construction				
Lesson 5	As above	Construction				

Starters	ICT	Keywords
<ul style="list-style-type: none"> Find doubles and halves of numbers, e.g. 6500, 0.76, $\frac{3}{4}$. Recall multiplication and division facts to 10×10. Derive answers to calculations, e.g. 60×80, 0.4×9. Multiply and divide a two-digit number by a one-digit number. <ul style="list-style-type: none"> Visualise, describe and sketch 2-D shapes. 		

What all should know	What most should know	What some should know
<ul style="list-style-type: none"> Recognise reflection symmetry. Recognise where a shape will be after reflection. Recognise where a shape will be after a translation. Calculate angles on a straight line. Calculate angles in a triangle or around a point. 	<ul style="list-style-type: none"> Begin to identify and use angle, side and symmetry properties of triangles and quadrilaterals; solve geometrical problems involving these properties, using step-by-step deduction and explaining reasoning with diagrams and text. 	<ul style="list-style-type: none"> Solve geometrical problems using side and angle properties of equilateral, isosceles and right-angled triangles and special quadrilaterals.
	<ul style="list-style-type: none"> Use 2-D representations to visualise 3-D shapes and deduce some of their properties. 	
<ul style="list-style-type: none"> Use a protractor to measure and draw acute and obtuse angles to the nearest degree. 	<ul style="list-style-type: none"> Use a ruler and protractor to: <ul style="list-style-type: none"> - measure and draw lines to nearest millimetre and angles, including reflex angles, to the nearest degree; - construct a triangle given two sides and the included angle (SAS) or two angles and the included side (ASA); explore these constructions using ICT. 	<ul style="list-style-type: none"> Use straight edge and compasses to construct: <ul style="list-style-type: none"> - the mid-point and perpendicular bisector of a line segment; - the bisector of an angle; construct a triangle given three sides (SSS).

Year 7

Spring Term

Unit 5 Number 4

5 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Recognise the equivalence of percentages, fractions and decimals; calculate simple percentages and use percentages to compare simple proportions.	Fractions, decimals, percentages, ratio and proportion				
Lesson 2	As above	Fractions, decimals, percentages, ratio and proportion				
Lesson 3	Understand the relationship between ratio and proportion; use direct proportion in simple contexts; use ratio notation, reduce a ratio to its simplest form and divide a quantity into two parts in a given ratio; solve simple problems about ratio and proportion using informal strategies.	Fractions, decimals, percentages, ratio and proportion				
Lesson 4	Check a result by considering whether it is of the right order of magnitude and by working the problem backwards.	Calculations				
Lesson 5	As above	Calculations				

Starters	ICT	Keywords
<ul style="list-style-type: none"> Estimate and order acute and obtuse angles. Use metric units (length and area) and units of time for calculations. Convert between m, cm and mm, km and m. Calculate perimeter and area of rectangles. Discuss and interpret graphs. 		

What all should know	What most should know	What some should know
<ul style="list-style-type: none"> Relate fractions to division. Find simple fractions of whole-number quantities. Find simple percentages of whole-number quantities. 	<ul style="list-style-type: none"> Recognise the equivalence of percentages, fractions and decimals; calculate simple percentages and use percentages to compare simple proportions. 	<ul style="list-style-type: none"> Express one given number as a percentage of another; use the equivalence of fractions, decimals and percentages to compare proportions.
<ul style="list-style-type: none"> Solve simple problems using ideas of ratio and proportion ('one for every...' and 'one in every...'). 	<ul style="list-style-type: none"> Understand the relationship between ratio and proportion; use direct proportion in simple contexts; use ratio notation, reduce a ratio to its simplest form and divide a quantity into two parts in a given ratio; solve simple problems about ratio and proportion using informal strategies. 	<ul style="list-style-type: none"> Divide a quantity into two or more parts in a given ratio; use the unitary method to solve simple word problems involving ratio and direct proportion.
	<ul style="list-style-type: none"> Check a result by considering whether it is of the right order of magnitude and by working the problem backwards. 	

