



This course is developed using the WA Curriculum as a guide. The order of the content and the time in which they are covered are only a guide. Circumstances may result in changes during the year. Kambalda West District High School reserves the right to alter the order the objectives are taught and time over which they are taught.

- The proficiency strands understanding, fluency, problem-solving and reasoning are an integral part of mathematics content across the three content strands: number and algebra, measurement and geometry, and statistics and probability. The proficiencies reinforce the significance of working mathematically within the content and describe how the content is explored or developed. They provide the language to build in the developmental aspects of the learning of mathematics. The achievement standards reflect the content and encompass the proficiencies.

Vocabulary & Grammar

Below is a list of words and phrases that students should know: the meaning of; and be able to spell; by the end of term:

Compound interest Simple interest Quotient Index laws	Exponentials Volume Surface area Proofs Congruent triangles Trapezium Rhombus Kite	Linear relationships Perimeter Circumference Algebraic expressions	Binomial products Linear equations Linear inequalities
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There is an expectation that students will make every effort to correctly use capitals, full stops, commas, semi colons, apostrophes, question marks and exclamation marks.

Topics

Number and Algebra

- Use index notation with numbers to establish the index laws with positive integral indices and the zero index (ACMNA182)
- Carry out the four operations with rational numbers and integers, using efficient mental and written strategies and appropriate digital technologies (ACMNA183)
- Investigate terminating and recurring decimals (ACMNA184)
- Investigate the concept of irrational numbers, including π (ACMNA186)
- Solve problems involving the use of percentages, including percentage increases and decreases, with and without digital technologies (ACMNA187)
- Solve a range of problems involving rates and ratios, with and without digital technologies (ACMNA188)
- Solve problems involving profit and loss, with and without digital technologies (ACMNA189)
- Extend and apply the distributive law to the expansion of algebraic expressions (ACMNA190)
- Factorise algebraic expressions by identifying numerical factors (ACMNA191)
- Simplify algebraic expressions involving the four operations (ACMNA192)
- Plot linear relationships on the Cartesian plane with and without the use of digital technologies (ACMNA193)
- Solve linear equations using algebraic and graphical techniques. Verify solutions by substitution (ACMNA194)

Measurement and Geometry

- Choose appropriate units of measurement for area and volume and convert from one unit to another (ACMMG195)
- Find perimeters and areas of parallelograms, trapeziums, rhombuses and kites (ACMMG196)
- Investigate the relationship between features of circles such as circumference, area, radius and diameter. Use formulas to solve problems involving circumference and area (ACMMG197)
- Develop formulas for volumes of rectangular and triangular prisms and prisms in general. Use formulas to solve problems involving volume (ACMMG198)
- Solve problems involving duration, including using 12- and 24-hour time within a single time zone (ACMMG199)
- Define congruence of plane shapes using transformations (ACMMG200)
- Develop the conditions for congruence of triangles (ACMMG201)
- Establish properties of quadrilaterals using congruent triangles and angle properties, and solve related numerical problems using reasoning (ACMMG202)

Statistics and Probability

- Identify complementary events and use the sum of probabilities to solve problems (ACMSP204)
- Describe events using language of 'at least', exclusive 'or' (A or B but not both), inclusive 'or' (A or B or both) and 'and' (ACMSP205)
- Represent events in two-way tables and Venn diagrams and solve related problems (ACMSP292)
- Investigate techniques for collecting data, including census, sampling and observation (ACMSP284)
- Explore the practicalities and implications of obtaining data through sampling using a variety of investigative processes (ACMSP206)
- Explore the variation of means and proportions of random samples drawn from the same population (ACMSP293)
- Investigate the effect of individual data values, including outliers, on the mean and median (ACMSP207)



Semester 1

Week	Topics/Syllabus	Assessment	Resources
Term 1			
1-3	Introduction Number and algebra - Real numbers <ul style="list-style-type: none"> Investigate terminating and recurring decimals Solve problems involving the use of percentages, including percentage increases and decreases, with and without digital technologies 		
4-5	Number and algebra - Real numbers <ul style="list-style-type: none"> Solve a range of problems involving rates and ratios, with and without digital technologies Investigate the concept of irrational numbers, including π 	Task 1: Investigation 1 Week 5	
6-7	Number and algebra - Money and financial mathematics <ul style="list-style-type: none"> Solve problems involving profit and loss, with and without digital technologies 		
8	Measurement and geometry - Units of measurement <ul style="list-style-type: none"> Choose appropriate units of measurement for area and volume and convert from one unit to another 		
9-10	Measurement and geometry - Units of measurement <ul style="list-style-type: none"> Find perimeters and areas of parallelograms, trapeziums, rhombuses and kites 	Task 2: Test 1 Week 9	
Term 2			
1-2	Number and algebra - Number and place value <ul style="list-style-type: none"> Use index notation with numbers to establish the index laws with positive integral indices and the zero index 		
3-4	Number and algebra - Number and place value <ul style="list-style-type: none"> Carry out the four operations with rational numbers and integers, using efficient mental and written strategies and appropriate digital technologies 	Task 3: Investigation 2 Week 4	
5-6	Number and algebra - Patterns and algebra <ul style="list-style-type: none"> Extend and apply the distributive law to the expansion of algebraic expressions 		
7-8	Number and algebra - Patterns and algebra <ul style="list-style-type: none"> Factorise algebraic expressions by identifying numerical factors 	Task 4: Test 2 Week 7	
9-10	Number and algebra - Patterns and algebra <ul style="list-style-type: none"> Simplify algebraic expressions involving the four operations 		
END OF SEMESTER 1			

