MATHS

YEAR GROUP	HALF TERM 1	HALF TERM 2	HALF TERM 3	HALF TERM 4	HALF TERM 5	HALF TERM 6
Y7						
KNOWLEDGE	Graphs and sequences Mensuration Calculations Proportion and percentages (2) Equations and formulae (2)	Number Angles Data Transformations	Equations and formulae Data Number Angles Mensuration Proportion and Percentages	Revision Transformations Graphs and sequences (2)	Angles Probability Equations and formulae (2) Number Graphs and sequences	Calculations Constructions
SKILLS	-Find the coordinates of points identified by geometrical information, including the mid point. -Plot graphs of linear functions in which y is given explicitly in terms of x. -Express the term to term rule and finding missing values in a range of sequences; including fibonacci, simple quadratic and simple geometric sequences. -Generate sequences from practical contexts and write an expression to describe the nth term of an arithmetic sequence. - Find areas and perimeters of simple compound shapes made from rectangles. -Find volumes of cuboids and L shaped prisms. -Solve related problems involving multiplication and division given the answer to a calculation. -Solve problems involving multiplication and division by decimals with up to two decimal places, without a calculator – by transforming it to a problem involving division by an integer. -Estimate the values of powers and roots. -Estimate answers to calculations including problems involving money and measurement. -Solve contextual problems involving the four operations on decimals without the use of a calculator. -Perform calculations using the hierarchy of operations (using BIDMAS). -Understand 'reciprocal' as multiplicative inverse, knowing that any non-zero number multiplied by its reciprocal is 1 and that zero has no reciprocal because division by zero is not defined. -Add and subtract with positive and negative integers. Multiply and divide with positive and negative integers -Use ratio notation, including reduction to its simplest form. -Solve ratio problems where you are required to share a total. -Solve ratio problems where you are given one value. -Express ratios in the form 1:n or n:1 and use and interpret maps and scale drawings. -Manipulate algebraic expressions by collecting like terms. -Manipulate algebraic expressions by simplifying simple algebraic fractions. -Form and solve simple linear equations in which the unknown appears on one side including the use of a bracket, including by using inverse operations and by transforming both sides in the same way. -Form and solve linear inequalities in one variable. -Represent inequalities on a number line. Use inequality notation to specify simple error intervals due to truncation or rounding.	-Convert between percentages and decimals. -Convert between fractions and decimals, with and without a calculator. -Convert between fractions and percentages, with and without a calculator. -Converting and ordering a mix of fractions, decimals and percentages. -Use parallel lines, alternate angles and corresponding angles. Solve problems using properties of angles, of parallel and intersecting lines, and of triangles, justifying inferences and explaining reasoning with diagrams and text. -Calculate and use the sums of the interior and exterior angles of quadrilaterals, pentagons and hexagons. Solve problems using properties of angles, justifying inferences and explaining reasoning with diagrams and text. Derive the sum of angles in a triangle. -Calculate the statistical measures mode, median, mean and range for discrete data. -Use and interpret the statistical measures mode, median, mean and range for discrete data by comparing distributions. -Draw box plots for discrete data and use box plots to compare disributions. -Read and interpret data presented in two way tables. Use and complete two-way tables to solve problems. -Understand and use positive integer scale factors for enlargements on a grid wthout a specified centre of enlargement. -Idenitfy translations and use vector notation to describe the movement. -Understand that reflections are specified by a mirror line; transform triangles and other 2-D shapes by reflection, using a line parallel to an axis or at 450. -Recognise and visualise rotation symmetry of 2-D shapes; identify the order of rotation symmetry. Complete the rotation symmetry of 2-D shapes. -Understand that rotations are specified by a centre and an angle; Rotate shapes using right angles and simple fractions of a turn.	-Use formulae expressed in words or symbols; substitute positive numbers into the formula to find the value of the subject. -Manipulate algebraic expressions by collecting like terms. -Manipulate algebraic expressions by simplifying simple algebraic fractions. -Form and solve simple linear equations in which the unknown appears on one side including the use of a bracket, including by using inverse operations and by transforming both sides in the same way. -Form and solve linear inequalities in one variable. -Represent inequalities on a number line. Use inequality notation to specify simple error intervals due to truncation or rounding. -Calculate the statistical measures mode, median, mean and range for discrete data. -Use and interpret the statistical measures mode, median, mean and range for discrete data by comparing distributions. -Draw box plots for discrete data and usebox plots to compare disributions. -Read and interpret data presented in two way