# Mathletics

## The Australian Curriculum

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Supported by independent evidence-based research and practice.


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# The Australian Curriculum

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## Content

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## Mathletics and the Australian Curriculum

The education team at Mathletics is committed to providing a resource that is powerful, targeted and most importantly relevant to all students.

Mathletics includes well over 1200 individual adaptive practice activities and eBooks available for all year levels. Our team of education publishers have created a course that specifically follows the Australian Curriculum. You can be assured that students have access to relevant and targeted content.

Strands, sub-strands and learning outcomes of the curriculum are supported with activities, each with pre and post assessment. What's more, Mathletics contains an extensive library of eBooks – for use on screen or as a printable resource – that are also mapped to the requirements of the Australian Curriculum.

**This document outlines this mapping and acts as a useful guide when using Mathletics in your school.**

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## Australian Curriculum Year F

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Using units of measurement | ACMMG006 | Use direct and indirect comparisons to decide which is longer, heavier or holds more, and explain reasoning in everyday language | Everyday Length<br>Compare Length<br>Which Holds More? | Kindergarten<br>Measurement<br>- Length<br>- Mass<br>- Volume and Capacity |
| Measurement and Geometry | Using units of measurement | ACMMG007 | Connect days of the week to familiar events and actions | Days of the Week | Kindergarten<br>Time, Money and Data<br>- Time |
| Measurement and Geometry | Shape | ACMMG009 | Sort, describe and name familiar two-dimensional shapes and three-dimensional objects in the environment | Collect the Shapes<br>Match the Object<br>Same and Different<br>Sort It | Kindergarten<br>Space and Shape<br>- 2D Space<br>- 3D Space |
| Measurement and Geometry | Location and transformation | ACMMG010 | Describe position and movement | Where is it? | Kindergarten<br>Space and Shape<br>- Position |
| Number and Algebra | Number and Place Value | ACMNA001 | Establish understanding of the language and processes of counting by naming numbers in sequences, initially to and from 20, moving from any starting point | Order Numbers to 10<br>Ordinal Numbers<br>Order Numbers to 20<br>Compare Numbers to 20 | Kindergarten<br>Numbers and Patterns<br>- Numbers to 10<br>- Numbers to 20<br>- Numbers to 30 |
| Number and Algebra | Number and Place Value | ACMNA002 | Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond | How Many? | Kindergarten<br>Numbers and Patterns<br>- Numbers to 10<br>- Numbers to 20<br>- Numbers to 30 |
| Number and Algebra | Number and Place Value | ACMNA004 | Represent practical situations to model addition and sharing | Adding to Ten<br>All about Ten<br>Share the Treasure | Kindergarten<br>Operations with Number<br>- Addition<br>- Subtraction<br>- Grouping and Sharing |
| Number and Algebra | Number and Place Value | ACMNA003 | Subitise small collections of objects | Count to 5 | Kindergarten<br>Numbers and Patterns<br>- Numbers to 10 |
| Number and Algebra | Patterns and Algebra | ACMNA005 | Sort and classify familiar objects and explain the basis for these classifications. Copy, continue and create patterns with objects and drawings | Simple Patterns<br>Pattern Error<br>Missing it!<br>Hot or Cold? | Kindergarten<br>Numbers and Patterns<br>- Patterns |
| Number and Algebra | Number and Place Value | ACMNA289 | Compare, order and make correspondences between collections, initially to 20, and explain reasoning. | Before, After and Between to 20 | Kindergarten<br>Numbers and Patterns<br>- Numbers to 10<br>- Numbers to 20<br>- Numbers to 30<br>- Ordinal Numbers |

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## Australian Curriculum Year 1

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Statistics and Probability | Data representation and interpretation | ACMSP011 | Answer yes/no questions to collect information | More or Less? | Kindergarten<br>Time, Money and Data<br>- Data |
| Measurement and Geometry | Using units of measurement | ACMMG019 | Measure and compare the lengths and capacities of pairs of objects using uniform informal units | How Full?<br>Filling Fast!<br>Everyday Length<br>Compare Length | Year 1<br>Measurement<br>- Length<br>- Volume and Capacity |
| Measurement and Geometry | Using units of measurement | ACMMG020 | Tell the time to the half-hour | Hour Times<br>Half Hour Times | Year 1<br>Time and Money<br>- Time |
| Measurement and Geometry | Using units of measurement | ACMMG021 | Descibe duration using months, weeks, days and hours | Days of the Week<br>Months of the Year | Year 1<br>Time and Money<br>- Time |
| Measurement and Geometry | Shape | ACMMG022 | Recognise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features | Collect the Shapes<br>Match the Object<br>Relate Shapes and Solids<br>Count Sides and Corners | Year 1<br>Space and Shape<br>- 2D Space<br>- 3D Space |
| Measurement and Geometry | Location and transformation | ACMMG023 | Give and follow directions to familiar locations | Left or Right? | Year 1<br>Space and Shape<br>- Position |
| Number and Algebra | Number and Place Value | ACMNA012 | Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero | Counting Backwards<br>Counting Forwards<br>Going Up<br>Going Down | Year 1<br>Numbers<br>- Numbers to 20<br>- Numbers to 50<br>- Numbers to 100<br>- Skip counting |
| Number and Algebra | Number and Place Value | ACMNA013 | Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line | Arranging Numbers 1 to 30<br>Reading Numbers to 30<br>Number Line Order<br>1st to 31st<br>Number Lines<br>Compare Numbers to 100 | Year 1<br>Numbers<br>- Ordinal Numbers<br>- Numbers to 20<br>- Numbers to 50<br>- Numbers to 100 |
| Number and Algebra | Number and Place Value | ACMNA014 | Count collections to 100 by partitioning numbers using place value | Making Numbers Count<br>Making Big Numbers Count | Year 1<br>Numbers<br>- Place Value to 99 |

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## Australian Curriculum Year 1

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Number and Place Value | ACMNA015 | Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts | All about Ten<br>All about Twenty<br>Subtracting from Ten<br>Addictive Addition<br>Simple Subtraction<br>Subtraction Facts to 18<br>Add and Subtract<br>Using Graphs<br>Model Addition<br>Model Subtraction<br>Addition Facts to 18 | Year 1<br>Operations with Number<br>- Addition<br>- Subtraction |
| Number and Algebra | Fractrions and Decimals | ACMNA016 | Recognise and describe one-half as one of two equal parts of a whole | Halves and Quarters | Year 1<br>Numbers<br>- Fractions |
| Number and Algebra | Money and Financial Mathematics | ACMNA017 | Recognise, describe and order Australian coins according to their value | Everyday Money | Year 1<br>Time and Money<br>- Money |
| Number and Algebra | Patterns and Algebra | ACMNA018 | Investigate and describe number patterns formed by skip counting and patterns with objects | Simple Patterns<br>Pattern Error<br>Missing it!<br>Balancing Act<br>Colour Patterns | Year 1<br>Patterns and Relationships<br>- Patterns and Rules<br>- Year 1 Numbers<br>- Skip counting |
| Statistics and Probability | Data representation and interpretation | ACMSP262 | Represent data with objects and drawings where one object or drawing represents one data value. Describe the displays | More or Less?<br>Read Graphs | Year 1<br>Chance and Data<br>- Data |
| Statistics and Probability | Data representation and interpretation | ACMSP263 | Represent data with objects and drawings where one object or drawing represents one data value. Describe the displays | Who has the Goods? | Year 1<br>Chance and Data<br>- Data |
| Statistics and Probability | Chance | ACMSP024 | Identify outcomes of familiar events involving chance and describe them using everyday language such as 'will happen', 'won't happen' or 'might happen' | Most Likely and Least Likely | Year 1<br>Chance and Data<br>- Chance |

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## Australian Curriculum Year 2