Year 7

Spring Term

Unit 6 Algebra 4

4 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Use letter symbols to represent unknown numbers or variables; know the meanings of the words <i>term</i> , <i>expression</i> and <i>equation</i> .	Equations, formulae and identities				
Lesson 2	Understand that algebraic operations follow the same conventions and order as arithmetic operations.	Equations, formulae and identities				
Lesson 3	Simplify linear algebraic expressions by collecting like terms; begin to multiply a single term over a bracket (integer coefficients).	Equations, formulae and identities				
Lesson 4	Construct and solve simple linear equations with integer coefficients (unknown on one side only) using an appropriate method (e.g. inverse operations).	Equations, formulae and identities				

Starters	ICT	Keywords
Apply mental skills to solve simple problems.		

What all should know	What most should know	What some should know
	<ul style="list-style-type: none"> Use letter symbols to represent unknown numbers or variables; know the meanings of the words <i>term</i>, <i>expression</i> and <i>equation</i>. 	<ul style="list-style-type: none"> Begin to distinguish between the different roles played by letter symbols in equations, formulae and functions; know the meanings of the words <i>formula</i> and <i>function</i>.
<ul style="list-style-type: none"> Understand and use the relationships between the four operations, and the principles (not the names) of the arithmetic laws. Use brackets. 	<ul style="list-style-type: none"> Understand that algebraic operations follow the same conventions and order as arithmetic operations. 	
	<ul style="list-style-type: none"> Simplify linear algebraic expressions by collecting like terms; begin to multiply a single term over a bracket (integer coefficients). 	
	<ul style="list-style-type: none"> Construct and solve simple linear equations with integer coefficients (unknown on one side only) using an appropriate method (e.g. inverse operations). 	<ul style="list-style-type: none"> Construct and solve linear equations with integer coefficients (unknown on either or both sides, without and with brackets) using appropriate methods (e.g. inverse operations, transforming both sides in the same way).

Year 7

Summer Term

Unit 1 SSM 4

6 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Understand and use the language and notation associated with reflections, translations and rotations. • Recognise and visualise the transformation and symmetry of a 2-D shape: - reflection in given mirror lines, and line symmetry; - rotation about a given point, and rotation symmetry; - translation; explore these transformations and symmetries using ICT.	Transformations				
Lesson 2	As above	Transformations				
Lesson 3	As above	Transformations				
Lesson 4	Solve word problems and investigate in a range of contexts: shape and space.	Solving problems				
Lesson 5	As above	Solving problems				
Lesson 6	Suggest extensions to problems by asking 'What if...?'; begin to generalise and to understand the significance of a counter-example.	Solving problems				

Starters	ICT	Keywords
<ul style="list-style-type: none"> • Multiply and divide decimals by 10, 100, 1000 and small multiples of 10. • Round numbers, including to one or two decimal places. • Order decimals and simple fractions in different contexts. • Recognise multiples and use tests of divisibility. • Know pairs of factors of numbers to 100. 		

What all should know	What most should know	What some should know
<ul style="list-style-type: none"> • Recognise reflection symmetry. • Recognise where a shape will be after reflection. • Recognise where a shape will be after a translation. 	<ul style="list-style-type: none"> • Understand and use the language and notation associated with reflections, translations and rotations. • Recognise and visualise the transformation and symmetry of a 2-D shape: <ul style="list-style-type: none"> - reflection in given mirror lines, and line symmetry; - rotation about a given point, and rotation symmetry; - translation; explore these transformations and symmetries using ICT. 	<ul style="list-style-type: none"> • Transform 2-D shapes by simple combinations of rotations, reflections and translations, on paper and using ICT; identify all the symmetries of 2-D shapes.
		<ul style="list-style-type: none"> • Understand and use the language and notation associated with enlargement; enlarge 2-D shapes, given a centre of enlargement and a positive whole-number scale factor.
	<ul style="list-style-type: none"> • Solve word problems and investigate in a range of contexts: shape and space. 	
	<ul style="list-style-type: none"> • Suggest extensions to problems by asking 'What if...?'; begin to generalise and to understand the significance of a counter-example. 	