tables. Use and complete two-way tables to solve problems. -Convert between percentages and decimals. -Convert between fractions and decimals, with and without a calculator. -Convert between fractions and percentages, with and without a calculator. -Converting and ordering a mix of fractions, decimals and percentages. -Use parallel lines, alternate angles and corresponding angles. Solve problems using properties of angles, of parallel and intersecting lines, and of triangles, justifying inferences and explaining reasoning with diagrams and text. -Calculate and use the sums of the interior and exterior angles of quadrilaterals, pentagons and hexagons. Solve problems using properties of angles, justifying inferences and explaining reasoning with diagrams and text. Derive the sum of angles in a triangle. -Find areas and perimeters of simple compound shapes made from rectangles. -Find volumes of cuboids and L shaped prisms. -Use ratio notation, including reduction to its simplest form. -Solve ratio problems where you are required to share a total. -Solve ratio problems where you are given one value.	-Understand and use positive integer scale factors for enlargements on a grid wthout a specified centre of enlargement. -Idenitfy translations and use vector notation to describe the movement. -Understand that reflections are specified by a mirror line; transform triangles and other 2-D shapes by reflection, using a line parallel to an axis or at 450. -Recognise and visualise rotation symmetry of 2-D shapes; identify the order of rotation symmetry. Complete the rotation symmetry of 2-D shapes. -Understand that rotations are specified by a centre and an angle; Rotate shapes using right angles and simple fractions of a turn. -Plot graphs of linear functions in which y is given explicitly in terms of x. -Express the term to term rule and finding missing values in a range of sequences; including fibonacci, simple quadratic and simple geometric sequences. -Generate sequences from practical contexts and write an expression to describe the nth term of an arithmetic sequence.	-Use parallel lines, alternate angles and corresponding angles. Solve problems using properties of angles, of parallel and intersecting lines, and of triangles, justifying inferences and explaining reasoning with diagrams and text. -Calculate and use the sums of the interior and exterior angles of quadrilaterals, pentagons and hexagons. Solve problems using properties of angles, justifying inferences and explaining reasoning with diagrams and text. Derive the sum of angles in a triangle. -Use Venn Diagrams in the context of probability. -Use Frequency Trees in the context of probability. -List all outcomes for single events, and for two successive events, in a systematic way, including the use of sample spaces; find probabilities. -In context, use formulae expressed in words or symbols; substitute positive numbers into the formula to find the value of the subject. -Manipulate algebraic expressions by collecting like terms. -Manipulate algebraic expressions by simplifying simple algebraic fractions. -Form and solve simple linear equations in which the unknown appears on one side including the use of a bracket, including by using inverse operations and by transforming both sides in the same way. -Form and solve linear inequalities in one variable. -Represent inequalities on a number line. Use inequality notation to specify simple error intervals due to truncation or rounding. -Convert between percentages and decimals. -Convert between fractions and decimals, with and without a calculator. -Convert between fractions and percentages, with and without a calculator. -Converting and ordering a mix of fractions, decimals and percentages. -Plot graphs of linear functions in which y is given explicitly in terms of x. -Express the term to term rule and finding missing values in a range of sequences; including fibonacci, simple quadratic and simple geometric sequences. -Generate sequences from practical contexts and write an expression to describe the nth term of an arithmetic sequence.	-Solve related problems involving multiplication and division given the answer to a calculation. -Solve problems involving multiplication and division by decimals with up to two decimal places, without a calculator – by transforming it to a problem involving division by an integer. -Estimate the values of powers and roots. -Estimate answers to calculations including problems involving money and measurement. -Solve contextual problems involving the four operations on decimals without the use of a calculator. -Perform calculations using the hierarchy of operations (using BIDMAS). -Understand 'reciprocal' as multiplicative inverse, knowing that any non-zero number multiplied by its reciprocal is 1 and that zero has no reciprocal because division by zero is not defined. -Add and subtract with positive and negative integers. -Multiply and divide with positive and negative integers -Use the standard convention for labelling sides and angles of polygons and use simple geometrical reasoning. -Measure and draw angles to the nearest degree; distinguish between acute, obtuse, reflex and right angles. -Construct triangles using a ruler and protractor only given information about their sides and angles; use a straight edge and compasses to construct triangles with given sides including equilateral triangles. Use the correct notation to describe angles, such as B C.