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Using units of measurement | ACMMG037 | Compare and order several shapes and objects based on length, area, volume and capacity using appropriate uniform informal units | How Full?<br>Comparing Length<br>Equal Areas<br>Comparing Volume | Year 2<br>Measurement<br>- Length<br>- Volume and Capacity |
| Measurement and Geometry | Using units of measurement | ACMMG038 | Compare masses of objects using balance scales | Everyday Mass | Year 2<br>Measurement<br>- Mass |
| Measurement and Geometry | Using units of measurement | ACMMG039 | Tell time to the quarter-hour, using the language of 'past' and 'to'. | Hour Times<br>Tell Time to the Half Hour | Year 2<br>Time and Money<br>- Time |
| Measurement and Geometry | Using units of measurement | ACMMG040 | Name and order months and seasons | Months of the Year | Year 2<br>Time and Money<br>- Time |
| Measurement and Geometry | Using units of measurement | ACMMG041 | Use a calendar to identify the date and determine the number of days in each mont | Using a Calendar | Year 2<br>Time and Money<br>- Time |
| Measurement and Geometry | Shape | ACMMG042 | Describe and draw two-dimensional shapes, with and without digital technologies | Collect More Shapes<br>Shapes | Year 2<br>Space and Shape<br>- 2D Space |
| Measurement and Geometry | Shape | ACMMG043 | Describe the features of three-dimensional objects | Collect the Objects<br>Collect the Objects 1<br>How many Edges?<br>How many Corners?<br>Relate Shapes and Solids | Year 2<br>Space and Shape<br>- 3D Space |
| Measurement and Geometry | Location and transformation | ACMMG044 | Interpret simple maps of familiar locations and identify the relative positions of key features | Left or Right? | Year 2<br>Space and Shape<br>- Position |
| Measurement and Geometry | Location and transformation | ACMMG045 | Investigate the effect of one-step slides and flips with and without digital technologie | Flip, Slide, Turn | Year 2<br>Space and Shape<br>- 2D Space |
| Measurement and Geometry | Location and transformation | ACMMG046 | Identify and describe half and quarter turns | Flip, Slide, Turn | Year 2<br>Space and Shape<br>- 2D Space |
| Number and Algebra | Number and Place Value | ACMNA027 | Recognise, model, represent and order numbers to at least 1000 | Model Numbers<br>Ascending Order<br>Descending Order<br>Which is Bigger? | Year 2<br>Numbers<br>- Numbers to 999<br>- Ordinal Numbers |

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## Australian Curriculum Year 2

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Number and Place Value | ACMNA030 | Solve simple addition and subtraction problems using a range of efficient mental and written strategies | Addictive Addition<br>Simple Subtraction<br>Magic Mental Addition<br>Magic Mental Subtraction<br>Columns that Add<br>Column Addition 1<br>Column Subtraction<br>Columns that Subtract<br>Problems: Add and Subtract | Year 2 Operations with Number<br>- Addition<br>- Subtraction<br>- Australian Curriculum Mathletics Activities<br>Mathletics Workbooks |
| Number and Algebra | Number and Place Value | ACMNA031 | Recognise and represent multiplication as repeated addition, groups and arrays | Groups of Two<br>Groups of Five<br>Groups of Ten<br>Groups of Three<br>Groups of Four<br>Groups of Six<br>Groups of Seven<br>Groups of Eight<br>Groups of Nine<br>Multiplication Arrays | Year 2 Operations with Number<br>- Multiplication |
| Number and Algebra | Number and Place Value | ACMNA032 | Recognise and represent division as grouping into equal sets and solve simple problems using these representations | Dividing Twos<br>Dividing Fives<br>Dividing Tens<br>Dividing Threes<br>Dividing Fours<br>Dividing Sixes<br>Dividing Sevens<br>Dividing Eights<br>Dividing Nines<br>Share the Treasure<br>Fill the Jars | Year 2 Operations with Number<br>- Division |
| Number and Algebra | Number and Place Value | ACMNA026 | Investigate number sequences, initially those increasing and decreasing by twos, threes, fives and ten from any starting point, then moving to other sequences | Counting by Twos<br>Counting by Fives<br>Counting by Tens | Year 2 Numbers<br>- Skip Counting<br>Year 2 Patterns and Relationships<br>- Patterns and Rules |
| Number and Algebra | Number and Place Value | ACMNA028 | Group, partition and rearrange collections up to 1 000 in hundreds, tens and ones to facilitate more efficient counting | Model Numbers | Year 2 Numbers<br>- Place Value to 999 |

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| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Number and Place Value | ACMNA029 | Explore the connection between addition and subtraction | All about Ten<br>Add to 18<br>Addition Facts to 18<br>Subtraction Facts to 18 | Year 2<br>Operations with Number<br>- Addition<br>- Subtraction |
| Number and Algebra | Number and Place Value | ACMNA026 | Investigate number sequences, initially those increasing and decreasing by twos, threes, fives and ten from any starting point, then moving to other sequences. | Counting by Twos<br>Counting by Fives<br>Counting by Tens | Year 2<br>Numbers<br>- Skip Counting<br>Year 2 Patterns and Relationships<br>- Patterns and Rules |
| Number and Algebra | Number and Place Value | ACMNA036 | Solve problems by using number sentences for addition or subtraction | Problems: Add and Subtract<br>Problems: Multiply and Divide | Year 2<br>Patterns and Relationships<br>- Number Relationships<br>- Addition<br>- Subtraction |
| Statistics and Probability | Chance | ACMSP047 | Identify practical activities and everyday events that involve chance. Describe outcomes as 'likely' or 'unlikely' and identify some events as 'certain' or 'impossible' | Will it Happen? | Year 2<br>Chance and Data<br>- Chance |
| Statistics and Probability | Data representation and interpretation | ACMSP049 | Collect, check and classify data | Tallies | Year 2<br>Chance and Data<br>- Chance |
| Statistics and Probability | Data representation and interpretation | ACMSP050 | Create displays of data using lists, table and picture graphs and interpret them | Column Graphs | Year 2<br>Chance and Data<br>- Chance |

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## Australian Curriculum Year 3

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Using units of Measurement | ACMMG061 | Measure, order and compare objects using familiar metric units of length, mass and capacity | Using a Litre<br>How Long is That?<br>How Heavy? | Year 3<br>Measurement<br>- Units of Length<br>- Volume and capacity<br>- Mass |
| Measurement and Geometry | Using units of measurement | ACMMG062 | Tell time to the minute and investigate the relationship between units of time | What is the Time?<br>Five Minute Times | Year 3<br>Time<br>- Telling time<br>- Measuring time |
| Measurement and Geometry | Shape | ACMMG063 | Make models of three-dimensional objects and describe key features | How many Faces?<br>How many Edges?<br>How many Corners?<br>What Pyramid am I?<br>What Prism am I?<br>Prisms and Pyramids<br>Faces, Edges and Vertices | Year 3<br>Space, Shape and Position<br>- Investigating 3D shapes |
| Measurement and Geometry | Geometric Reasoning | ACMMG064 | Identify angles as measures of turn and compare angle sizes in everyday situations | Equal Angles<br>Comparing Angles | Year 3<br>Space, Shape and Position<br>- Lines and Angles |
| Measurement and Geometry | Location and transformation | ACMMG065 | Create and interpret simple grid maps to show position and pathways | Following Directions<br>Coordinate Meeting Place<br>Map Coordinates | Year 3<br>Space, Shape and Position<br>- Position |
| Measurement and Geometry | Location and transformation | ACMMG066 | Identify symmetry in the environment | Symmetry | Year 3<br>Space, Shape and Position<br>- Investigating 2D shapes |
| Number and Algebra | Number and Place Value | ACMNA052 | Recognise, model, represent and order numbers to at least 10 000 | Expanding Numbers<br>Which is Bigger? | Year 3<br>Reading and Understanding<br>Whole Numbers<br>- Place value of whole numbers |
| Number and Algebra | Number and Place Value | ACMNA053 | Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems | Magic Mental Addition<br>Magic Mental Subtraction<br>Columns that Add<br>Column Addition 1<br>Column Subtraction<br>Columns that Subtract | Year 3<br>Reading and Understanding<br>Whole Numbers<br>- Place value of whole numbers |

