

YEAR 10 Autumn 2019		Foundation	
DATE	Unit / Lesson	RELEVANT KNOWLEDGE	OBJECTIVES
	9 Graphs	Plot coordinates and read scales. Substitute into a formula.	1 5
04/09/2019	9.1 Coordinates	Plot coordinates and read scales. Substitute into a formula.	2 3
09/09/2019	9.2 Linear graphs	Use a function machine. Plot points. Understand that parallel lines will never meet. Identify which line is steeper.	2 3
16/09/2019	9.3 Gradient	Understand that parallel lines will never meet. Identify which line is steeper.	1 4
	9.4 $y = mx + c$	Understand that in a linear equation, the coefficient of the gradient. Understand that parallel lines have the same gradient. Draw a line with a given gradient.	4 4
23/09/2019	9.5 Real life graphs	Interpret scales. Draw a graph of an equation in the form $y = mx + c$.	2 4
	9.6 Distance-time graphs	Understand and use the relationship between distance, average speed and time.	3 5
	9.7 More real life graphs	Interpret a distance-time graph. Read the gradient of positive, negative and no gradients. Find the equation of a line.	3 5
	10 Transformations	Recall basic shapes. Be able to plot points in all four quadrants. Understand the concept of rotation. Reflect a shape in a mirror line. Translate a shape on a squared grid using instructions such as 'up 3 and right 2'. Draw and label lines parallel to axes and $y = mx + c$. Understand the terms 'clockwise' and 'anticlockwise'.	2 4
30/09/2019	10.1 Translation	Use the words 'left' and 'right'. Use the terms 'up' and 'down'. Describe translations using 'left' and 'down'.	4 4
07/10/2019	10.2 Reflection	Define the word 'symmetry'. Reflect a shape in a mirror line.	2 4
14/10/2019	10.3 Rotation	Know the number of degrees in fractions of a turn. Use the words 'clockwise' and 'anticlockwise'.	3 4
NAF TIME			
26/10/2019	10.4 Enlargement	Find one factor from object to image and from image to object.	3 3
	10.5 Describing enlargements	Recognise the properties of enlargements. Identify the centre of enlargement.	3 3
04/11/2019	10.6 Combining transformations	Use the information for describing transformations. Identify the type of transformation used. Describe combined transformations of shapes on a grid.	4 4
	11 Ratio and proportion	Know the four operations of number. Have a basic understanding of fractions as being 'parts of a whole'. Find the scale factor of an enlargement. Draw a map from a scale of miles.	2 5
11/11/2019	11.1 Writing ratios	Write and check whole numbers. Simplify fractions.	2 3
	11.2 Using ratios 1	Use ratios to solve problems. Find the HCF of a pair of numbers.	2 3
18/11/2019	11.3 Ratios and measures	Convert units of weight, length, capacity and time. Use unit notation. Work out areas of rectangles and volumes of cubes.	2 4
25/11/2019	11.4 Using ratios 2	Interpret ratios using correct notation. Round to a specified degree of accuracy. Write ratios in simplest form.	3 5
02/12/2019	11.5 Comparing using ratios	Interpret ratios. Write ratios in simplest form. Compare rates.	3 4
09/12/2019	11.6 Using proportion	Understand and use ratios to order decimals. Write a ratio in the form $a : b$.	3 3
	11.7 Proportion and graphs	Understand and use $y = mx + c$. Use coordinates to plot a graph. Plot a line graph from a table of values. Write a linear equation from a table of values.	3 4
	11.8 Proportion problems	Recognise different types of proportion. Solve word problems involving direct and inverse proportion.	3 4
END OF TERM 1			
	12 Right-angled triangles	Know the angle sum of triangles and quadrilaterals. Use Pythagoras' theorem to find missing sides. Recall basic facts. Understand when to use an answer to 2 decimal places. Plot coordinates in all four quadrants and draw axes.	2 5
06/01/2020	12.1 Pythagoras' theorem 1	Calculate the length of the hypotenuse in a right-angled triangle. Round answers to a specified degree of accuracy.	2 4
	12.2 Pythagoras' theorem 2	Understand the meaning of 'inverse' and use inverse operations on the calculator. Identify the hypotenuse and calculate its length.	4 5
13/01/2020	12.3 Trigonometry: the sine ratio	Simplify fractions. Convert fractions to decimals using a calculator.	3 5
	12.4 Trigonometry: the sine ratio 2	Calculate the size of an angle in a right-angled triangle. Use the sine ratio on a calculator.	3 5
20/01/2020	12.5 Trigonometry: the cosine ratio	Identify the hypotenuse and adjacent side in a right-angled triangle.	3 5
	12.6 Trigonometry: the tangent ratio	Identify the opposite and adjacent sides in right-angled triangles. Use the tangent ratio to calculate the length of a side in a right-angled triangle. Use the tangent ratio to calculate an angle in a right-angled triangle.	3 5
27/01/2020	12.7 Finding lengths and angles using trigonometry	Identify the sine, cosine and tangent ratios. Use trigonometric ratios to solve problems. Know the exact values of the sine, cosine and tangent of some angles.	4 5
	13 Probability	Add and multiply fractions and decimals. Know equivalent of expressing one number as a fraction or percentage of another number. Convert between fractions, decimals and percentages. Understand the terms: impossible, certain, even, equally likely, certain. Calculate theoretical probabilities for simple situations, e.g. spinner landing on a given colour.	2 5
03/02/2020	13.1 Calculating probability	Interpret probability as a fraction, decimal and a percentage. List outcomes. Identify outcomes.	2 3
	13.2 Two events	Convert fractions, decimals and percentages. Identify outcomes. Understand theoretical probability (single events).	3 3
10/02/2020	13.3 Experimental probability	Use two-way tables. Add and subtract equivalent fractions. Use ratios and multiples. Calculate probabilities.	2 4