YEAR GROUP	HALF TERM 1	HALF TERM 2	HALF TERM 3	HALF TERM 4	HALF TERM 5	HALF TERM 6
Y8						
KNOWLEDGE	Graphs and sequences Mensuration Calculations Proportion and percentages (2) Equations and formulae (2)	Number Angles Data Transformations	Equations and formulae Data Number Angles Mensuration Proportion and Percentages	Revision Transformations Graphs and sequences (2)	Angles Probability Equations and formulae (2) Number Graphs and sequences	Calculations Constructions
SKILLS	-Draw and interpret distance-time and speed-time graphs, conversion graphs and draw and interpret other real life graphs. -Find the exact solution of two simultaneous equations in two unknowns by interpreting the equations as lines and their common solution as the point of intersection. -Recall and apply the meaning of circle, chord, tangent, arc, sector, segment. -Find circumferences of circles, semi and quarter circles, and compound shapes. -Find area of circles, semi and quarter circles, and compound shapes. -Convert between different metric units of area and volume. -Recall and calculate perimeters and areas of compound shapes made from trapezia, parallelograms, triangles, rectangles. -Find the surface area of cuboids and L shaped prisms. -Estimate the values of powers and roots. -Estimate answers to calculations including problems involving money and measurement. -Solve contextual problems involving the four operations on decimals without the use of a calculator. -Perform calculations using the hierarchy of operations (using BIDMAS). -Understand 'reciprocal' as multiplicative inverse, knowing that any non-zero number multiplied by its reciprocal is 1 and that zero has no reciprocal because division by zero is not defined. -Solve ratio problems where you are given one value. -Express ratios in the form 1:n or n:1 and use and interpret maps and scale drawings. -Solve ratio problems where you are given the difference between two values. -Express a multiplicative relationship between two quantities as a ratio or a fraction.	-Know that measurements using real numbers depend on the choice of unit;	-Form and solve linear inequalities in one variable. -Represent inequalities on a number line. Use inequality notation to specify simple error intervals due to truncation or rounding. -Distinguish in meaning between the words: 'equation', 'formula', 'identity' and 'expression'. Understand the ? (not equal) symbol. -Manipulate algebraic expressions by multiplying a single letter term over a bracket a(2a + 5) and collecting like terms. -Manipulate algebraic expressions by taking out single term common factors. -Use systematic trial and improvement methods and calculators to find approximate solutions to equations. -Form and solve linear equations including those with unknowns on both sides. -Form and solve linear equations including unknowns on both sides and fractions. -Use and interpret the statistical measures mode, median, mean and range for discrete data by comparing distributions. -Draw box plots for discrete data and usebox plots to compare disributions. -Read and interpret data presented in two way tables. Use and complete two-way tables to solve problems. -Recognise misleading diagrams and explain the errors. -Draw and interpret scatter graphs for discrete and continuous variables, including using lines of best fit; understand the vocabulary of correlation, including positive, negative and zero correlation. Know that correlation	-Recognise, visualise and construct enlargements of objects using positive integer scale factors; identify the centre and the scale factor of enlargement and consider the implications of enlargement for perimeter. -Recognise, visualise and construct enlargements of objects using fractional scale factors; identify the centre and the scale factor of enlargement and understand the implications of enlargement for perimeter. -Identify invariant points under different transformations. -Express the term to term rule and finding missing values in a range of sequences; including fibonacci, simple quadratic and simple geometric sequences. -Generate sequences from practical contexts and write an expression to describe the nth term of an arithmetic sequence. -Draw and interpret distance-time and speed-time graphs, conversion graphs and draw and interpret other real life graphs. -Find the exact solution of two simultaneous equations in two unknowns by interpreting the equations as lines and their common solution as the point of intersection.	-Use parallel lines, alternate angles and corresponding angles. Solve problems using properties of angles, of parallel and intersecting lines, and of triangles, justifying inferences and explaining reasoning with diagrams and text. -Calculate and use the sums of the interior and exterior angles of quadrilaterals, pentagons and hexagons. Solve problems using properties of angles, justifying inferences and explaining reasoning with diagrams and text. Derive the sum of angles in a triangle. -Use bearings to specify direction. -Use Venn Diagrams in the context of probability. -Use Frequency Trees in the context of probability. -List all outcomes for single events, and for two successive events, in a systematic way, including the use of sample spaces; find probabilities. -Use set notation to describe regions in Venn diagrams. Intersection, Union, Complement, Empty set and Universal set. -Solve probability problems using relative frequency. -Use tree diagrams to represent outcomes of two or more events and to calculate probabilities of combinations of independent events. -Form and solve linear inequalities in one variable. -Represent inequalities on a number line. Use inequality notation to specify simple error intervals due to truncation or rounding. -Distinguish in meaning between the words: 'equation', 'formula', 'identity' and 'expression'. -Manipulate algebraic expressions by multiplying a single letter term over a bracket a(2a + 5) and collecting like terms. -Manipulate algebraic expressions by taking out single term common factors.	-Use index laws with numerical expressions involving multiplication and division of positive integer powers. -Add and subtract fractions with different denominators. -Add and subtract improper fractions. -Multiply and divide fractions, including Improper Fractions. -Construct triangles using a ruler and protractor only given information about their sides and angles; use a straight edge and compasses to construct triangles with given sides including equilateral triangles. Use the correct notation to describe angles, such as B C. -Construct 30, 45, 60 degree angles. Construct equilateral triangles and hexagons -Analyse 3-D shapes through 2-D projections and cross-sections, including, planes of symmetry as well as plans and elevations.
