Year 11 Foundation Unit 17 – Perimeter, area and volume		
Learning Outcome	***Students will know and remember …***	***So that they can….***
Know the relationship between the circumference and diameter of a circle.	That the circumference of a circle can be defined as πd That the distance across the circle at its widest point is called the diameter. That half a diameter is called a radius.	Calculate the circumference of a circle given its radius or diameter. Calculate the radius or diameter of a circle given its circumference. Calculate perimeters and areas of composite shapes made from circles and parts of circles. Calculate arc lengths of sectors of circles. Calculate the angles of sectors of circles when given the arc length.
Know the relationship between the area and radius of a circle.	That the area of a circle can be defined as πr^2	Calculate the area of a circle given its radius or diameter. Calculate the radius or diameter of a circle given its area. Calculate areas of sectors of circles. Calculate the angles of sectors of circles when given the area.
Investigate the surface area of 3D shapes.	That nets are made up of 2D shapes. How to find the areas of quadrilaterals and triangles.	Calculate the surface area of 3D shapes.
Understand volume of 3D shapes.	That volume is the space a 3D solid takes up. That volume is calculated by multiplying the cross-sectional area by its depth.	Calculate volume of cubes, cuboids, triangular prisms, cylinders, pyramids, cones and spheres.
Year 11 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. 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.	Write repeated multiplications of the same number in index form. Perform calculations with powers of any number. Simplify calculations using the index laws.

	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.
Year 11 Foundation Unit 19 – Similarity and vectors		
Learning Outcome	***Students will know and remember …***	***So that they can….***
Understand the conditions of similar triangles.	That congruence means exactly the same. That when a shape is enlarged the size of angles are reserved. That the scale factor of an enlargement of a similar shape can be described as the ratio of the lengths of two corresponding sides. That congruent triangles can be proved if they follow the following conditions: use SSS, SAS, ASA and RHS.	Prove the congruence of triangles using formal arguments. Identify similarity and corresponding scale factors. Solve problems involving frustums of cones using similar triangles.
Understand vectors.	That a column vector represents horizontal and vertical movement. That a vector has direction and magnitude. Vectors which are multiples of each other represent parallel vectors.	Be able to draw and interpret column vector. Perform vector arithmetic.
Year 11 Foundation Unit 20 – Equations and graphs		
Learning Outcome	***Students will know and remember …***	***So that they can….***
Understand and manipulate formulae.	That once a variable is a given a value, the expression will have a value	Calculate the value of an expression by substituting positive and negative numbers. Appreciate the value of an expression can change when the variable does. Change the subject of a formula
Recognise types of graphs.	That a linear graph is in the form y=mx + c. That a quadratic graph is in form $y = x^2$. That a cubic graph is in form $y = x^3$. That a reciprocal graph is in form y = 1/x.	Identify and plot graphs in any form. Find solutions to graphs.
Understand gradient and straight-line graphs.	That the form y = mx + c represents a straight line. That the m is the value of the gradient. That the c is where the line crosses the y axis.	Find the gradient and intercept of a straight line from real-life graphs. Identify parallel lines from their equations. Find the equation of a straight line from a graph.

	The same gradient means the lines will be parallel. That perpendicular means at right angles to. That perpendicular gradients have a product of negative 1.	Find the equation of the line through one point with a given gradient.
Form and solve simultaneous equations.	That you can solve a pair of linear simultaneous equations using elimination or substitution. That you may need to multiply an equation to create the same number of variables. That you can only solve a linear and quadratic simultaneous equation by using substitution. That the equation of a circle is given by $x^2 + y^2 = r^2$ That the solution of simultaneous equations represents the intersection of the lines/curves.	Find the exact solutions of two simultaneous equations and interpret in context.