

**Year 9 Mathematics (Semester 1)**

**UNIT GOALS**

The specific goals of this unit are for students to:

- To solve problems involving simple interest
- To extend and apply the index laws to variables, using positive integer indices and the zero index
- To apply the distributive law to the expansion of algebraic expressions, including binomials, and collect like terms where appropriate
- To investigate Pythagoras' Theorem and its application to solving simple problems involving right angled triangles
- To use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangles
- To apply trigonometry to solve right-angled triangle problems
- To solve problems involving direct proportion
- To explore the relationship between graphs and equations corresponding to simple rate problems
- To find the distance between two points located on a Cartesian plane using a range of strategies, including graphing software
- To find the midpoint and gradient of a line segment (interval) on the Cartesian plane using a range of strategies, including graphing software
- To sketch linear graphs using the coordinates of two points and solve linear equations
- To graph simple non-linear relations with and without the use of digital technologies and solve simple related equations
- To calculate the areas of composite shapes
- To calculate the surface area and volume of cylinders and solve related problems
- To solve problems involving the surface area and volume of right prisms
- To investigate very small and very large time scales and intervals

**UNIT OVERVIEW**

**Topic 1: Reviewing number and financial mathematics**

- Number and Algebra: Money and financial mathematics

**Topic 2: Linear and simultaneous equations**

- Number and Algebra: Patterns and algebra

**Topic 3: Measurement and geometry**

- Measurement and Geometry: Pythagoras and trigonometry

**Topic 4: Measurement**

- Measurement and geometry: Using units of measurement

**Topic 5: Linear relations**

- Number and Algebra: Real numbers
- Number and Algebra: Linear and non-linear relationships

**ASSESSMENT DETAILS**

	Assessment Task	Week Due
<b>Term 1</b>		
AT1	Assignment	3
AT2	Test	7
<b>Term 2</b>		
AT3	Test	1
AT4	Assignment	4
AT5	Test	8