YEAR GROUP	HALF TERM 1	HALF TERM 2	-Form and solve linear inequalities in one variable.	HALF TERM 4	HALF TERM 5	HALF TERM 6
Y9						
KNOWLEDGE	Graphs and sequences Mensuration Calculations Proportion and percentages (2) Equations and formulae (2)	Number Angles Data Transformations	Equations and formulae Data Number Angles Mensuration Proportion and Percentages	Revision Transformations Graphs and sequences (2)	Angles Probability Equations and formulae (2) Number Graphs and sequences	Calculations Constructions
SKILLS	-Draw and interpret distance-time and speed-time graphs, conversion graphs and draw and interpret other real-life graphs. -Draw and interpret distance-time and speed-time graphs, conversion graphs and draw and interpret other real-life graphs. -Write an expression to describe a simple quadratic sequence. -Write an expression to describe a geometric progressions of the form rn. -Write an expression to describe the nth term of a sequence of fractions, involving two arithmetic sequences. -Find the gradient of straight lines given by equations of the form y = mx + c given explicitly or implicitly in terms of x. Understand that y = mx + c represents a straight line, interpret the values of m and c; know when lines are parallel. -Find the equation of a straight line from the graph, two points on the line or given the gradient and intercept. -Recall and apply the meaning of circle, chord, tangent, arc, sector, segment. -Find circumferences of circles, semi and quarter circles, and compound shapes. -Find area of circles, semi and quarter circles, and compound shapes. -Convert between different metric units of area and volume. -Recall and calculate perimeters and areas of compound shapes made from trapezia, parallelograms, triangles, rectangles. -Find the surface area of cuboids and L shaped prisms. -Use index laws with numerical expressions involving multiplication and division of positive integer powers. -Add and subtract fractions with different denominators. -Add and subtract improper fractions. -Multiply and divide fractions, including Improper Fractions. -Adding numbers expressed in standard form. -Multiplying numbers expressed in standard form. -Dividing numbers expressed in standard form. -Calculating in a financial context. [Value for money, lease hire, credit cards, converting currency, loans, tax on pay, household bills] -Check solutions to calculations using various methods including approximating, using inverse operations and recognising the effect of multiplying and dividing by numbers less than one and greater than one; estimate answers using appropriate techniques. -Solve problems involving numbers expressed in standard form using a calculator as appropriate. -Use a calculator effectively and efficiently, including using the memory and bracket keys, and function keys for reciprocals, squares and powers; enter a range of measures including 'time'; interpret the display; round off a final answer to a reasonable degree of accuracy. Use Inequality notation to specify errors intervals due -Use ratio notation, including reduction to its simplest form. -Solve ratio problems where you are required to share a total.	-Use standard index form expressed in conventional notation; convert between ordinary and standard index form representations. -Know that measurements using real numbers depend on the choice of unit; recognise that a measurement given to the nearest whole unit may be inaccurate by up to one half in either direction. Use inequality notation to specify simple error intervals. Use in the context of simple upper and lower bound questions. -Understand recurring decimals including exact fraction equivalents in simple cases. Knowing that fractions that are finite only have prime factors of 2 and 5 in the denominator when simplified. -Use bearings to specify direction. -Understand, recall and use Pythagoras' theorem. Find the length AB given the points A and B in 2-D. -Understand, recall and use trigonometrical relationships in right-angled triangles and use these to solve problems, including those involving bearings and Pythagoras. -Know and use the exact values of sin, cos and tan at key angles (0, 30, 45, 60, 90 degrees) to solve problems. -Recognise misleading diagrams and explain the errors. -Draw and interpret scatter graphs for discrete and continuous variables, including using lines of best fit; understand the vocabulary of correlation, including positive, negative and zero correlation. Know that correlation does not necessarily indicate causation and the difference between interpolation and extrapolation, and the dangers of extrapolation. -Construct and interpret pie charts. -Identify seasonality and trends in time series and calculate an appropriate moving average. -Calculate the median, mean and range for discrete data presented in a frequency table. -Construct and interpret frequency polygons. Compare two or more distributions and make inferences, using the shape of the distributions. -Estimate the mean, median and range of a set of grouped data and determine the modal class, selecting the statistic most appropriate to the line of enquiry. Compare two or more distributions using the measures of average and range. Consider outliers when calculating the range of a distribution. -Recognise, visualise and construct enlargements of objects using fractional scale factors; identify the center and the scale factor of enlargement and understand the implications of enlargement for perimeter. -Identify invariant points under different transformations. -Transform triangles and other 2-D shapes by combinations of rotations, reflections and translations using vectors; recognise and visualise rotations, reflections and translations including reflection symmetry of 3-D