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## Australian Curriculum Year 3

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Number and Place Value | ACMNA054 | Recognise and explain the connection between addition and subtraction | Fact Families: Add and Subtract<br>Related Facts 1 | Year 3 Addition and Subtraction<br>- Subtraction mental strategies |
| Number and Algebra | Number and Place Value | ACMNA055 | Recall addition facts for single-digit numbers and related subtraction facts to develop increasingly efficient mental strategies for computation | Magic Mental Addition<br>Place Value to Thousands<br>Complements to 50 and 100<br>Add Three 1-Digit Numbers | Year 3 Addition and Subtraction<br>- Subtraction mental strategies |
| Number and Algebra | Number and Place Value | ACMNA056 | Recall multiplication facts of two, three, five and ten and related division facts | Groups of Two<br>Groups of Five<br>Groups of Ten<br>Groups of Three<br>Dividing Twos<br>Dividing Fives<br>Dividing Tens<br>Dividing Threes<br>Multiplication Arrays | Year 3 Multiplication and Division<br>- Introducing Multiplication<br>- Multiplication Facts<br>- Division |
| Number and Algebra | Number and Place Value | ACMNA051 | Investigate the conditions required for a number to be odd or even and identify odd and even numbers | Odd and Even Numbers 1 | Year 3 Reading and Understanding Whole Numbers<br>- Looking at whole numbers |
| Number and Algebra | Number and Place Value | ACMNA057 | Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies | Problems: Times and Divide | Year 3 Multiplication and Division<br>- Mental Multiplication Strategies |
| Number and Algebra | Fractions and Decimals | ACMNA058 | Model and represent unit fractions including 1/2, 1/4, 1/3, 1/5 and their multiples to a complete whole | Halves and Quarters<br>Thirds and Sixths<br>What Fraction is Shaded? | Year 3 Fractions<br>- Introducing Fractions |
| Number and Algebra | Money and Financial Mathematics | ACMNA059 | Represent money values in multiple ways and count the change required for simple transactions to the nearest five cents | How much Change?<br>Money | Year 3 Addition and Subtraction<br>- Money |

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| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Patterns and Algebra | ACMNA060 | Describe, continue, and create number patterns resulting from performing addition or subtraction | Counting by Twos<br>Counting by Tens<br>Increasing Patterns<br>Decreasing Patterns<br>Count Forward Patterns<br>Count Backward Patterns | Year 3<br>Patterns and Algebra<br>- Patterns and Functions |
| Statistics and Probability | Chance | ACMSP067 | Conduct chance experiments, identify and describe possible outcomes and recognise variation in results | Fair Games | Year 3<br>Chance and Data<br>- Chance |
| Statistics and Probability | Data representation and interpretation | ACMSP069 | Collect data, organise into categories and create displays using lists, tables, picture graphs and simple column graphs, with and without the use of digital technologies | Tallies<br>Caroll Diagram | Year 3<br>Chance and Data<br>- Data |
| Statistics and Probability | Data representation and interpretation | ACMSP070 | Interpret and compare data displays | Sorting Data<br>Sorting Data<br>Picture Graphs<br>Pictographs<br>Column Graphs<br>Reading from a Column Graph | Year 3<br>Chance and Data<br>- Data |

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## Australian Curriculum Year 4

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Using units of measurement | ACMMG084 | Use scaled instruments to measure and compare lengths, masses, capacities and temperature | How Heavy?<br>How Heavy?<br>Measuring Length | Year 4 Length, Perimeter and Area<br>- Units of length<br>Year 4 Volume, Capacity and Mass<br>- Volume and capacity<br>- Mass |
| Measurement and Geometry | Using units of measurement | ACMMG086 | Use am and pm notation and solve simple time problems | Using Timetables<br>Elapsed Time | Year 4 Time<br>- Measuring time |
| Measurement and Geometry | Using units of measurement | ACMMG085 | Convert between units of time | Hours and Minutes | Year 4 Time<br>- Measuring time |
| Measurement and Geometry | Geometric Reasoning | ACMMG089 | Compare angles and classify them as equal to, greater than or less than a right angle | Equal Angles<br>What Type of Angle?<br>Comparing Angles<br>Right Angle Relation<br>What Time Will it Be? | Year 4 Space, Shape and Position<br>- Lines, angles and shapes |
| Measurement and Geometry | Location and transformation | ACMMG090 | Use simple scales, legends and directions to interpret information contained in basic maps | What Direction was That?<br>Using a Key<br>More Directions! | Year 4 Space, Shape and Position<br>- Position |
| Measurement and Geometry | Location and transformation | ACMMG091 | Create symmetrical patterns, pictures and shapes with and without digital technologies | Symmetry | Year 4 Space, Shape and Position<br>- Lines, angles and shapes |
| Measurement and Geometry | Using units of measurement | ACMMG290 | Compare objects using familiar metric units of area and volume | Area of Shapes<br>How many Blocks? | Year 4 Length, Perimeter and Area<br>- Area<br>Year 4 Volume, Capacity and Mass<br>- Volume and capacity |
| Number and Algebra | Number and Place Value | ACMNA072 | Recognise, represent and order numbers to at least tens of thousands | Numbers in Words<br>Place Value to Thousands<br>Greater Than or Less Than?<br>Expanded Notation | Year 4 Reading and Understanding Whole Numbers<br>- Looking at whole numbers |
| Number and Algebra | Number and Place Value | ACMNA073 | Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems | Adding Colossal Columns<br>Subtracting Colossal Columns | Year 4 Reading and Understanding Whole Numbers<br>- Place value of whole numbers |

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## Australian Curriculum Year 4

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Number and Place Value | ACMNA075 | Recall multiplication facts up to 10 × 10 and related division facts | Multiplication Facts<br>Division Facts<br>Related Facts 2<br>Times Tables | Year 4 Multiplication and Division<br>- Multiplication facts<br>- Division |
| Number and Algebra | Number and Place Value | ACMNA076 | Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and for division where there is no remainder | Remainders by Arrays<br>Halve it!<br>Contracted Multiplication | Year 4 Multiplication and Division<br>- Mental multiplication strategies |
| Number and Algebra | Number and Place Value | ACMNA071 | Investigate and use the properties of odd and even numbers. | Odd and Even Numbers 1 | Year 4 Reading and Understanding Whole Numbers<br>- Looking at whole numbers |
| Number and Algebra | Number and Place Value | ACMNA074 | Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems" | Expanded Notation | Year 4 Multiplication and Division<br>- Using known facts |
| Number and Algebra | Number and Place Value | ACMNA079 | Recognise that the place value system can be extended to tenths and hundredths. Make connections between fractions and decimal notation. | Decimals from Words to Digits 1<br>Decimal Place Value<br>Nearest Whole Number | Year 4 Fractions<br>- Fractions, decimals and percentages |
| Number and Algebra | Fractions and Decimals | ACMNA077 | Investigate equivalent fractions used in contexts | Shading Equivalent Fractions | Year 4 Fractions<br>- Types of fractions |
| Number and Algebra | Fractions and Decimals | ACMNA078 | Count by quarters halves and thirds, including with mixed numerals. Locate and represent these fractions on a number line | Thirds and Sixths | Year 4 Fractions<br>- Working with fractions |
| Number and Algebra | Money and Financial Mathematics | ACMNA080 | Solve problems involving purchases and the calculation of change to the nearest five cents with and without digital technologies | How much Change?<br>Money | Year 4 Addition and Subtraction<br>- Money |