Year 7

Summer Term

Unit 2 Handling Data 3

8 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Decide which data would be relevant to an enquiry and possible sources. Plan how to collect and organise small sets of data; design a data collection sheet or questionnaire to use in a simple survey; construct frequency tables for discrete data, grouped where appropriate in equal class intervals.	Handling data				
Lesson 2	<ul style="list-style-type: none"> Calculate statistics for small sets of discrete data: find the mode, median and range, and the modal class for grouped data; calculate the mean, including from a simple frequency table, using a calculator for a larger number of items. 	Handling data				
Lesson 3	<ul style="list-style-type: none"> Construct, on paper and using ICT, graphs and diagrams to represent data, including: <ul style="list-style-type: none"> - bar-line graphs; - frequency diagrams for grouped discrete data; use ICT to generate pie charts. 	Handling data				
Lesson 4	Interpret diagrams and graphs (including pie charts), and draw conclusions based on the shape of graphs and simple statistics for a single distribution.	Handling data				
Lesson 5	Compare two simple distributions using the range and one of the mode, median or mean.	Handling data				
Lesson 6	Write a short report of a statistical enquiry and illustrate with appropriate diagrams, graphs and charts, using ICT as appropriate; justify the choice of what is presented.	Handling data				
Lesson 7	Understand and use the probability scale from 0 to 1; find and justify probabilities based on equally likely outcomes in simple contexts; identify all the possible mutually exclusive outcomes of a single event.	Probability				

Lesson 8	Collect data from a simple experiment and record in a frequency table; estimate probabilities based on this data. Compare experimental and theoretical probabilities in simple contexts.	Probability				
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JAMMIA SOLN

Starters	ICT	Keywords
<ul style="list-style-type: none"> • Know or derive quickly prime numbers less than 30. • Know or derive squares to at least 12×12, multiples of 10, 0.1 to 0.9 and corresponding square roots. • Convert between fractions, decimals and percentages. • Find fractions and percentages of quantities. <ul style="list-style-type: none"> • Know complements of 0.1, 1, 10, 50, 100. • Add and subtract pairs of numbers, e.g. $0.65 + 3.8$, $765 + 47$. 		

What all should know	What most should know	What some should know
	<ul style="list-style-type: none"> • Decide which data would be relevant to an enquiry and possible sources. 	
	<ul style="list-style-type: none"> • Plan how to collect and organise small sets of data; design a data collection sheet or questionnaire to use in a simple survey; construct frequency tables for discrete data, grouped where appropriate in equal class intervals. 	
<ul style="list-style-type: none"> • Find the mode and range of a set of data. • Begin to find the median and the mean of a set of data. 	<ul style="list-style-type: none"> • Calculate statistics for small sets of discrete data: <ul style="list-style-type: none"> - find the mode, median and range, and the modal class for grouped data; - calculate the mean, including from a simple frequency table, using a calculator for a larger number of items. 	<ul style="list-style-type: none"> • Recognise when it is appropriate to use the range, mean, median and mode and, for grouped data, the modal class; calculate a mean using an assumed mean.
	<ul style="list-style-type: none"> • Construct, on paper and using ICT, graphs and diagrams to represent data, including: <ul style="list-style-type: none"> - bar-line graphs; - frequency diagrams for grouped discrete data; use ICT to generate pie charts. 	<ul style="list-style-type: none"> • Construct on paper and using ICT: <ul style="list-style-type: none"> - pie charts for categorical data; - simple line graphs for time series.
<ul style="list-style-type: none"> • Solve a problem by representing, extracting and interpreting data in tables, graphs and charts. 	<ul style="list-style-type: none"> • Interpret diagrams and graphs (including pie charts), and draw conclusions based on the shape of graphs and simple statistics for a single distribution. 	<ul style="list-style-type: none"> • Interpret tables, graphs and diagrams for both discrete and continuous data.
	<ul style="list-style-type: none"> • Compare two simple distributions using the range and one of the mode, median or mean. 	
	<ul style="list-style-type: none"> • Write a short report of a statistical enquiry and illustrate with appropriate diagrams, graphs and charts, using ICT as appropriate; justify the choice of what is presented. 	
	<ul style="list-style-type: none"> • Understand and use the probability scale from 0 to 1; find and justify probabilities based on equally likely outcomes in simple contexts; identify all the possible mutually exclusive outcomes of a single event. 	<ul style="list-style-type: none"> • Know that if the probability of an event occurring is p, then the probability of it not occurring is $1 - p$; find and record all possible mutually exclusive outcomes for two successive events in a systematic way, using diagrams and tables.
	<ul style="list-style-type: none"> • Collect data from a simple experiment and record in a frequency table; estimate probabilities based on this data. 	<ul style="list-style-type: none"> • Understand that: <ul style="list-style-type: none"> - if an experiment is repeated there may be, and usually will be, different outcomes;