Semester 2

Week	Topics/Syllabus	Assessment	Resources
Term 3			
1-3	Introduction Statistics and probability - Data representation and interpretation <ul style="list-style-type: none"> Investigate techniques for collecting data, including census, sampling and observation Explore the practicalities and implications of obtaining data through sampling using a variety of investigative processes 		Pearson Mathematics S.B. Essentials Edition textbook Year 8
4-6	Statistics and probability - Data representation and interpretation <ul style="list-style-type: none"> Explore the variation of means and proportions of random samples drawn from the same population Investigate the effect of individual data values, including outliers, on the mean and median 	Task 1: Investigation 3 Week 5	
7-10	Statistics and probability - Chance <ul style="list-style-type: none"> Identify complementary events and use the sum of probabilities to solve problems Describe events using language of 'at least', exclusive 'or' (A or B but not both), inclusive 'or' (A or B or both) and 'and' Represent events in two-way tables and Venn diagrams and solve related problems 	Task 2: Test 3 Week 8	
Term 4			
1	Measurement and geometry - Units of measurement <ul style="list-style-type: none"> Investigate the relationship between features of circles such as circumference, area, radius and diameter. Use formulas to solve problems involving circumference and area 		
2-3	Measurement and geometry - Units of measurement <ul style="list-style-type: none"> Develop formulas for volumes of rectangular and triangular prisms and prisms in general. Use formulas to solve problems involving volume Solve problems involving duration, including using 12- and 24-hour time within a single time zone 		
4-5	Measurement and geometry - Geometric reasoning <ul style="list-style-type: none"> Define congruence of plane shapes using transformations Develop the conditions for congruence of triangles 	Task 3: Investigation 4 Week 4	
6-7	Measurement and geometry - Geometric reasoning <ul style="list-style-type: none"> Establish properties of quadrilaterals using congruent triangles and angle properties, and solve related numerical problems using reasoning 	Task 4: Test 4 Week 7	
8	Number and algebra - Money and financial mathematics <ul style="list-style-type: none"> Solve problems involving profit and loss, with and without digital technologies 		
9-10	Number and algebra - Linear and non-linear relationships <ul style="list-style-type: none"> Plot linear relationships on the Cartesian plane with and without the use of digital technologies Solve linear equations using algebraic and graphical techniques. Verify solutions by substitution 		
END OF SEMESTER 2			



ASSESSMENT OUTLINE 2022

MATHEMATICS YEAR 8

A number of assessments will be used throughout the term to identify the students understanding in the course and be used to determine a grade. Student achievement will be reported using the following descriptors.

Semester 1

Assessment Type	Task Description	KWDHS Weighting	Due Date
Diagnostic Test	Paul Swan Basic Number Facts (Fluency Test - One Minute) PAT Maths Assessment		<i>Term 1, Week 2 and 3</i>
Investigation	Task 1: Investigation 1. Number and Algebra – Real Numbers	15%	<i>Term 1, Week 5</i>
Test	Task 2: Test 1. Measurement and Geometry – Units of Measurement	10%	<i>Term 1, Week 8</i>
Investigation	Task 3: Investigation 2. Number and Algebra –Number and Place Value	15%	<i>Term 2, Week 4</i>
Standardised Test	NAPLAN		<i>Term 2, Week 3 and 4</i>
Diagnostic Test	PAT Maths Assessment		<i>Term 2, Week 4 and 5</i>
Test	Task 4: Test 2. Number and Algebra – Patterns and Algebra	10%	<i>Term 2, Week 7</i>

Semester 2

Assessment Type	Task Description	KWDHS Weighting	Due Date
Diagnostic Test	Paul Swan Basic Number Facts (Fluency Test - One Minute)		<i>Term 3, Week 2 and 3</i>
Investigation	Task 1: Investigation 3. Statistics and Probability – Data Representation and Interpretation	15%	<i>Term 3, Week 5</i>
Test	Task 2: Test 3. Statistics and Probability – Chance	10%	<i>Term 3, Week 8</i>
Diagnostic Test	Paul Swan Basic Number Facts (Fluency Test - One Minute) PAT Maths Assessment		<i>Term 4, Week 2 and 3</i>
Investigation	Task 3: Investigation 4. Measurement and Geometry –Geometric Reasoning	15%	<i>Term 4, Week 4</i>
Test	Task 4: Test 4. Measurement and Geometry –Geometric Reasoning	10%	<i>Term 4, Week 7</i>

It is expected that all assessments will be completed to the best of your ability and be submitted by the deadlines set. Please make yourself aware of the Assessment Policy as failure to meet deadlines has severe consequences.

Grade	Description	The student demonstrates achievement that:
A	Excellent	has greatly exceeded the expected standard. Achievement is well beyond what is expected at this year level.
B	Good	exceeds the expected standard.
C	Satisfactory	at the expected standard.
D	Limited	is below the expected standard.
E	Very Low	is below the minimum acceptable for this year level.

Student Signature: _____

Parent/Guardian Signature: _____