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## Australian Curriculum Year 4

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Number and Place Value | ACMNA081 | Explore and describe number patterns resulting from performing multiplication | Multiplying by 10, 100, 1000<br>Skip Counting<br>Multiply Multiples of 10 | Year 4 Patterns and Algebra<br>- Patterns and Functions |
| Number and Algebra | Number and Place Value | ACMNA082 | Solve word problems by using number sentences involving multiplication or division where there is no remainder | Problems: Times and Divide<br>Mass Word Problems | Year 4 Multiplication and Division<br>- Patterns and Functions |
| Number and Algebra | Patterns and Algebra | ACMNA083 | Use equivalent number sentences involving addition and subtraction to find unknown quantities | Missing Values<br>Complements to 50 and 100<br>Complements to 10, 20, 50 | Year 4 Patterns and Algebra<br>- Division |
| Statistics and Probability | Chance | ACMSP092 | Describe possible everyday events and order their chances of occurring | What are the Chances?<br>What are the Chances? | Year 4 Chance and Data<br>- Chance |
| Statistics and Probability | Chance | ACMSP093 | Identify everyday events where one cannot happen if the other happens | Probability Scale | Year 4 Chance and Data<br>- Chance |
| Statistics and Probability | Chance | ACMSP094 | Identify events where the chance of one will not be affected by the occurrence of the other | Probability Scale | Year 4 Chance and Data<br>- Chance |
| Statistics and Probability | Data representation and interpretation | ACMSP096 | Construct suitable data displays, with and without the use of digital technologies, from given or collected data. Include tables, column graphs and picture graphs where one picture can represent many data values | Making Graphs<br>Interpreting Tables<br>Reading from a Column Graph | Year 4 Chance and Data<br>- Data |
| Statistics and Probability | Data representation and interpretation | ACMSP095 | Select and trial methods for data collection, including survey questions and recording sheets | Tallies<br>Interpreting Tables | Year 4 Chance and Data<br>- Data |

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## Australian Curriculum Year 5

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Location and transformation | ACMMG114 | Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries | Transformations | Year 5 Geometry<br>- Transformation, tessellation and symmetry |
| Measurement and Geometry | Using units of measurement | ACMMG108 | Choose appropriate units of measurement for length, area, volume, capacity and mass | How many Blocks? | Year 5 Length, Perimeter and Area<br>- Units of length<br>Year 5 Volume, Capacity and Mass<br>- Volume and capacity<br>- Mass |
| Measurement and Geometry | Using units of Measurement | ACMMG109 | Calculate the perimeter and area of rectangles using familiar metric unit | Area: Squares and Rectangles<br>Perimeter of Shapes<br>Perimeter: Squares and Rectangles | Year 5 Length, Perimeter and Area<br>- Perimeter |
| Measurement and Geometry | Using units of Measurement | ACMMG110 | Compare 12- and 24-hour time systems and convert between them | 24 Hour Time | Year 5 Time<br>- Measuring time |
| Measurement and Geometry | Using units of Measurement | ACMMG111 | Connect three-dimensional objects with their nets and other two-dimensional representations | Nets | Year 5 Geometry<br>- 3D Shapes |
| Measurement and Geometry | Geometric Reasoning | ACMMG112 | Estimate, measure and compare angles using degrees. Construct angles using a protractor | Angles in a Revolution<br>Classifying Angles<br>Estimating Angles<br>Labelling Angles<br>Measuring Angles | Year 5 Geometry |
| Measurement and Geometry | Location and transformation | ACMMG113 | Use a grid reference system to describe locations. Describe routes using landmarks and directional language | More Directions! | Year 5 Position<br>- Coordinates |
| Measurement and Geometry | Location and transformation | ACMMG114 | Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries | Symmetry or Not?<br>Rotational Symmetry | Year 5 Geometry<br>- Transformation, tessellation and<br>- symmetry |
| Measurement and Geometry | Location and transformation | ACMMG115 | Apply the enlargement transformation to familiar two-dimensional shapes and explore the properties of the resulting image compared with the original | Transformations | Year 5 Geometry<br>- Transformation, tessellation and<br>- symmetry |

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## Australian Curriculum Year 5

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Number and Place Value | ACMNA099 | Use estimation and rounding to check the reasonableness of answers to calculations | Estimation: Add and Subtract<br>Nearest 10?<br>Nearest 100?<br>Nearest 1000?<br>Rounding Numbers | Year 5 Reading and Understanding Whole Numbers<br>- Round and estimate |
| Number and Algebra | Number and Place Value | ACMNA100 | Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies | Contracted Multiplication<br>Long Multiplication<br>Mental Methods Multiplication 1 | Year 5 Multiplication and Division<br>- Mental multiplication strategies<br>- Written methods |
| Number and Algebra | Number and Place Value | ACMNA101 | Solve problems involving division by a one digit number, including those that result in a remainder | Mental Methods Division 1<br>Remainders by Tables<br>Short Division | Year 5 Multiplication and Division<br>- Written methods |
| Number and Algebra | Number and Place Value | ACMNA098 | Identify and describe factors and multiples of whole numbers and use them to solve problems | Multiples<br>Divisibility Tests<br>Multiply More Multiples of 10 | Year 5 Multiplication and Division<br>- Mental multiplication strat |
| Number and Algebra | Fractions and Decimals | ACMNA103 | Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominator | Add: Common Denominator<br>Subtract: Common Denominator | Year 5 Fractions, Decimals and Percentages<br>- Calculating |
| Number and Algebra | Fractions and Decimals | ACMNA104 | Recognise that the number system can be extended beyond hundredths | Multiply Decimals: 10, 100, 1000<br>Multiply decimals 10, 100, 1000<br>Divide Decimals: 10, 100, 1000 | Year 5 Fractions, Decimals and Percentages<br>- Fractions, decimals and percentages |
| Number and Algebra | Fractions and Decimals | ACMNA105 | Compare, order and represent decimals | Comparing Decimals<br>Comparing Decimals 1<br>Decimal Order<br>Decimals on a Number Line<br>Decimals on the Number Line | Year 5 Fractions, Decimals and Percentages<br>- Fractions, decimals and percentages |
| Number and Algebra | Patterns and Algebra | ACMNA107 | Describe, continue and create patterns with fractions, decimals and whole numbers resulting from addition and subtraction | Describing Patterns<br>Pick the Next Number<br>Table of Values | Year 5 Patterns and Algebra<br>- Patterns and Functions |

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## Australian Curriculum Year 5

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Patterns and Algebra | ACMNA121 | Use equivalent number sentences involving multiplication and division to find unknown quantities | Find the Missing Number 1<br>Find the Missing Number 2<br>Missing Values: Decimals | Year 5 Patterns and Algebra<br>- Equations and Equivalence |
| Number and Algebra | Number and Place Value | ACMNA291 | Use efficient mental and written strategies and apply appropriate digital technologies to solve problems | Adding Colossal Columns<br>Bump Add and Subtract<br>Compensation - Add<br>Compensation - Subtract<br>Decimal Complements<br>Dividing by 10, 100, 1000<br>Jump Add and Subtract<br>Mental Methods Division<br>Mental Methods Division 2<br>Mental Methods Division 3<br>Mental Methods Multiplication 2<br>Mental Methods Multiplication 3<br>Multiply More Multiples of 10<br>Multiply Multiples of 10<br>Multiplying by 10, 100, 1000<br>Place Value to Millions<br>Problems: Times and Divide<br>Split Add and Subtract<br>Subtracting Colossal Columns | Year 5 Multiplication and Division<br>- Mental multiplication strategies<br>- Mental division strategies<br>- Written methods<br>Year 5 Addition and Subtraction<br>- Mental multiplication strategies |
| Number and Algebra | Fractions and Decimals | ACMNA102 | Compare and order common unit fractions and locate and represent them on a number line | Shading Equivalent Fractions<br>Comparing Fractions 1 | Year 5 Fractions, Decimals and Percentages<br>- Fractions |
| Statistics and Probability | Chance | ACMSP116 | List outcomes of chance experiments involving equally likely outcomes and represent probabilities of those outcomes using fractions | How many Combinations? | Year 5 Chance and Probability<br>- Chance and probability |