		- increasing the number of times an experiment is repeated generally leads to better estimates of probability.
	<ul style="list-style-type: none"> Compare experimental and theoretical probabilities in simple contexts. 	

Year 7

Summer Term

Unit 3

Number 5

8 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Recognise and use multiples, factors (divisors), common factor, highest common factor and lowest common multiple in simple cases, and primes (less than 100); use simple tests of divisibility.	Place value				
Lesson 2	Consolidate the rapid recall of number facts, including positive integer complements to 100 and multiplication facts to 10×10 , and quickly derive associated division facts. Consolidate and extend mental methods to include decimals, fractions and percentages , accompanied where appropriate by suitable jottings; solve simple word problems mentally.	Calculations				
Lesson 3	Make and justify estimates and approximations of calculations. Use standard column procedures to add and subtract whole numbers and decimals with up to two places.	Calculations				
Lesson 4	Multiply and divide three-digit by two-digit whole numbers; extend to multiplying and dividing decimals with one or two places by single-digit whole numbers.	Calculations				
Lesson 5	Check a result by considering whether it is of the right order of magnitude and by working the problem backwards. Carry out calculations with more than one step using brackets and the memory; use the square root and sign change keys.	Calculations Calculator methods				
Lesson 6	Interpret the display of a calculator in different contexts (decimals, percentages). Calculate simple fractions of quantities and measurements (whole-number	Calculator methods Fractions and percentages				

	answers); multiply a fraction by an integer.					
Lesson 7	Recognise the equivalence of percentages, fractions and decimals; calculate simple percentages and use percentages to compare simple proportions.	Fractions and percentages				
Lesson 8	Break a complex calculation into simpler steps, choosing and using appropriate and efficient operations, methods and resources, including ICT.	Solving problems				

Starters	ICT	Keywords
<ul style="list-style-type: none"> Use jottings to support addition and subtraction of whole numbers and decimals. Find doubles and halves of decimals and fractions. Recall multiplication and division facts to 10×10. Use doubling and halving to calculate, e.g. 6×4.5, 1.38×50. Use factors to multiply and divide mentally, e.g. 35×12, $144 \div 36$, 3.2×30. Derive answers to calculations, e.g. 0.4×9, 0.7×0.9. 		

