Year 10 Foundation Unit 10 – Transformations		
Learning Outcome	*Students will know and remember …*	*So that they can….*
Understand reflections.	That a reflection is a mirror image and needs a reflection line to perform. That some coordinates may be invariant under a reflection. That congruence means exactly the same.	Perform and describe reflections
Understand translations.	That a translation moves the object and therefore size, shape and orientation do not change. That a column vector describes a translation.	Perform and describe translations
Understand rotations.	That a rotation spins an object and needs a centre of rotation, a direction and an angle to perform. That some coordinates may be invariant under a rotation	Perform and describe rotations
Understand enlargements.	That an enlargement makes a shape bigger or smaller. That a centre of enlargement and scale factor is needed.	Perform and describe enlargements
Year 10 Foundation Unit 11 – Ratio and Proportion		
Learning Outcome	*Students will know and remember …*	*So that they can….*
Understand the link between ratios and fractions.	That a ratio represents the parts that make up a whole. That a ratio tells you the parts and the whole so fractions can be created.	Change from ratio's to fractions and vice versa.
Understand the notation of ratio.	A colon is used to separate parts of a ratio.	Simplify ratio's. Describe ratio's. Write a ratio as a unit ratio. Use ratio to describe rates and scale up recipes. Write ratio's in the form 1:m
To divide a quantity into a given ratio.	That the parts of a ratio are added to find the whole. That they need to divide to find one part of the ratio.	Use number lines or bar models to divide in a ratio. Find the totals related to the parts in a given ratio.
To find the original quantity given a ratio and a part.	That the part given is represented by the part in the ratio. That the whole will be larger than the part given.	Use number lines or bar models to divide part of a ratio. Find the total of a ratio when given a part.
Understand proportionality.	That direct proportion means that as one variable increases so does the other. That direct proportion is in the form y= kx. That inverse proportion means that as one variable increases the other decreases.	Recognise direct and inverse proportionality. Perform calculations with direct and inverse proportionality.
Year 10 Foundation Unit 12 – Pythagoras and Trigonometry		
Learning Outcome	*Students will know and remember …*	*So that they can….*
Understand Pythagoras theorem.	That the longest side on a triangle is called the hypotenuse.	Calculate the missing sides on right angled triangles.

	That answers can be given in surd form.	Justify whether a triangle is right angled. Calculate the length of line segments.
Understand trigonometry.	That the side opposite the angle is called the hypotenuse and the side next to the angle is called the adjacent. That there are 3 trigonometric ratios – sine, cosine and tangent. That the exact values of trigonometry can be derived from isosceles and equilateral triangles.	Calculate missing sides and angles in right angled triangles. Calculate angles of elevation and depression; Know the exact values of sin ϑ, cos ϑ and tan ϑ for ϑ = 0°, 30°, 45°, 60° and 90°;

Year 10 Foundation Unit 13 – Probability		
Learning Outcome	*Students will know and remember …*	*So that they can….*
Understand the language and notation of probability.	The words impossible, unlikely, even chance, likely, and certain describe probability. That the probability scale goes from 0 to 1. Probability can be written as a fraction, decimal or percentage. That mutually exclusive means that events cannot happen at the same time. That the sum of probabilities is 1. Theoretical probability uses theory. Experimental probability uses results from an experiment and can be called relative frequency. That probabilities can be calculated from frequency tables, frequency trees and two-way tables.	List the possible outcomes of an event. Calculate the probability of events happening or not. Find missing probabilities. Compare experimental and theoretical probabilities.
Use diagrams with probabilities.	That a sample space diagram displays all possible outcomes. That venn diagrams use the following notation: A∪B A∩B That A∪B means A or B and is called the union. That A∩B means A and B and is called the intersection. That independent are mutually exclusive.	Calculate probabilities from different diagrams. Complete sample space diagrams, Venn diagrams, two-way tables and tree diagrams.

Year 10 Foundation Unit 14 – Multiplicative reasoning		
Learning Outcome	*Students will know and remember …*	*So that they can….*
Understand compound measures	That speed = distance/time That the unit for speed is m/s That density = mass/volume That the unit for density is kg/m^2 That pressure = force/area That the unit for pressure is N/ m^2	Calculate real life problems involving speed, distance, time, force, pressure, area, density, mass and volume.
Describe one number as a percentage of another	That as a fraction, the total amount is the denominator and the given amount the numerator. That a fraction can be written as a percentage.	Compare quantities by calculating numbers as percentages of others.

