Year 9 - Mathematics 5.2 Course 2022

TERM 1		
TIMING	**UNIT OVERVIEW**	**ASSESSMENT**
Weeks: 3	**Algebra** Students learn how to form algebraic expressions from words and how to substitute. Students learn to add, subtract, multiply and divide algebraic terms and apply these skills to algebraic fractions. Students learn to expand and factorise expressions including expanding binomial products.	Task Number: 1 Nature of Task: In class written task Percentage: 50% of semester 1 Week: 9 Reported: Semester 1
Weeks: 4	**Indices** Students learn about indices. They learn how to multiply and divide terms with the same base, calculate the power of a power and the powers of products and quotients. They learn the special cases of the zero index and how to work with negative indices. Students also learn about significant figures and how to write numbers in scientific notation.	
Weeks: 3	**Pythagoras' Theorem** Students learn about squares, square roots, and surds. Students investigate right-angled triangles and Pythagoras' theorem linking the length of the triangle sides. They use this theorem to calculate the length of the hypotenuse, the length of a shorter side and apply this knowledge to solve problems. They complete tests to prove if a triangle is right-angled and learn about Pythagorean triads.	
TERM 2		
TIMING	**UNIT OVERVIEW**	**ASSESSMENT**
Weeks: 4	**Numeracy and Calculation** Students revise working with integers, decimals, fractions, and percentages and how to apply these to real-life situations such as profit, discounts, GST, and simple interest. Student revise working with rates and ratios and learn how to convert rates. They also learn about time differences.	Task Number: 2 Nature of Task: Online Task Percentage: 50% of semester 1 Week: 5 Reported: Semester 1
Weeks: 3	**Trigonometry** Students learn how to label the sides of a right-angled triangle to apply the trigonometric ratios to find the value of an unknown side or unknown angle. Students review similar right-angled triangles and develop confidence using the calculator to answer trigonometric problems.	
Weeks: 3	**Surface Area and Volume** Students revise metric units and the limits of accuracy of measurement instruments. They calculate the perimeters and areas of simple and composite shapes including circular shapes. Students calculate the surface areas and volumes of prisms and cylinders.	

Year 9 - Mathematics 5.2 Course 2022

TERM 3		
TIMING	**UNIT OVERVIEW**	**ASSESSMENT**
Weeks: 2	**Earning Money** Students learn how to calculate wages and salaries, overtime pay, commission, piecework and leave loading. They learn about income tax and learn to calculate PAYG tax and net pay.	Task Number: 3 Nature of Task: Investigation Percentage: 50% of semester 2 Week: 2 Reported: Semester 2
Weeks: 3	**Coordinate Geometry and Graphs** Students learn how to calculate the length and midpoint of intervals and the gradient of a line. They learn how to graph linear equations and use the gradient-intercept equation to write the equation of a line. Students solve linear equations graphically and learn about direct proportion relationships. Students also learn how to graph quadratic equations and circles.	
Weeks: 2.5	**Geometry** Students revise different types of angles and the angle sum of a triangle and quadrilateral. Students extend this knowledge to be able to calculate the angle sum of a polygon and the exterior angle sum of a convex polygon.	
Weeks: 2.5	**Probability** Students revise probability terminology and calculate the probability of an event. They learn how to calculate relative frequency and use Venn Diagrams, Two-Way Tables and Tree diagrams to solve probability problems	

TERM 4		
TIMING	**UNIT OVERVIEW**	**ASSESSMENT**
Weeks: 3	**Equations** Students learn how to solve simple and two-step equations by using inverse operations. They also solve equations with pronumerals on both sides and equations with brackets. Students solve equations with algebraic fractions and simple quadratic equations. They also solve real-world problems using equations and formulas.	Task Number: 4 Nature of Task: In class test Percentage: 50% of semester 2 Week: 4 Reported: Semester 2
Weeks: 3	**Analysing Data** Students learn how to calculate the mean, median, mode and range for data sets. They learn to read, interpret, and draw histograms and stem-and-leaf plots, describe the shape of the distributions, and compare two data sets. They also learn different types of sampling and types of data. Students also learn about bias and questionnaires.	
Weeks: 3	**Congruent and Similar Figures** Students learn about congruent figures and the tests and proofs required for triangles to be classified as congruent. They use congruence to prove geometrical properties. Students learn about similar figures, their properties and the tests required to prove triangles are similar. They apply this knowledge to scale diagrams.	