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## Australian Curriculum Year 5

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Statistics and Probability | Chance | ACMSP117 | List outcomes of chance experiments involving equally likely outcomes and represent probabilities of those outcomes using fractions | Find the Probability | Year 5 Chance and Probability<br>- Chance and probability |
| Statistics and Probability | Data representation and interpretation | ACMSP119 | Construct displays, including column graphs, dot plots and tables, appropriate for data type, with and without the use of digital technologies | Dot Plots<br>Interpreting Tables<br>Step Graphs | Year 5 Data Representation<br>- Topics 1 to 3 |
| Statistics and Probability | Data representation and interpretation | ACMSP120 | Recognise that probabilities range from 0 to 1 | Find the Probability | Year 5 Data Representation<br>- Collecting and analysing data |

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## Australian Curriculum Year 6

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Using units of measurement | ACMMG136 | Convert between common metric units of length, mass and capacity | Grams and Kilograms<br>Millilitres and Litres<br>Centimetres and Metres<br>Converting cm and mm<br>Kilogram Conversions<br>Litre Conversions<br>Kilometre Conversions<br>Metres and Kilometres<br>Converting Units of Length<br>Capacity Addition<br>Converting Units of Mass<br>Mass Addition<br>Converting Units of Area<br>Converting Volume<br>Capacity Word Problems | Year 6 Length, Perimeter and Area<br>- Units of length<br>Year 6 Volume, Capacity and Mass<br>- Volume and capacity |
| Measurement and Geometry | Using units of measurement | ACMMG137 | Solve problems involving the comparison of lengths and areas using appropriate units | Scale | Year 6 Length, Perimeter and Area<br>- Units of length<br>Topic 3 - Area |
| Measurement and Geometry | Using units of Measurement | ACMMG138 | Connect volume and capacity and their units of measurement | Volume: Rectangular Prisms 1 | Year 6 Volume, Capacity and Mass<br>- Volume and capacity |
| Measurement and Geometry | Using units of Measurement | ACMMG139 | Interpret and use timetables | Time Zones | Year 6 Time<br>- Telling time |
| Measurement and Geometry | Using units of Measurement | ACMMG135 | Connect decimal representations to the metric system | Converting Units of Length | Year 6 Length, Perimeter and Area<br>- Units of length |
| Measurement and Geometry | Geometric Reasoning | ACMMG141 | Investigate, with and without digital technologies, angles on a straight line, angles at a point and vertically opposite angles. Use results to find unknown angles | Measuring Angles<br>Estimating Angles | Year 6 Geometry<br>- Lines and angles |
| Measurement and Geometry | Location and transformation | ACMMG142 | Investigate combinations of translations, reflections and rotations, with and without the use of digital technologies | Transformations: Coordinate Plane | Year 6 Geometry<br>- Transformation, tessellation and symmetry |

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## Australian Curriculum Year 6

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Location and transformation | ACMMG143 | Introduce the Cartesian coordinate system using all four quadrants | Ordered Pairs | Year 7<br>- The Number Plane |
| Measurement and Geometry | Shape | ACMMG140 | Construct simple prisms and pyramids | Prisms and Pyramids | Year 6 Geometry<br>- 3D shapes |
| Statistics and Probability | Data representation and interpretation | ACMSP147 | Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables | Line Graphs: Interpretation<br>Line Graphs: Interpretation<br>Sector Graphs<br>Divided Bar Graphs<br>Step Graphs<br>Dot Plots | Year 6 Chance and Probability<br>- Chance and probability<br>Year 6 Data Representation<br>- Types of graphs 3 |
| Statistics and Probability | Data representation and interpretation | ACMSP148 | Interpret secondary data presented in digital media and elsewhere | Data Terms | Year 6 Data Representation<br>- Collecting and analysing data<br>- Data investigations |
| Statistics and Probability | Chance | ACMSP145 | Conduct chance experiments with both small and large numbers of trials using appropriate digital technologies | Dice and Coins | Year 6 Chance and Probability<br>- Chance and probability |
| Number and Algebra | Number and Place Value | ACMNA099 | Identify and describe factors and multiples of whole numbers and use them to solve problems | Multiples | Year 5 Reading and Understanding Whole Numbers<br>- Round and estimate |
| Number and Algebra | Number and Place Value | ACMNA122 | Identify and describe properties of prime, composite, square and triangular numbers | Prime or Composite? | Year 6 Multiplication and Division<br>- Mental division strategies |
| Number and Algebra | Number and Place Value | ACMNA123 | Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers | Estimation: Multiply and Divide<br>Order of Operations 1 | Year 6 Multiplication and Division<br>Year 6 Addition and Subtraction |
| Number and Algebra | Number and Place Value | ACMNA124 | Investigate everyday situations that use integers. Locate and represent these numbers on a number line | Negative or Positive?<br>Temperature | Year 6 Reading and Understanding Whole Numbers<br>- Types of numbers |
| Number and Algebra | Fractions and Decimals | ACMNA126 | Solve problems involving addition and subtraction of fractions with the same or related denominators | One take Fraction<br>Subtract: Common Denominator<br>Fraction Word Problems | Year 6 Fractions, Decimals and Percentages<br>- Calculating |

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## Australian Curriculum Year 6

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Fractions and Decimals | ACMNA127 | Find a simple fraction of a quantity where the result is a whole number, with and without digital technologies | Fractions of a Collection<br>Unit Fractions<br>Hours and Minutes | Year 6 Fractions, Decimals and Percentages<br>- Fractions of an amount |
| Number and Algebra | Fractions and Decimals | ACMNA128 | Add and subtract decimals, with and without digital technologies, and use estimation and rounding to check the reasonableness of answers | Nearest Whole Number<br>Adding Decimals<br>Subtracting Decimals<br>Capacity Addition<br>Mass Addition<br>Adding and Subtracting Decimals<br>Rounding Decimals<br>Capacity Word Problems<br>Decimal Complements | Year 6 Fractions, Decimals and Percentages<br>- Calculating |
| Number and Algebra | Fractions and Decimals | ACMNA129 | Multiply decimals by whole numbers and perform divisions by non-zero whole numbers where the results are terminating decimals, with and without digital technologies | Decimal by Whole Number | Year 6 Fractions, Decimals and Percentages<br>- Calculating |
| Number and Algebra | Fractions and Decimals | ACMNA130 | Multiply and divide decimals by powers of 10 | Multiply Decimals: 10, 100, 1000<br>Divide Decimals: 10, 100, 1000 | Year 6 Fractions, Decimals and Percentages<br>- Calculating |
| Number and Algebra | Fractions and Decimals | ACMNA131 | Make connections between equivalent fractions, decimals and percentage | Fractions to Decimals<br>Decimals to Fractions 1<br>Decimal to Percentage<br>Decimals to Fractions 2<br>Percentage to Fraction<br>Modelling Percentages | Year 6 Fractions, Decimals and Percentages<br>- Decimal fractions |
| Number and Algebra | Fractions and Decimals | ACMNA132 | Investigate and calculate percentage discounts of 10%, 25% and 50% on sale items, with and without digital technologies | Calculating Percentages<br>Percent of a Number | Year 6 Fractions, Decimals and Percentages<br>- Fractions of an amount |
| Number and Algebra | Patterns and Algebra | ACMNA133 | Continue and create sequences involving whole numbers, fractions and decimals. Describe the rule used to create the sequence | Pick the Next Number<br>Describing Patterns<br>Pattern Rules and Tables | Year 6 Patterns and Algebra<br>- Patterns and functions |
| Number and Algebra | Patterns and Algebra | ACMNA134 | Explore the use of brackets and order of operations to write number sentences | Order of Operations 1 | Year 6 Patterns and Algebra<br>- Properties of arithmetic |