Find percentage increases and decreases.	That a percentage increase will mean the result is more. That a percentage decrease will mean the result is less. That a multiplier can be used to perform the action in one calculation.	Calculate the result after a specific percentage increase or decrease. Calculate simple and compound interest.
Understand percentage profit or loss.	That profit and loss is the difference between the amount of money made and the amount paid. That the profit or loss is compared the original spend. That a decimal is converted to a percentage by multiplying by 100.	Calculate percentage profit or loss.
Calculate a reverse percentage.	That calculating a reverse percentage uses the inverse operation of dividing. That the divisor will be the decimal equivalent of the percentage.	Calculate the original value given the final value after a stated percentage increase or decrease.
Calculate with proportionality.	That direct proportion means that as one variable increases so does the other. That direct proportion is in the form y= kx. That inverse proportion means that as one variable increases the other decreases. That direct proportion is in the form y= k/x.	Set up, solve and interpret equations that describe direct and inverse proportionality.

Year 10 Foundation Unit 15 - Constructions		
Learning Outcome	*Students will know and remember …*	*So that they can….*
Use a pair of compasses.	That a pair of compasses draws a circle. That an arc is part of the circumference of a circle.	Confidently use a pair of compasses. Accurately construct a hexagon.
Use a protractor.	That a protractor measures and draw angles to the nearest degree.	Confidently draw and measure angles.
Construct triangles.	that there are 4 types of triangles: scalene, equilateral, isosceles, right angles	Accurately construct triangles using a pair of compasses.
Perform constructions.	That perpendicular means at right angles to. That to bisect an angle means to cut it exactly in half. That construction lines are not erased.	Accurately construct a perpendicular bisector of a line segment. Accurately construct a perpendicular to a given line through a given point. Accurately construct an angle bisector
Understand elevations.	That a face is a flat surface of a 3D shape. That a vertex is a corner of a 3D shape. That an edge is where 2 faces join on a 3D shape. That a front elevation is the 2D shape seen from the front. That a side elevation is the 2D shape seen from the side.	Draw sketches of 3D solids. Draw the front, side and plan elevation of 3D solids.

	That a plan elevation is the 2D shape seen from above. That 3D solids can be drawn as their faces.	
Understand Loci.	That bearings describe an angle taken from north, clockwise and has 3 figures. That locus is a set of points which satisfies a given condition.	Draw and construct diagrams from given instructions, including: a region bounded by a circle and an intersecting line; a given distance from a point and a given distance from a line; equal distances from two points or two-line segments. Find and describe regions satisfying a combination of loci. Use and interpret maps and scale drawings. Estimate lengths using a scale diagram; Make accurate scale drawings from a diagram; Use accurate drawing to solve problems involving bearings and loci.

Year 10 Foundation Unit 16 – Quadratics		
Learning Outcome	*Students will know and remember …*	*So that they can….*
Understand the algebra of quadratics.	That a quadratic expression involves x^2. That a quadratic expression is in the form $ax^2 + bx + c$ That a factorised quadratic expression takes the form $(x+a)(x+b)$ That when you solve a quadratic equation these are the roots to the equation.	Multiply 2 linear factors to create a quadratic. Factorise a quadratic expression. Solve quadratic equations by factorising.
Understand the graphical representation of quadratics.	That quadratic graphs are symmetrical. That the roots of a quadratic graph are where the graph intersects the x axis. That the turning point of a quadratic graph is the minimum point or the vertex of the graph.	Identify the line of symmetry of a quadratic graph. Find approximate solutions to quadratic equations using a graph. Interpret graphs of quadratic functions from real-life problems. Identify and interpret roots, intercepts and turning points of quadratic graphs.

Year 10 Foundation Unit 18 – Fractions and Indices		
Learning Outcome	*Students will know and remember …*	*So that they can….*
Perform calculations with fractions	That to add and subtract a fraction, you must use a common denominator. That to multiply fractions you multiply the numerators and denominators. That the reciprocal of a number is its inverse. That to divide fractions you use the reciprocal and the inverse operation.	Add, subtract, multiply and divide fractions. Calculate fractions of a quantity. Calculate areas and perimeters accurately.
Understand exponents	The notation of exponents. That an exponent can be called a power or index number and means how many times another number is to be multiplied by itself.	Write repeated multiplications of the same number in index form. Perform calculations with powers of any number. Simplify calculations using the index laws.

	That a fractional index refers to the "root" of the number. That anything raised to the index of zero equals one. That a negative index refers to the reciprocal of the number. That a reciprocal is 1 divided by the given number. When the base is the same and you are multiplying with powers, you add them. When the base is the same and you are dividing with powers, you subtract them.	
Understand standard form	That large and small numbers can be written as a number multiplied to the power of ten. That standard form starts with a number larger than 1 but less than 10.	Convert large and small numbers into standard form and vice versa. Add and subtract numbers in standard form. Multiply and divide numbers in standard form. Interpret a calculator display using standard form and know how to enter numbers in standard form.