Year 9 - Mathematics 5.3 Course 2022

TERM 1		
TIMING	**UNIT OVERVIEW**	**ASSESSMENT**
Weeks: 3	**Algebra - Products and Factors** Students learn to add, subtract, multiply and divide algebraic terms and apply these skills to algebraic fractions. Students learn to expand expressions including expanding binomial products, perfect squares, the difference of two squares and a mixture of expansions. Students then learn to factorise expressions including special binomial products, quadratic expressions both monic and non-monic and factorise algebraic fractions.	Task Number: 1 Nature of Task: In class written task Percentage: 50% of semester 1 Week: 9 Reported: Semester 1
Weeks: 4	**Indices** Students learn about indices. They learn how to multiply and divide terms with the same base, calculate the power of a power and the powers of products and quotients. They learn the special cases of the zero index, how to work with negative indices and how to work with fractional indices. Students also learn about significant figures and how to write numbers in scientific notation.	
Weeks: 3	**Surds and Pythagoras' Theorem** Students learn about surds, including how to simplify, add, subtract, multiply and divide surds. Students use Pythagoras' theorem to calculate the length of the hypotenuse, the length of a shorter side and apply this knowledge to solve problems. They complete tests to prove if a triangle is right-angled and learn about Pythagorean triads.	
TERM 2		
TIMING	**UNIT OVERVIEW**	**ASSESSMENT**
Weeks: 4	**Numeracy and Calculation** Students revise working with integers, decimals, fractions, and percentages and how to apply these to real-life situations such as profit, discounts, GST, and simple interest. Students review recurring decimals and learn how to convert these to fractions. Student revise working with rates and ratios and learn how to convert rates.	Task Number: 2 Nature of Task: Online Task Percentage: 50% of semester 1 Week: 5 Reported: Semester 1
Weeks: 3	**Trigonometry** Students learn how to label the sides of a right-angled triangle to apply the trigonometric ratios to find the value of an unknown side or unknown angle. Students review similar right-angled triangles and develop confidence using the calculator to answer trigonometric problems. Students apply their knowledge to angles of elevation and depression as well as problems involving bearings.	
Weeks: 3	**Surface Area and Volume** Students revise metric units and the limits of accuracy of measurement instruments. They calculate the perimeters and areas of simple and composite shapes including circular shapes. Students calculate the surface areas and volumes of prisms, cylinders, pyramids, and cones.	

Year 9 - Mathematics 5.3 Course 2022

TERM 3		
TIMING	**UNIT OVERVIEW**	**ASSESSMENT**
Weeks: 2	**Earning Money** Students learn how to calculate wages and salaries, overtime pay, commission, piecework and leave loading. They learn about income tax and learn to calculate PAYG tax and net pay.	Task Number: 3 Nature of Task: Investigation Percentage: 50% of semester 2 Week: 2 Reported: Semester 2
Weeks: 3	**Coordinate Geometry and Graphs** Students learn how to calculate the length and midpoint of intervals and the gradient of a line. They learn how to graph linear equations use the gradient-intercept equation to write the equation of a line. Students solve linear equations graphically and learn about direct proportion relationships. Students also learn how to graph quadratic equations and circles.	
Weeks: 2.5	**Geometry** Students revise different types of angles and the angle sum of a triangle and quadrilateral. Students extend this knowledge to be able to calculate the angle sum of a polygon and the exterior angle sum of a convex polygon.	
Weeks: 2.5	**Probability** Students revise probability terminology and calculate the probability of an event. They learn how to calculate relative frequency and use Venn Diagrams, Two-Way Tables and Tree diagrams to solve probability problems.	

TERM 4		
TIMING	**UNIT OVERVIEW**	**ASSESSMENT**
Weeks: 3	**Equations** Students learn how to solve equations with pronumerals on both sides and equations with brackets. Students solve equations with algebraic fractions and simple quadratic and cubic equations. They also solve real-world problems using equations and formulas and learn to change the subject of a formula.	Task Number: 4 Nature of Task: In class test Percentage: 50% of semester 2 Week: 4 Reported: Semester 2
Weeks: 3	**Analysing Data** Students learn how to calculate the mean, median, mode and range for data sets. They learn to read, interpret, and draw histograms and stem-and-leaf plots, describe the shape of the distributions, and compare two data sets. They also learn different types of sampling and types of data. Students also learn about bias and questionnaires.	
Weeks: 3	**Congruent and Similar Figures** Students learn about congruent figures and the tests and proofs required for triangles to be classified as congruent. They use congruence to prove geometrical properties. Students learn about similar figures, their properties and the tests and proofs required to prove triangles are similar. They apply this knowledge to working with scale diagrams and calculating the areas of similar figures.	