24/02/2020	13.4 Tree diagrams	Calculate with fractions. Use the possible outcomes for two events. Work out the probability of something happening. Calculate probabilities.	3 5
	13.6 More tree diagrams	Calculate with and simplify fractions. Work out probabilities using tree diagrams.	3 5
	14 Multiplicative reasoning	Interpret scales on a range of measuring instruments. Convert between metric measures. Understand unit notation, and be able to write a ratio in simplest form. Find a percentage of a amount and relate percentages to ratios. Rearrange equations and use these to solve problems. Know speed = distance/time. Identify relationships. Know the relationship between area and perimeter. Know the relationship between area and volume.	3 5
09/03/2020	14.1 Percentages	Convert percentages to decimals. Round to a specified degree of accuracy. Identify a given amount as a percentage of another. Work out percentage increases and decreases.	4 4
	14.2 Growth and decay	Write powers of numbers in index form. Round percentages to 2 decimal places. Understand 'half' as a mathematical concept. Rearrange equations.	4 4
16/03/2020	14.3 Compound measures	Convert between metric units of volume. Calculate the area of a rectangle. Calculate the surface area of a prism.	3 4
	14.4 Distance, speed and time	Convert between metric units of length. Calculate average speed, distance and time. Use formulae to calculate speed and acceleration. Understand and convert between measures and conversions.	3 4
23/03/2020	14.5 Direct and Inverse proportion	Identify graphs showing direct proportion. Write a ratio in its simplest form.	3 5
	15 Constructions, nets and bearings	Measure and draw lines. Write a ratio in its simplest form. Know the 8 points of the compass. Draw a net of a 3D shape. Know clockwise, anticlockwise. Identify isosceles triangles.	1 4
15/04/2020	15.1 3D solids	Recall names of common 3D shapes.	1 2
	15.2 Plans and elevations	Identify names of 3D shapes from faces of 3D solids. Draw a net of a 3D shape. Know the properties of lines (intersections and perpendicularity).	3 3
	15.3 Accurate drawings 1	Understand the meaning of 'concurrent'. Draw lines, angles and circles accurately.	3 3
20/04/2020	15.4 Scale drawings and maps	Work out scale factor of an enlargement. Write a ratio in the form $1 : n$, and write equivalent ratios. Convert between metric measurements of length.	2 3
	15.5 Accurate drawings 2	Identify a scale factor of enlargement. Identify a scale factor of enlargement.	3 3
27/04/2020	15.6 Constructions	Identify parallel and perpendicular lines. Draw lines accurately. Construct distances from map scale to real life distance and area. Construct the perpendicular bisector.	4 4
04/05/2020	15.8 Bearings	Identify the properties of angles at a point, angles on a straight line, alternate and corresponding angles.	2 4
	16 Quadratic equations and graphs	Square negative numbers. Substitute into formulae. Plot points on a coordinate grid. Round negative numbers and their terms.	3 5
11/05/2020	16.1 Expanding double brackets	Be able to work out area of a shape using algebraic terms. Simplify algebraic expressions. Write a quadratic expression in the form $ax^2 + bx + c$.	3 4
	16.2 Plotting quadratic graphs	Identify the equation of the mirror line. Copy and complete a table of values and plot a straight line graph. Identify the vertex and axis of symmetry. Copy and complete a table of values and plot a quadratic graph.	4 5
18/05/2020	16.3 Using quadratic graphs	Identify the vertex and axis of symmetry. Copy and complete a table of values and plot a quadratic graph.	4 5
	16.4 Factoring quadratic expressions	Work out factor pairs of positive numbers. Multiply double brackets.	4 5
01/06/2020	16.5 Solving quadratic equations algebraically	Know that taking the square root of a number will result in both a positive and a negative answer. Factorise quadratic expressions.	4 4
	17 Perimeter, area and volume 1	Know the formulae for calculating the area of a rectangle. Know how to use the four operations on a calculator. Name common 3D shapes. Define centre, radius and diameter for a circle. Substitute into formulae and calculate the values. Work out the volume of cuboids and prisms.	2 5
15/06/2020	17.1 Circumference of a circle 1	Calculate the circumference of a circle given its diameter. Rearrange equations.	3 3
	17.2 Circumference of a circle 2	Identify the circumference and radius of a circle. Solve equations. Understand the relationship between circumference and radius.	2 3
	17.3 Area of a circle	Calculate the area of a circle. Know the radius and diameter of a circle. Solve problems involving the area of a circle. Give answers in terms of π .	3 4
22/06/2020	17.4 Semicircles and sectors	Know number of degrees in full turn, half turn or quarter turn. Simplify fractions. Work out areas of semicircles and quarter circles and perimeters. Solve problems involving sectors of circles.	3 5
	17.5 Composite 2D shapes and cylinders	Find the area and circumference of a circle. Know how to use the formulae for the volume of a prism. Know the net of a cylinder. Work out the volume and surface area of cylinders.	4 5
29/06/2020	17.6 Pyramids and cones	Work out the area of a pyramid. Work out the surface area of a pyramid. Work out the volume of a cone. Know the surface area of a cone.	4 5
06/07/2020	17.7 Spheres and composite shapes	Know volume and surface area formulae. Work out the length of the hypotenuse using Pythagoras' theorem.	5 5
13/07/2020		Work out the volume and surface area of a sphere. Work out the volume and surface area of composite solids.	5 5
END OF TERM 2			