What all should know	What most should know	What some should know
<ul style="list-style-type: none"> Recognise multiples up to 10×10; know simple tests of divisibility. Identify factors of two-digit numbers. 	<ul style="list-style-type: none"> Recognise and use multiples, factors (divisors), common factor, highest common factor and lowest common multiple in simple cases, and primes (less than 100); use simple tests of divisibility. 	<ul style="list-style-type: none"> Find the prime factor decomposition of a number.
	<ul style="list-style-type: none"> Consolidate the rapid recall of number facts, including positive integer complements to 100 and multiplication facts to 10×10, and quickly derive associated division facts. 	<ul style="list-style-type: none"> Recall known facts, including fraction to decimal conversions; use known facts to derive unknown facts, including products such as 0.7 and 6, and 0.03 and 8.
<ul style="list-style-type: none"> Consolidate mental methods: <ul style="list-style-type: none"> find a difference by counting up; add or subtract a multiple of 10 then adjust. Add and subtract mentally pairs of two-digit numbers. 	<ul style="list-style-type: none"> Consolidate and extend mental methods to include decimals, fractions and percentages, accompanied where appropriate by suitable jottings; solve simple word problems mentally. 	<ul style="list-style-type: none"> Extend mental calculations to squares and square roots, cubes and cube roots.
	<ul style="list-style-type: none"> Make and justify estimates and approximations of calculations. 	
<ul style="list-style-type: none"> Approximate first and use informal pencil and paper methods to EXTENSION addition and subtraction. 	<ul style="list-style-type: none"> Use standard column procedures to add and subtract whole numbers and decimals with up to two places. 	
<ul style="list-style-type: none"> Extend written methods to: <ul style="list-style-type: none"> ThHTU \times U and U.t \times U; TU \times TU; HTU \div U. Divide £.p by a two-digit number to give £.p. Round up or down after division, depending on context. 	<ul style="list-style-type: none"> Multiply and divide three-digit by two-digit whole numbers; extend to multiplying and dividing decimals with one or two places by single-digit whole numbers. 	<ul style="list-style-type: none"> Multiply and divide integers and decimals, including by decimals such as 0.6 and 0.06; understand where to position the decimal point by considering equivalent calculations.
	<ul style="list-style-type: none"> Check a result by considering whether it is of the right order of magnitude and by working the problem backwards. 	
	<ul style="list-style-type: none"> Carry out calculations with more than one step using brackets and the memory; use the square root and sign change keys. 	
	<ul style="list-style-type: none"> Interpret the display of a calculator in different contexts (decimals, percentages). 	
	<ul style="list-style-type: none"> Calculate simple fractions of quantities and measurements (whole-number answers); multiply a fraction by an integer. 	<ul style="list-style-type: none"> Calculate fractions of quantities and measurements (fraction answers); multiply and divide an integer by a fraction.
	<ul style="list-style-type: none"> Recognise the equivalence of percentages, fractions and decimals; calculate simple percentages and use percentages to compare simple proportions. 	
	<ul style="list-style-type: none"> Break a complex calculation into simpler steps, choosing and using appropriate and efficient 	

JAMIA SOW

Year 7

Summer Term

Unit 4 Algebra 5

8 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Construct and solve simple linear equations with integer coefficients (unknown on one side only) using an appropriate method (e.g. inverse operations).	Equations, formulae and identities				
Lesson 2	Use simple formulae from mathematics and other subjects, substitute positive integers in simple linear expressions and formulae and, in simple cases, derive a formula.	Equations, formulae and identities				
Lesson 3	Generate sequences from practical contexts and describe the general term in simple cases.	Sequences, functions and graphs				
Lesson 4	Express simple functions (in words, then) using symbols; represent them in mappings.	Sequences, functions and graphs				
Lesson 5	Generate coordinate pairs that satisfy a simple linear rule; plot the graphs of simple linear functions , where y is given explicitly in terms of x , on paper and using ICT; recognise straight-line graphs parallel to the x -axis or y -axis.	Sequences, functions and graphs				
Lesson 6	As above	Sequences, functions and graphs				
Lesson 7	Begin to plot and interpret the graphs of simple linear functions arising from real-life situations.	Sequences, functions and graphs				

Lesson 8	Suggest extensions to problems by asking 'What if...?'; begin to generalise and to understand the significance of a counter-example.	Solving problems				
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JAMMIA SOLV

Starters	ICT	Keywords
<ul style="list-style-type: none"> Multiply and divide a two-digit number by a one-digit number. Use approximations to estimate the answers to calculations, e.g. 39×2.8. Solve equations such as $100 = x + 37$. Visualise and describe 2-D and 3-D shapes. Estimate and order acute, obtuse and reflex angles. 		