shapes; understand the	-Distinguish in meaning between the words: 'equation', 'formula', 'identity' and 'expression'. Understand the ≠ (not equal) symbol. -Manipulate algebraic expressions by multiplying a single letter term over a bracket a(2a + 5) and collecting like terms. -Manipulate algebraic expressions by taking out single term common factors. -Use systematic trial and improvement methods and calculators to find approximate solutions to equations such as a solid has a volume V = x3 + 2x2. If V = 90 then find x to 1dp. -Form and solve linear equations including those with unknowns on both sides. -Form and solve linear equations including unknowns on both sides and fractions. -Use index laws with algebraic expressions involving multiplication and division of positive integer powers. -Use and generate formulae in context; substitute positive and negative numbers into a formula. Including the use of suvat equations. -Change the subject of a formula in cases where the subject only appears once. Expand and simplify the product of two linear expressions such as (x+2)(x-5). -Factorise and solve quadratic expressions where a = 1, including the difference of two squares. -Find the exact solution of two simultaneous equations in two unknowns by eliminating a variable algebraically. -Multiply expressions of the form (2x + 3)(3x – 7) and simplify the resulting expression. -Form mathematical arguments to prove solutions to algebraic problems. -Solve quadratic equations of the form x2 +/– … by factorisation, including the difference of two squares. -Recognise misleading diagrams and explain the errors. -Draw and interpret scatter graphs for discrete and continuous variables, including using lines of best fit; understand the vocabulary of correlation, including positive, negative and zero correlation. Know that correlation does not necessarily indicate causation and the difference between interpolation and extrapolation, and the dangers of extrapolation. -Construct and interpret pie charts. Identify seasonality and trends in time series and calculate an appropriate moving average. -Calculate the median, mean and range for discrete data presented in a frequency table.	-Recognise, visualise and construct enlargements of objects using fractional scale factors; identify the centre and the scale factor of enlargement and understand the implications of enlargement for perimeter. -Identify invariant points under different transformations. -Transform triangles and other 2-D shapes by combinations of rotations, reflections and translations using vectors; recognise and visualise rotations, reflections and translations including reflection symmetry of 3-D shapes; understand the properties preserved by these transformations; understand congruence in the context of transformations. -Understand and use vector notation; calculate, and represent graphically the sum of two vectors, the difference of two vectors and a scalar multiple of a vector; calculate the resultant of two vectors; understand and use the commutative and associative properties of vector addition. -Draw and interpret distance-time and speed-time graphs, conversion graphs and draw and interpret other real life graphs. -Draw and interpret distance-time and speed-time graphs, conversion graphs and draw and interpret other real life graphs. -Write an expression to describe a simple quadratic sequence. -Write an expression to describe a geometric progressions of the form rn. -Write an expression to describe the nth term of a sequence of fractions, involving two arithmetic sequences. -Find the gradient of straight lines given by equations of the form y = mx + c given explicitly or implicitly in terms of x. Understand that y = mx + c represents a straight line, interpret the values of m and c; know when lines are parallel. -Find the equation of a straight line from the graph, two points on the line or given the gradient and intercept.	-Use bearings to specify direction. -Understand, recall and use Pythagoras' theorem. Find the length AB given the points A and B in 2-D. -Understand, recall and use trigonometrical relationships in right-angled triangles and use these to solve problems, including those involving bearings and Pythagoras. -Know and use the exact values of sin, cos and tan at key angles (0, 30, 45, 60, 90 degrees) to solve problems. -Use tables to organise information and to solve problems, including probability related. -Use set notation to describe regions in Venn diagrams. Intersection, Union, Complement, Empty set and Universal set. -Solve probability problems using relative frequency. -Use tree diagrams to represent outcomes of two or more events and to calculate probabilities of combinations of independent events. -Use tree diagrams to represent outcomes of two or more events and to calculate probabilities where selected items are not replaced. -Distinguish in meaning between the words: 'equation', 'formula', 'identity' and 'expression'. ----- Understand the ≠ (not equal) symbol. -Manipulate algebraic expressions by multiplying a single letter term over a bracket a(2a + 5) and collecting like terms. -Manipulate algebraic expressions by taking out single term common factors. -Use systematic trial and improvement methods and calculators to find approximate solutions to equations such as a solid has a volume V = x3 + 2x2. If V = 90 then find x to 1dp. -Form and solve linear equations including those with unknowns on both sides. -Form and solve linear equations including unknowns on both sides and fractions. -Use index laws with algebraic expressions involving multiplication and division of positive integer powers. -Use and generate formulae in context; substitute positive and negative numbers into a formula. -Including the use of suvat equations. -Change the subject of a formula in cases where the subject only appears once. -Expand and simplify the product of two linear expressions such as (x+2)(x-5). -Factorise and solve quadratic expressions where a = 1, including the difference of two squares. -Find the exact solution of two simultaneous equations in two unknowns by eliminating a variable algebraically. -Multiply expressions of the form (2x + 3)(3x – 7) and simplify the resulting expression.	