



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:

Index notation	Ratio	Line symmetry	Mean
Square root	Variables	Rotational symmetry	Median
Integers	Algebraic expression	Angles	Mode
Fractions	Coordinates	Area	Range
Positive fraction	Cartesian plan	Volume	Stem and leaf plot
Negative fraction	Linear equations	Single step	Dot plot
Mixed numbers	Angle sum	experiments	Reflections
Decimals	Quadrilaterals	Probabilities	Rotations
Percentages	Translations	Numeral data	

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

- Investigate index notation and represent whole numbers as products of powers of prime numbers
- Investigate and use square roots of perfect square numbers (ACMNA150)
- Apply the associative, commutative and distributive laws to aid mental and written computation (ACMNA151)
- Compare, order, add and subtract integers (ACMNA280)
- Compare fractions using equivalence. Locate and represent positive and negative fractions and mixed numbers on a number line (ACMNA152)
- Solve problems involving addition and subtraction of fractions, including those with unrelated denominators (ACMNA153)
- Multiply and divide fractions and decimals using efficient written strategies and digital technologies (ACMNA154)
- Express one quantity as a fraction of another, with and without the use of digital technologies (ACMNA155)
- Round decimals to a specified number of decimal places (ACMNA156)
- Connect fractions, decimals and percentages and carry out simple conversions (ACMNA157)
- Find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies (ACMNA158)
- Recognise and solve problems involving simple ratios (ACMNA173)
- Investigate and calculate 'best buys', with and without digital technologies (ACMNA174)
- Introduce the concept of variables as a way of representing numbers using letters (ACMNA175)
- Create algebraic expressions and evaluate them by substituting a given value for each variable (ACMNA176)
- Extend and apply the laws and properties of arithmetic to algebraic terms and expressions (ACMNA177)
- Given coordinates, plot points on the Cartesian plane, and find coordinates for a given point (ACMNA178)
- Solve simple linear equations (ACMNA179)
- Investigate, interpret and analyse graphs from authentic data (ACMNA180)

## Measurement and Geometry

- Establish the formulas for areas of rectangles, triangles and parallelograms, and use these in problem-solving (ACMMG159)
- Calculate volumes of rectangular prisms (ACMMG160)
- Draw different views of prisms and solids formed from combinations of prisms (ACMMG161)
- Describe translations, reflections in an axis and rotations of multiples of  $90^\circ$  on the Cartesian plane using coordinates. Identify line and rotational symmetries (ACMMG181)
- Identify corresponding, alternate and co-interior angles when two straight lines are crossed by a transversal (ACMMG163)
- Investigate conditions for two lines to be parallel and solve simple numerical problems using reasoning (ACMMG164)
- Demonstrate that the angle sum of a triangle is  $180^\circ$  and use this to find the angle sum of a quadrilateral (ACMMG166)
- Classify triangles according to their side and angle properties and describe quadrilaterals (ACMMG165)

## Statistics and Probability

- Construct sample spaces for single-step experiments with equally likely outcomes (ACMSP167)
- Assign probabilities to the outcomes of events and determine probabilities for events (ACMSP168)
- Identify and investigate issues involving numerical data collected from primary and secondary sources (ACMSP169)
- Construct and compare a range of data displays including stem-and-leaf plots and dot plots (ACMSP170)
- Calculate mean, median, mode and range for sets of data. Interpret these statistics in the context of data (ACMSP171)
- Describe and interpret data displays using median, mean and range (ACMSP172)



Semester 1

Week	Topics/Syllabus	Assessment	Resources
<b>Term 1</b>			
1-3	<b>Introduction</b> <b>Number and algebra -Real numbers</b> <ul style="list-style-type: none"> <li>Compare fractions using equivalence. Locate and represent positive and negative fractions and mixed numbers on a number line</li> <li>Solve problems involving addition and subtraction of fractions, including those with unrelated denominators</li> </ul>		
4-5	<b>Number and algebra - Real numbers</b> <ul style="list-style-type: none"> <li>Multiply and divide fractions and decimals using efficient written strategies and digital technologies</li> <li>Express one quantity as a fraction of another, with and without the use of digital technologies</li> <li>Round decimals to a specified number of decimal places</li> </ul>	<b>Task 1:</b> Investigation 1 Week 5	
6-7	<b>Number and algebra - Real numbers</b> <ul style="list-style-type: none"> <li>Connect fractions, decimals and percentages and carry out simple conversions</li> <li>Find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies</li> </ul>		
8	<b>Number and algebra - Money and financial mathematics</b> Solve problems involving profit and loss, with and without digital technologies		
9-10	<b>Measurement and geometry - Units of measurement</b> <ul style="list-style-type: none"> <li>Choose appropriate units of measurement for area and volume and convert from one unit to another</li> </ul>	<b>Task 2:</b> Test 1 Week 9	
<b>Term 2</b>			
1-2	<b>Measurement and geometry - Units of measurement</b> <ul style="list-style-type: none"> <li>Find perimeters and areas of parallelograms, trapeziums, rhombuses and kites</li> </ul>		
3-4	<b>Number and algebra - Number and place value</b> <ul style="list-style-type: none"> <li>Investigate index notation and represent whole numbers as products of powers of prime numbers</li> <li>Investigate and use square roots of perfect square numbers</li> </ul>	<b>Task 3:</b> Investigation 2 Week 4 <b>NAPLAN</b> Week 3 and 4	
5-6	<b>Number and algebra - Number and place value</b> <ul style="list-style-type: none"> <li>Apply the associative, commutative and distributive laws to aid mental and written computation</li> <li>Compare, order, add and subtract integers</li> </ul>		
7-8	<b>Number and algebra - Patterns and algebra</b> <ul style="list-style-type: none"> <li>Introduce the concept of variables as a way of representing numbers using letters</li> <li>Create algebraic expressions and evaluate them by substituting a given value for each variable</li> </ul>	<b>Task 4:</b> Test 2 Week 7	
9-10	<b>Number and algebra - Patterns and algebra</b> <ul style="list-style-type: none"> <li>Extend and apply the laws and properties of arithmetic to algebraic terms and expressions</li> </ul>		
<b>END OF SEMESTER 1</b>			