What all should know	What most should know	What some should know
	<ul style="list-style-type: none"> Construct and solve simple linear equations with integer coefficients (unknown on one side only) using an appropriate method (e.g. inverse operations). 	<ul style="list-style-type: none"> Construct and solve linear equations with integer coefficients (unknown on either or both sides, without and with brackets) using appropriate methods (e.g. inverse operations, transforming both sides in the same way).
<ul style="list-style-type: none"> Understand and use the relationships between the four operations, and the principles (not the names) of the arithmetic laws. Use brackets. 	<ul style="list-style-type: none"> Use simple formulae from mathematics and other subjects, substitute positive integers in simple linear expressions and formulae and, in simple cases, derive a formula. 	<ul style="list-style-type: none"> Substitute integers into simple formulae, including examples that lead to an equation to solve, and positive integers into expressions involving small powers (e.g. $3x^2 + 4$ or $2x^3$).
	<ul style="list-style-type: none"> Generate sequences from practical contexts and describe the general term in simple cases. 	<ul style="list-style-type: none"> Begin to use linear expressions to describe the nth term of an arithmetic sequence.
	<ul style="list-style-type: none"> Express simple functions (in words, then) using symbols; represent them in mappings. 	
<ul style="list-style-type: none"> Read and plot coordinates in all four quadrants. 	<ul style="list-style-type: none"> Generate coordinate pairs that satisfy a simple linear rule; plot the graphs of simple linear functions, where y is given explicitly in terms of x, on paper and using ICT; recognise straight-line graphs parallel to the x-axis or y-axis. 	<ul style="list-style-type: none"> Generate points in all four quadrants and plot the graphs of linear functions; recognise that equations of the form $y = mx + c$ correspond to straight-line graphs.
	<ul style="list-style-type: none"> Begin to plot and interpret the graphs of simple linear functions arising from real-life situations. 	
	<ul style="list-style-type: none"> Suggest extensions to problems by asking 'What if...?'; begin to generalise and to understand the significance of a counter-example. 	

Year 7

Summer Term

Unit 5 SSM 5

6 hours

	Objective	NNS	Resources	Support	Plenary	Homework
Lesson 1	Begin to identify and use angle, side and symmetry properties of triangles and quadrilaterals; solve geometrical problems involving these properties, using step-by-step deduction and explaining reasoning with diagrams and text.	Geometrical reasoning: lines, angles and shapes				
Lesson 2	Explore transformations and symmetries using ICT.	Geometrical reasoning: lines, angles and shapes				
Lesson 3	As above	Geometrical reasoning: lines, angles and shapes				
Lesson 4	<ul style="list-style-type: none">Use a ruler and protractor to:<ul style="list-style-type: none">- construct a triangle given two sides and the included angle (SAS) or two angles and the included side (ASA);explore these constructions using ICT.	Construction				
Lesson 5	Use a ruler and protractor to construct simple nets of 3-D shapes, e.g. cuboid, regular tetrahedron, square-based pyramid, triangular prism.	Construction				
Lesson 6	As above	Construction				

Starters	ICT	Keywords
<ul style="list-style-type: none"> Use metric units (length, mass, capacity) and units of time for calculations. Convert between m, cm and mm, km and m, kg and g, litres and ml. Convert between metric and common imperial units. Discuss and interpret graphs. <p>Apply mental skills to solve simple problems.</p>		

What all should know	What most should know	What some should know
<ul style="list-style-type: none"> Recognise reflection symmetry. Recognise where a shape will be after reflection. Recognise where a shape will be after a translation. Calculate angles on a straight line, in a triangle, or around a point. 	<ul style="list-style-type: none"> Begin to identify and use angle, side and symmetry properties of triangles and quadrilaterals; solve geometrical problems involving these properties, using step-by-step deduction and explaining reasoning with diagrams and text. 	<ul style="list-style-type: none"> Solve geometrical problems using side and angle properties of equilateral, isosceles and right-angled triangles and special quadrilaterals. Classify quadrilaterals by their geometric properties.
<ul style="list-style-type: none"> Use a protractor to measure and draw acute and obtuse angles to the nearest degree. 	<ul style="list-style-type: none"> Explore transformations and symmetries using ICT. Use a ruler and protractor to: <ul style="list-style-type: none"> - construct a triangle given two sides and the included angle (SAS) or two angles and the included side (ASA); explore these constructions using ICT. 	<ul style="list-style-type: none"> Use straight edge and compasses to construct: <ul style="list-style-type: none"> - the mid-point and perpendicular bisector of a line segment; - the bisector of an angle; construct a triangle given three sides (SSS).
<ul style="list-style-type: none"> Visualise 3-D shapes from 2-D drawings and identify different nets for a closed cube. 	<ul style="list-style-type: none"> Use a ruler and protractor to construct simple nets of 3-D shapes, e.g. cuboid, regular tetrahedron, square-based pyramid, triangular prism. 	