-Use index laws with numerical expressions involving multiplication and division of positive integer powers. -Add and subtract fractions with different denominators. -Add and subtract improper fractions. -Multiply and divide fractions, including Improper Fractions. -Adding numbers expressed in standard form. -Multiplying numbers expressed in standard form. -Dividing numbers expressed in standard form. -Calculating in a financial context. [Value for money, lease hire, credit cards, converting currency, loans, tax on pay, household bills] -Check solutions to calculations using various methods including approximating, using inverse operations and recognising the effect of multiplying and dividing by numbers less than one and greater than one; estimate answers using appropriate techniques. -Solve problems involving numbers expressed in standard form using a calculator as appropriate. -Use a calculator effectively and efficiently, including using the memory and bracket keys, and function keys for reciprocals, squares and powers; enter a range of measures including 'time'; interpret the display; round off a final answer to a reasonable degree of accuracy. Use Inequality notation to specify errors intervals due to rounding. -Construct 30, 45, 60 degree angles. Construct equilateral triangles and hexagons -Analyse 3-D shapes through 2-D projections and cross-sections, including, planes of symmetry as well as plans and elevations. -Use straight edge and compasses to produce standard constructions including the midpoint and perpendicular bisector of a line segment, the perpendicular from a point to a line, and the bisector of an angle. -Apply loci to spatial problems involving shapes and paths.
YEAR GROUP	HALF TERM 1	HALF TERM 2	HALF TERM 3	HALF TERM 4	HALF TERM 5	HALF TERM 6
Y10						
KNOWLEDGE	Graphs and sequences Mensuration Calculations Proportion and percentages (2) Equations and formulae (2)	Number Angles Data Transformations	Equations and formulae Data Number Angles Mensuration	Revision Transformations Graphs and sequences (2)	Angles Probability Equations and formulae (2) Number Graphs and sequences	Calculations Constructions
SKILLS	-write an expression to describe a simple quadratic sequence. -write an expression to describe a geometric progressions of the form rn. -write an expression to describe the nth term of a sequence of fractions, involving two arithmetic sequences. -find the gradient of straight lines given by equations of the form y = mx + c given explicitly or implicitly in terms of x. Understand that y = mx + c represents a straight line, interpret the values of m and c; know when lines are parallel. -find the equation of a straight line from the graph, two points on the line or given the gradient and intercept. -plot graphs of a range of quadratic functions and solve related quadratics involving drawing a horizontal line. -identify and interpret roots, intercepts and turning points of quadratic functions graphically. -draw, sketch, recognise and interpret cubic, exponential and reciprocal graphs. -recall and apply the meaning of circle, chord, tangent, arc, sector, segment. -find circumferences of circles, semi and quarter circles, and compound shapes. -find area of circles, semi and quarter circles, and compound shapes. -convert between different metric units of area and volume. -recall and calculate perimeters and areas of compound shapes made from trapezia, parallelograms, triangles, rectangles. -find the surface area of cuboids and L shaped prisms. -solve problems involving the surface area of prisms, including cylinders. -solve problems involving the volume of prisms, including cylinders. -solve problems involving the lengths of arcs, areas of sectors. -solve problems involving the volume of pyramids, cones and spheres. -solve problems involving the surface area of cones and spheres. -Adding numbers expressed in standard form. -Multiplying numbers expressed in standard form. -Dividing numbers expressed in standard form. -Calculating in a financial context. [Value for money, lease hire, credit cards, converting currency, loans, tax on pay, household bills] -Check solutions to calculations using various methods including approximating, using inverse operations and recognising the effect of multiplying and dividing by numbers less than one and greater than one; estimate answers using appropriate techniques. -Solve problems involving numbers expressed in standard form using a calculator as appropriate. -Use a calculator effectively and efficiently, including using the memory and bracket	-Understand recurring decimals including exact fraction equivalents in simple cases. Knowing that fractions that are finite only have prime factors of 2 and 5 in the denominator when simplified. -convert any recurring decimal into a fraction. -understand the terms rational and irrational and give examples of each. -Understand, recall and use Pythagoras' theorem. Find the length AB given the points A and B in 2-D. -Understand, recall and use trigonometrical relationships in right-angled triangles and use these to solve problems, including those involving bearings and Pythagoras. -Know and use the exact values of sin, cos and tan at key angles (0, 30, 45, 60, 90 degrees) to solve problems. -solve multi-stage trigonometric problems. -use