## Semester 2

Week	Topics/Syllabus	Assessment	Resources
<b>Term 3</b>			
1	Introduction		
2-3	<b>Statistics and probability - Data representation and interpretation</b> <ul style="list-style-type: none"> <li>• Identify and investigate issues involving numerical data collected from primary and secondary sources</li> <li>• Construct and compare a range of data displays including stem-and-leaf plots and dot plots</li> </ul>		Pearson Mathematics S.B. Essentials Edition textbook Year 7
4-6	<b>Statistics and probability - Data representation and interpretation</b> <ul style="list-style-type: none"> <li>• Calculate mean, median, mode and range for sets of data. Interpret these statistics in the context of data</li> <li>• Describe and interpret data displays using median, mean and range</li> </ul>	<b>Task 1:</b> Investigation 3 Week 5	
7-10	<b>Statistics and probability - Chance</b> <ul style="list-style-type: none"> <li>• Construct sample spaces for single-step experiments with equally likely outcomes</li> <li>• Assign probabilities to the outcomes of events and determine probabilities for events</li> </ul>	<b>Task 2:</b> Test 3 Week 8	
<b>Term 4</b>			
1	<b>Measurement and geometry - Units of measurement</b> <ul style="list-style-type: none"> <li>• Establish the formulas for areas of rectangles, triangles and parallelograms, and use these in problem-solving</li> <li>• Calculate volumes of rectangular prisms</li> </ul>		
2-3	<b>Measurement and geometry - Shape</b> <ul style="list-style-type: none"> <li>• Draw different views of prisms and solids formed from combinations of prisms</li> </ul> <b>Location and transformation</b> <ul style="list-style-type: none"> <li>• Describe translations, reflections in an axis and rotations of multiples of <math>90^\circ</math> on the Cartesian plane using coordinates. Identify line and rotational symmetries</li> </ul>		
4-5	<b>Measurement and geometry - Geometric reasoning</b> <ul style="list-style-type: none"> <li>• Identify corresponding, alternate and co-interior angles when two straight lines are crossed by a transversal</li> <li>• Investigate conditions for two lines to be parallel and solve simple numerical problems using reasoning</li> </ul>	<b>Task 3:</b> Investigation 4 Week 4	
6-7	<b>Measurement and geometry - Geometric reasoning</b> <ul style="list-style-type: none"> <li>• Demonstrate that the angle sum of a triangle is <math>180^\circ</math> and use this to find the angle sum of a quadrilateral</li> <li>• Classify triangles according to their side and angle properties and describe quadrilaterals</li> </ul>	<b>Task 4:</b> Test 4 Week 7	
8-10	<b>Number and algebra - Linear and non-linear relationships</b> <ul style="list-style-type: none"> <li>• Given coordinates, plot points on the Cartesian plane, and find coordinates for a given point</li> <li>• Solve simple linear equations</li> <li>• Investigate, interpret and analyse graphs from authentic data</li> </ul>		
<b>END OF SEMESTER 2</b>			



## ASSESSMENT OUTLINE 2022

### MATHEMATICS YEAR 7

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	<b>Paul Swan Basic Number Facts</b> (Fluency Test - One Minute) <b>PAT Maths Assessment</b>		<i>Term 1, Week 2 and 3</i>
Investigation	<b>Task 1:</b> Investigation 1. Number and Algebra – Real Numbers	15%	<i>Term 1, Week 5</i>
Test	<b>Task 2:</b> Test 1. Measurement and Geometry – Units of Measurement	10%	<i>Term 1, Week 8</i>
Investigation	<b>Task 3:</b> Investigation 2. Number and Algebra –Number and Place Value	15%	<i>Term 2, Week 4</i>
Standardised Test	<b>NAPLAN</b>		<i>Term 2, Week 3 and 4</i>
Diagnostic Test	<b>PAT Maths Assessment</b>		<i>Term 2, Week 4 and 5</i>
Test	<b>Task 4:</b> 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	<b>Paul Swan Basic Number Facts</b> (Fluency Test - One Minute)		<i>Term 3, Week 2 and 3</i>
Investigation	<b>Task 1:</b> Investigation 3. Statistics and Probability – Data Representation and Interpretation	15%	<i>Term 3, Week 5</i>
Test	<b>Task 2:</b> Test 3. Statistics and Probability – Chance	10%	<i>Term 3, Week 8</i>
Diagnostic Test	<b>Paul Swan Basic Number Facts</b> (Fluency Test - One Minute) <b>PAT Maths Assessment</b>		<i>Term 4, Week 2 and 3</i>
Investigation	<b>Task 3:</b> Investigation 4. Measurement and Geometry –Geometric Reasoning	15%	<i>Term 4, Week 4</i>
Test	<b>Task 4:</b> 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:
<b>A</b>	Excellent	has greatly exceeded the expected standard. Achievement is well beyond what is expected at this year level.
<b>B</b>	Good	exceeds the expected standard.
<b>C</b>	Satisfactory	at the expected standard.
<b>D</b>	Limited	is below the expected standard.
<b>E</b>	Very Low	is below the minimum acceptable for this year level.

Student Signature: \_\_\_\_\_

Parent/Guardian Signature: \_\_\_\_\_