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## Australian Curriculum Year 7

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Using units of Measurement | ACMMG159 | Establish the formulas for areas of rectangles, triangles and parallelograms and use these in problem solving. | Area: Squares and Rectangles<br>Area: Triangles<br>Area: Right Angled Triangles<br>Surface Area: Rectangular Prisms<br>Area: Quadrilaterals | Year 7<br>- Perimeter and Area<br>Year 8<br>- Surface Area and Volume*<br>Year 8<br>- Expanding and Factorising<br>Year 8<br>- Equations |
| Measurement and Geometry | Using units of Measurement | ACMMG160 | Calculate volumes of rectangular prisms. | Volume: Rectangular Prisms 1 | Year 7<br>- Solids |
| Measurement and Geometry | Using units of Measurement | ACMMG161 | Draw different views of prisms and solids formed from combinations of prisms. | Nets | Year 7<br>- Solids |
| Measurement and Geometry | Geometric Reasoning | ACMMG163 | Identify corresponding, alternate and co-interior angles when two parallel straight lines are crossed by a transversal. | Parallel Lines<br>Equal, Complement or Supplement? | Year 7<br>- Angles |
| Measurement and Geometry | Geometric Reasoning | ACMMG164 | Investigate conditions for two lines to be parallel and solve simple numerical problems using reasoning. | Angles and Parallel Lines | Year 7<br>- Angles |
| Measurement and Geometry | Geometric Reasoning | ACMMG165 | Classify triangles according to their side and angle properties and describe quadrilaterals. | Triangle Tasters<br>Triangles: Acute, Right, Obtuse | Year 7<br>- Polygons<br>Year 7<br>- Angles and Polygons |
| Measurement and Geometry | Geometric Reasoning | ACMMG166 | Demonstrate that the angle sum of a triangle is 180° and use this to find the angle sum of a quadrilateral. | Angle Sum of a Triangle<br>Angle Sum of a Quadrilateral | Year 7<br>- Angles and Polygons<br>Year 8<br>- Equations |
| Measurement and Geometry | Location and transformation | ACMMG181 | Describe translations, reflections in an axis, and rotations of multiples of 90° on the Cartesian plane using coordinates. Identify line and rotational symmetries. | Transformations<br>Symmetry or Not?<br>Rotational Symmetry<br>Transformations: Coordinate Plane<br>Rotations: Coordinate Plane | Year 7<br>- Polygons |

# The Australian Curriculum

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## Australian Curriculum Year 7

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Using units of Measurement | ACMMG196 | Find perimeters and areas of parallelograms, rhombuses and kites. | Perimeter: Squares and Rectangles<br>Perimeter: Composite Shapes<br>Perimeter | Year 7<br>- Perimeter and Area<br>Year 8<br>- Simplifying Algebra<br>- Surface Area and Volume*<br>Year 9<br>- Perimeter and Area |
| Number and Algebra | Number and Place Value | ACMNA149 | Investigate index notation and represent whole numbers as products of powers of prime numbers | Prime or Composite?<br>Highest Common Factor<br>Index Notation<br>Lowest Common Multiple<br>Product of Prime Factors | Year 7<br>- Whole Numbers |
| Number and Algebra | Number and Place Value | ACMNA150 | Investigate and use square roots of perfect square numbers | Estimating Square Roots<br>Square Roots | Year 7<br>- Whole Numbers |
| Number and Algebra | Number and Place Value | ACMNA151 | Apply the associative, commutative and distributive laws to aid mental and written computation | Multiplication Properties<br>Arithmetic Laws<br>Addition Properties | Year 7<br>- Whole Numbers |
| Number and Algebra | Real Numbers | ACMNA152 | Compare fractions using equivalence. Locate and represent fractions and mixed numerals on a number line | Equivalent Fractions<br>Simplifying Fractions<br>Mixed to Improper<br>Converting Mixed and Improper<br>Ordering Fractions<br>Comparing Fractions 1<br>Comparing Fractions with Signs<br>Comparing Fractions 2 | Year 7<br>- Fractions<br>- Decimals |
| Number and Algebra | Real Numbers | ACMNA153 | Solve problems involving addition and subtraction of fractions, including those with unrelated denominators | One take Fraction<br>Add: Common Denominator<br>Subtract: Common Denominator<br>Subtract: No Common Denominator<br>Mixed Numerals<br>Add Unlike Mixed Numbers<br>Subtract Mixed Numbers: Renaming<br>Add Like Mixed Numbers<br>Subtract Unlike Mixed Numbers | Year 7<br>- Fractions |

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## Australian Curriculum Year 7

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Real Numbers | ACMNA154 | Multiply and divide fractions and decimals using efficient written strategies and digital technologies | Fraction by Whole Number<br>Multiply Decimals: 10, 100, 1000<br>Divide Decimals: 10, 100, 1000<br>Decimal by Whole Number<br>Decimal by Decimal<br>Multiplying Fractions<br>Dividing Fractions<br>Multiply Mixed Numbers<br>Divide Mixed Numbers<br>Operations with Fractions | Year 7<br>- Fractions<br>- Decimals<br>- Converting Units |
| Number and Algebra | Real Numbers | ACMNA155 | Express one quantity as a fraction of another, with and without the use of digital technologies | Fraction Word Problems<br>Fraction of an Amount<br>More Fraction Problems | Year 7<br>- Fractions |
| Number and Algebra | Real Numbers | ACMNA156 | Round decimals to a specified number of decimal places | Nearest Whole Number<br>Rounding Decimals | Year 7<br>- Decimals<br>Year 9<br>- Decimals |
| Number and Algebra | Real Numbers | ACMNA157 | Connect fractions, decimals and percentages and carry out simple conversions | Fractions to Decimals<br>Decimals to Fractions 1<br>Decimal by Decimal 1<br>Decimals to Fractions 2<br>Percentage to Fraction<br>Percentage Composition | Year 7<br>- Decimals<br>- Percentage Basics<br>Year 8<br>- Percentage Calculations |
| Number and Algebra | Real Numbers | ACMNA158 | Find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies | Calculating Percentages<br>Calculating Percentages 1<br>Percentage of a Quantity<br>Percentage Word Problems<br>Solve Percent Equations | Year 7<br>- Percentage Basics<br>Year 8<br>- Percentage Calculations |
| Number and Algebra | Real Numbers | ACMNA173 | Recognise and solve problems involving simple ratios. | Ratio<br>Equivalent Ratios | Year 8<br>- Rates and Ratios*<br>Year 9<br>- Decimals |
| Number and Algebra | Money and Financial Mathematics | ACMNA174 | Investigate and calculate 'best buys', with and without digital technologies | Best Buy | Year 7<br>- Rates and Ratios*<br>Year 8<br>- Financial Maths |
| Number and Algebra | Patterns and Algebra | ACMNA175 | Introduce the concept of variables as a way of representing numbers using letters. | Writing Algebraic Expressions | Year 7<br>- Algebra Basics |

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## Australian Curriculum Year 7