Pythagoras' theorem in 3-D contexts, including using 3-D coordinates and Pythagoras' theorem to find the length AB given the points A and B in 3-D. -Construct and interpret frequency polygons. Compare two or more distributions and make inferences, using the shape of the distributions. -Estimate the mean, median and range of a set of grouped data and determine the modal class, selecting the statistic most appropriate to the line of enquiry. Compare two or more distributions using the measures of average and range. Consider outliers when calculating the range of a distribution. -select a representative sample from a population using random and stratified sampling; criticise a range of sampling methods. -use the Peterson capture - recapture method to estimate population sizes. -draw and interpret cumulative frequency tables and diagrams and box plots for grouped data; find the median, quartiles, percentiles and interquartile range. -Identify invariant points under different transformations. -transform triangles and other 2-D shapes by combinations of rotations, reflections and translations using vectors; recognise and visualise rotations, reflections and translations including reflection symmetry of 3-D shapes; understand the properties preserved by these transformations; understand congruence in the context of transformations. -Understand and use vector notation; calculate, and represent graphically the sum of two vectors, the difference of two vectors and a scalar multiple of a vector; calculate the resultant of two vectors; understand and use the commutative and associative properties of vector addition. -recognise, visualise and construct enlargements of objects using negative scale	-Use index laws with algebraic expressions involving multiplication and division of positive integer powers. -Use and generate formulae in context; substitute positive and negative numbers into a formula. Including the use of suvat equations. -Change the subject of a formula in cases where the subject only appears once. -Expand and simplify the product of two linear expressions such as (x+2)(x-5). -Factorise and solve quadratic expressions where a = 1, including the difference of two squares. -Find the exact solution of two simultaneous equations in two unknowns by eliminating a variable algebraically. -Multiply expressions of the form (2x + 3)(3x – 7) and simplify the resulting expression. -Form mathematical arguments to prove solutions to algebraic problems. -Solve quadratic equations of the form x2 +/– … by factorisation, including the difference of two squares. -Recognise misleading diagrams and explain the errors. -Draw and interpret scatter graphs for discrete and continuous variables, including using lines of best fit; understand the vocabulary of correlation, including positive, negative and zero correlation. Know that correlation does not necessarily indicate causation and the difference between interpolation and extrapolation, and the dangers of extrapolation. -Construct and interpret pie charts. -Identify seasonality and trends in time series and calculate an appropriate moving average. -Calculate the median, mean and range for discrete data presented in a frequency table. -Construct and interpret frequency polygons. Compare two or more distributions and make inferences, using the shape of the distributions. -Estimate the mean, median and range of a set of grouped data and determine the modal class, selecting the statistic most appropriate to the line of enquiry. Compare two or more distributions using the measures of average and range. Consider outliers when calculating the range of a distribution. -Use standard index form expressed in conventional notation; convert between ordinary and standard index form representations.	-Recognise, visualise and construct enlargements of objects using fractional scale factors; identify the center and the scale factor of enlargement and understand the implications of enlargement for perimeter. -Identify invariant points under different transformations. -transform triangles and other 2-D shapes by combinations of rotations, reflections and translations using vectors; recognise and visualise rotations, reflections and translations including reflection symmetry of 3-D shapes; understand the properties preserved by these transformations; understand congruence in the context of transformations. -Understand and use vector notation; calculate, and represent graphically the sum of two vectors, the difference of two vectors and a scalar multiple of a vector; calculate the resultant of two vectors; understand and use the commutative and associative properties of vector addition. -draw and interpret distance-time and speed-time graphs, conversion graphs and draw and interpret other real life graphs. -draw and interpret distance-time and speed-time graphs, conversion graphs and draw and interpret other real life graphs. -write an expression to describe a simple quadratic sequence. -write an expression to describe a geometric progressions of the form rn. -write an expression to describe the nth term of a sequence of fractions, involving two arithmetic sequences. -find the gradient of straight lines given by equations of the form y = mx + c given explicitly or implicitly in terms of x. Understand that y = mx + c represents a straight line, interpret the values of m and c; know when lines are parallel. -find the equation of a straight line from the graph, two points on the line or given the gradient and intercept.	-Understand, recall and use Pythagoras' theorem. Find the length AB given the points A and B in 2-D. -Understand, recall and use trigonometrical relationships in right-angled triangles and use these to solve problems, including those involving bearings and Pythagoras. -Know and use the exact values of sin, cos and tan at key angles (0, 30, 45, 60, 90 degrees) to solve problems. Grade 7: solve multi-stage trigonometric problems. Grade 7: use Pythagoras' theorem in 3-D contexts, including using 3-D coordinates and Pythagoras' theorem to find the length AB given the points A and B in 3-D. -Use tree diagrams to represent outcomes of two or more events and to calculate probabilities where selected items are not replaced. -use the product rule for counting (i.e. if there are m ways of doing one task and for each of these, there are n ways of doing another task, then the total number of ways the two tasks can be done is m × n ways). -Use index laws with algebraic expressions involving multiplication and division of positive integer powers. -Use and generate formulae in context; substitute positive and negative numbers into a formula. Including the use of suvat equations. -Change the subject of a formula in cases where the subject only appears once. -Expand and simplify the product of two linear expressions such as (x+2)(x-5). -Factorise and solve quadratic expressions where a = 1, including the difference of two squares. -Find the exact solution of two simultaneous equations in two unknowns by eliminating a variable algebraically. -Multiply expressions of the form (2x + 3)(3x – 7) and simplify the resulting expression. -Form mathematical arguments to prove solutions to algebraic problems. -Solve quadratic equations of the form x2 +/– … by factorisation, including the difference of two squares. -Understand recurring decimals including exact fraction equivalents in simple cases. Knowing that fractions that are finite only have prime factors of 2 and 5 in the denominator when simplified. -convert any recurring decimal into a fraction. -understand the terms rational and irrational and give examples of each.	-Use index laws with numerical expressions involving multiplication and division of positive integer powers. -Add and subtract fractions with different denominators. -Add and subtract improper fractions. -Multiply and divide fractions, including Improper Fractions. -Adding numbers expressed in standard form. -Multiplying numbers expressed in standard form. -Dividing numbers expressed in standard form. -Calculating in a financial context. [Value for money, lease hire, credit cards, converting currency, loans, tax on pay, household bills] -Check solutions to calculations using various methods including approximating, using inverse operations and recognising the effect of multiplying and dividing by numbers less than one and greater than one; estimate answers using appropriate techniques. -Solve problems involving numbers expressed in standard form using a calculator as appropriate. -Use a calculator effectively and efficiently, including using the memory and bracket keys, and function keys for reciprocals, squares and powers; enter a range of measures including 'time'; interpret the display; round off a final answer to a reasonable degree of accuracy. Use Inequality notation to specify errors intervals due to rounding. -use fractional, negative and zero powers in simplifying numerical expressions, including using inverse operations. -Construct 30, 45, 60 degree angles. Construct equilateral triangles and hexagons -Analyse 3-D shapes through 2-D projections and cross-sections, including, planes of symmetry as well as plans and elevations. -Use straight edge and compasses to produce standard constructions including the midpoint and perpendicular bisector of a line segment, the perpendicular from a point to a line, and the bisector of an angle. -Apply loci to spatial problems involving shapes and paths
YEAR GROUP	HALF TERM 1	HALF TERM 2	HALF TERM 3	HALF TERM 4	HALF TERM 5	HALF TERM 6
Y11						
KNOWLEDGE	Growth and decay Angles Length, area and volume Pythagoras's Theorem and Trigonometry Vectors Probability Diagrams Pythagoras's Theorem and Trigonometry Probability Diagrams Measures	Arithmetic Properties Manipulation Equations and inequalities Graphs Conversion Percentages Ratio Proportion Compound Measures	Approximation and Estimation Manipulation Equations and inequalities Graphs Functions Conversion Percentages Ratio Proportion Compound Measures Shape Angles Length, area and volume	Fractions Properties Powers and roots Standard Form Manipulation Equations and inequalities Graphs Percentages Ratio Proportion Compound Measures Angles Length, area and volume	GCSE Exams	GCSE Exams
SKILLS	Average speed General iterative processes Circle theorems Area of a trapezium Similar triangles Pythagoras's Theorem Trigonometry Trigonometry in 3-D Column vectors Dependent combined events Frequency polygon Histogram Box Plot Lower and upper quartiles Compare distributions Capture-recapture method	Negative number Laws of indices Bounds Simplification Expansion of bracket Substitute values Change subject of a formula Forming an expression Expansion of brackets Difference of two squares Algebraic fractions Set up and solve equation Simultaneous equations linear /quadratic Gradient of a straight line graph Time Percentage decrease	Error interval Use of a calculator Simplification Expansion of bracket Factorisation Laws of indices Linear equation Form an equation Quadratic inequality Equations of parallel lines Coordinates Transformations of functions Graphs of trigonometric functions Inverse and composite functions Area Depreciation	Fraction of an amount Fraction arithmetic Recurring decimal to fraction Product of prime factors Negative and fractional indices Simplification of surds Conversion Calculation Simplification Expansion of bracket Algebraic fractions Form an equation Linear inequality Quadratic equation Equation of a tangent to a circle Quadratic graph	GCSE Exams	GCSE Exams