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Patterns and Algebra | ACMNA176 | Create algebraic expressions and evaluate them by substituting a given value for each variable. | Simple Substitution<br>Simple Substitution 1<br>Complex Substitution<br>Simple Substitution 3 | Year 7<br>- Algebra Basics<br>Year 8<br>- Simplifying Algebra<br>Year 8<br>- Expanding and Factorising |
| Number and Algebra | Patterns and Algebra | ACMNA177 | Extend and apply the laws and properties of arithmetic to algebraic terms and expressions. | Using the Distributive Property | Year 7<br>- Algebra Basics<br>Year 8<br>- Simplifying Algebra<br>Year 8<br>- Equations |
| Number and Algebra | Linear and non-linear Relationships | ACMNA178 | Given coordinates, plot points on the Cartesian plane, and find coordinates for a given point. | Number Plane<br>Ordered Pairs<br>Coordinate Graphs<br>Horizontal and Vertical Change | Year 7<br>- The Number Plane<br>Year 7<br>- Polygons<br>Year 8<br>- Coordinate Geometry |
| Number and Algebra | Linear and non-linear Relationships | ACMNA179 | Solve simple linear equations. | Find the Missing Number<br>Find the Missing Number 2<br>Missing Values: Decimals<br>I am Thinking of a Number!<br>Solving Simple Equations<br>Solve Two-Step Equations<br>Simple Interest<br>Solve Equations: Add, Subtract 2<br>Solve Equations: Multiply, Divide 1<br>Solve Equations: Multiply, Divide 2 | Year 7<br>- Algebra Basics<br>Year 8<br>- Equations |
| Number and Algebra | Linear and non-linear Relationships | ACMNA180 | Investigate, interpret and analyse graphs from authentic data . | Line Graphs: Interpretation<br>Travel Graphs<br>Conversion Graphs | Year 7<br>- Tables and Graphs*<br>Year 7<br>- The Number Plane<br>Year 8<br>- Straight Lines |
| Number and Algebra | Number and Place Value | ACMNA280 | Compare, order, add and subtract integers | Integers: Add and Subtract<br>Negative or Positive?<br>Ordering Integers<br>Comparing Integers<br>More with Integers<br>Directed Numbers | Year 7<br>- Whole Numbers<br>- Directed Numbers |

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## Australian Curriculum Year 7

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Statistics and Probability | Chance | ACMSP167 | Construct sample spaces for single-step experiments with equally likely outcomes. | Possible Outcomes<br>What are the Chances?<br>Most Likely and Least Likely<br>Simple Probability<br>Find the Probability | Year 7<br>- Chance |
| Statistics and Probability | Data representation and interpretation | ACMSP169 | Identify and investigate issues involving continuous or large count data collected from primary and secondary sources. | Under review | Year 7<br>- Data for Statistics* |
| Statistics and Probability | Data representation and interpretation | ACMSP170 | Construct and compare a range of data displays including stem-and-leaf plots and dot plots. | Stem and Leaf Introduction<br>Stem-and-Leaf Plots<br>Dot Plots | Year 7<br>- Data for Statistics*<br>Year 8<br>- Statistical Graphs* |
| Statistics and Probability | Data representation and interpretation | ACMSP171 | Calculate mean, median, mode and range for sets of data. Interpret these statistics in the context of data. | Finding the Average<br>Mean<br>Median<br>Mode<br>Mean from Frequency Table<br>Mode from Frequency Table<br>Median from Frequency<br>Median from Stem and Leaf Plot<br>Mode from Stem and Leaf Plot<br>Median and Cumulative Frequency<br>Data Terms<br>Data Extremes and Range | Year 7<br>- Data for Statistics*<br>Year 9<br>- Data |
| Statistics and Probability | Data representation and interpretation | ACMSP172 | Describe and interpret data displays using median, mean and range. | Data Terms<br>Mean<br>Median<br>Mode | Year 7<br>- Data for Statistics*<br>Year 8<br>- Statistical Graphs* |

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## Australian Curriculum Year 8

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Using units of Measurement | ACMMG195 | Choose appropriate units of measurement for area and volume and convert from one unit to another. | Converting Units of Area<br>Converting Volume | Year 7<br>- Converting Units<br>Year 8<br>- Surface Area and Volume*<br>- Circles and Cylinders |
| Measurement and Geometry | Using units of Measurement | ACMMG196 | Find perimeters and areas of parallelograms, rhombuses and kites. | Perimeter: Triangles | Year 7<br>- Perimeter and Area<br>Year 8<br>- Simplifying Algebra<br>- Surface Area and Volume*<br>Year 9<br>- Perimeter and Area |
| Measurement and Geometry | Using units of Measurement | ACMMG197 | Investigate the relationship between features of circles such as circumference, area, radius and diameter. Use formulas to solve problems involving circumference and area. | Circumference: Circles<br>Area: Circles 1<br>Labelling Circles | Year 8<br>- Circles and Cylinders*<br>Year 9<br>- Perimeter and Area |
| Measurement and Geometry | Using units of Measurement | ACMMG198 | Develop the formulas for volumes of rectangular and triangular prisms and prisms in general. Use formulas to solve problems involving volume. | Volume: Rectangular Prisms 1<br>Volume: Triangular Prisms<br>Right and Oblique Objects<br>Volume: Prisms | Year 8<br>- Surface Area and Volume* |
| Measurement and Geometry | Using units of Measurement | ACMMG199 | Solve problems involving duration, including using 12- and 24-hour time within a single time zone. | Time Mentals<br>Elapsed Time<br>24 Hour Time<br>Australian Time Zones<br>Time Zones | Year 7<br>- Time Calculations<br>- Converting Units |
| Measurement and Geometry | Geometric Reasoning | ACMMG200 | Define congruence of plane shapes using transformations. | Congruent Figures<br>Congruent Figures: Find Values | Year 8<br>- Similarity and Congruence* |
| Measurement and Geometry | Geometric Reasoning | ACMMG201 | Develop the conditions for congruence of triangles. | Congruent Triangles | Year 8<br>- Reasoning in Geometry*<br>- Similarity and Congruence*<br>Year 9<br>- Similarity and Congruence |

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## Australian Curriculum Year 8

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Geometric Reasoning | ACMMG202 | Establish properties of quadrilaterals using congruent triangles and angle properties, and solve related numerical problems using reasoning. | Plane Figure Theorems | Year 7<br>- Polygons<br>Year 8<br>- Reasoning in Geometry*<br>Year 9<br>- Polygons and Angles |
| Number and Algebra | Number and Place Value | ACMNA182 | Use index notation with numbers to establish the index laws with positive integral indices and the zero index | Index Form to Numbers<br>The Zero Index<br>Simplifying with Index Laws 1<br>Properties of Exponents | Year 7<br>- Whole Numbers |
| Number and Algebra | Number and Place Value | ACMNA183 | Carry out the four operations with integers, using efficient mental and written strategies and appropriate digital technologies | Order of Operations 1<br>Integers: Multiply and Divide<br>Integers: Order of Operations | Year 7<br>- Directed Number |
| Number and Algebra | Real Numbers | ACMNA184 | Investigate terminating and recurring decimals. | Fraction to Terminating Decimal<br>Recurring Decimals | Year 7<br>- Decimals<br>- Percentage Basics |
| Number and Algebra | Real Numbers | ACMNA186 | Investigate the concept of irrational numbers, including. | Estimating Cube Roots | Year 7<br>- Whole Numbers<br>- Directed Number<br>Year 8<br>- Circles and Cylinders* |
| Number and Algebra | Real Numbers | ACMNA187 | Solve problems involving the use of percentages, including percentage increases and decreases, with and without digital technologies. | Percentage Increase and Decrease<br>GST | Year 7<br>- Percentage Basics<br>Year 8<br>- Percentage Calculations |
| Number and Algebra | Real Numbers | ACMNA188 | Solve a range of problems involving rates and ratios, with and without digital technologies. | Time Taken<br>Average Speed<br>Distance Travelled<br>Dividing a Quantity in a Ratio<br>Rate Word Problems<br>Ratio Word Problems<br>Converting Rates<br>Rates Calculations<br>Unitary Method<br>Ratio and Proportion | Year 8<br>- Rates and Ratio*<br>Year 9<br>- Decimals |

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## Australian Curriculum Year 8

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Money and Financial Mathematics | ACMNA189 | Solve problems involving profit and loss, with and without digital technologies | Profit and Loss<br>Purchase Options<br>Successive Discounts | Year 8<br>- Percentage Calculations<br>Year 9<br>- Earning Money |
| Number and Algebra | Patterns and Algebra | ACMNA190 | Extend and apply the distributive law to the expansion of algebraic expressions. | Expanding with Negatives<br>Expanding Brackets<br>Using the Distributive Property | Year 8<br>- Equations<br>- Expanding and Factorising<br>Year 9<br>- Simplifying Algebra |
| Number and Algebra | Patterns and Algebra | ACMNA191 | Factorise algebraic expressions by identifying numerical factors. | Highest Common Factor<br>Divisibility Tests<br>Factorising | Year 8<br>- Expanding and Factorising |
| Number and Algebra | Patterns and Algebra | ACMNA192 | Simplify algebraic expressions involving the four operations. | Recognising Like Terms<br>Like Terms: Add and Subtract<br>Algebraic Multiplication<br>Dividing Expressions<br>Simplifying Expressions | Year 8<br>- Simplifying Algebra<br>- Expanding and Factorising<br>Year 9<br>- Simplifying Algebra |
| Number and Algebra | Linear and non-linear Relationships | ACMNA193 | Plot linear relationships on the Cartesian plane with and without the use of digital technologies. | Find the Pattern Rule<br>Pattern Rules and Tables<br>Function Rules and Tables<br>Graphing from a Table of Values<br>Graphing from a Table of Values 2<br>Reading Values from a Line<br>Determining a Rule for a Line<br>General Form of a Line<br>Horizontal and Vertical Lines | Year 7<br>- The Number Plane<br>Year 8<br>- Straight Lines<br>- Linear Relationships<br>Year 10<br>- Straight Lines |

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## Australian Curriculum Year 8

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Linear and non-linear Relationships | ACMNA194 | Solve linear equations using algebraic and graphical techniques. Verify solutions by substitution. | Solving More Equations<br>Equations with Grouping Symbols<br>Solve Multi-Step Equations<br>Equations with Decimals<br>Equations: Variables, Both Sides<br>Writing Equations<br>Find the Mistake<br>Checking Solutions<br>Solve Systems by Graphing<br>Write an Equation: Word Problems | Year 8<br>- Equations<br>- Inequalities<br>- Linear Relationships<br>- Straight Lines |
| Statistics and Probability | Chance | ACMSP204 | Identify complementary events and use the sum of probabilities to solve problems. | Probability Scale<br>Complementary Events | Year 8<br>- Probability |
| Statistics and Probability | Chance | ACMSP205 | Describe events using language of 'at least', exclusive 'or' (A or B but not both), inclusive 'or' (A or B or both) and 'and'. | Probability Tables | Year 8<br>- Probability |
| Statistics and Probability | Data representation and interpretation | ACMSP206 | Explore the practicalities and implications of obtaining representative data using a variety of investigative processes. | Under review | Year 7<br>- Data for Statistics* |
| Statistics and Probability | Data representation and interpretation | ACMSP207 | Investigate the effect of individual data values, including outliers, on the mean and median. | Data Terms<br>Mean<br>Median<br>Mode | Year 8<br>- Analysing Statistical Data* |
| Statistics and Probability | Data representation and interpretation | ACMSP284 | Investigate techniques for collecting data, including census, sampling and observation. | Under review | Year 7<br>- Data for Statistics* |
| Statistics and Probability | Chance | ACMSP292 | Represent such events in two-way tables and Venn diagrams and solve related problems. | Venn Diagrams<br>Two-way Table Probability<br>Venn Diagram1 | Year 8<br>- Probability |
| Statistics and Probability | Data representation and interpretation | ACMSP293 | Explore the variation of means and proportions of random samples drawn from the same population. | Under review | Year 8<br>- Analysing Statistical Data* |

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## Australian Curriculum Year 9

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Using units of Measurement | ACMMG216 | Calculate the areas of composite shapes. | Area: Composite Shapes<br>Area: Annulus | Year 7<br>- Perimeter and Area<br>Year 8<br>- Surface area and Volume*<br>- Circles and Cylinders*<br>Year 9<br>- Perimeter and Are |
| Measurement and Geometry | Using units of Measurement | ACMMG217 | Calculate the surface area and volume of cylinders and solve related problems. | Volume: Cylinders<br>Surface Area: Cylinders Nets | Year 8<br>- Circles and Cylinders*<br>Year 9<br>- Measuring Solids |
| Measurement and Geometry | Using units of Measurement | ACMMG218 | Solve problems involving the surface area and volume of right prisms. | Volume: Rectangular Prisms 2 | Year 8<br>- Surface Area and Volume*<br>Year 9<br>- Measuring Solids |
| Measurement and Geometry | Using units of Measurement | ACMMG219 | Investigate very small and very large time scales and intervals. | Scientific Notation | Year 7<br>- Converting Units<br>Year 9<br>- indices |
| Measurement and Geometry | Geometric Reasoning | ACMMG220 | Use the enlargement transformation to explain similarity and develop the conditions for triangles to be similar. | Similar Figures<br>Using Similar Triangles 1<br>Scale MeasurementSimilar Figures 1<br>Scale Factor | Year 8<br>- Similarity and Congruence*<br>Year 9<br>- Similarity and Congruence |
| Measurement and Geometry | Geometric Reasoning | ACMMG221 | Solve problems using ratio and scale factors in similar figures. | Similar Areas and Volumes | Year 8<br>- Similarity and Congruence*<br>Year 9<br>- Similarity and Congruence |
| Measurement and Geometry | Pythagoras' Theorem and Trigonometry | ACMMG222 | Investigate Pythagoras' Theorem and its application to solving simple problems involving right angled triangles. | Pythagorean Triads<br>Pythagoras' Theorem<br>Hypotenuse of a Right Triangle | Year 8<br>- Pythagoras' Theorem |
| Measurement and Geometry | Pythagoras' Theorem and Trigonometry | ACMMG223 | Use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangles. | Using Similar Triangles | Year 9<br>- Trigonometry |

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## Australian Curriculum Year 9

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Pythagoras' Theorem and Trigonometry | ACMMG224 | Apply trigonometry to solve right-angled triangle problems. | Hypotenuse, Adjacent, Opposite<br>Sin A<br>Cos A<br>Tan A<br>Find Unknown Angles<br>Find Unknown Sides<br>Exact Trigonometric Ratios | Year 9<br>- Trigonometry |
| Number and Algebra | Real Numbers | ACMNA208 | Solve problems involving direct proportion. Explore the relationship between graphs and equations corresponding to simple rate problems. | Rates Word Problems<br>Converting Rates<br>Rates<br>Solve Proportions<br>Rates Calculations<br>Direct Variation<br>Indirect Variation<br>Ratio and Proportion | Year 7<br>- The Number Plane<br>Year 8<br>- Rates and Ratios*<br>Year 9<br>- Decimals |
| Number and Algebra | Real Numbers | ACMNA209 | Apply index laws to numerical expressions with integer indices. | Index Notation<br>Index Form to Numbers | Year 9<br>- Indices |
| Number and Algebra | Real Numbers | ACMNA210 | Express numbers in scientific notation. | Scientific Notation 2<br>Scientific Notation<br>Scientific Notation 1 | Year 9<br>- Indices |
| Number and Algebra | Money and Financial Mathematics | ACMNA211 | Solve problems involving simple interest. | Simple Interest | Year 10<br>- Interest |
| Number and Algebra | Patterns and Algebra | ACMNA212 | Extend and apply the index laws to variables, using positive integral indices and the zero index. | Algebraic Multiplication<br>Dividing Expressions<br>Index Notation and Algebra<br>Multiplication with Indices<br>Index Laws with Brackets<br>Zero Index and Algebra | Year 8<br>- Simplifying Algebra<br>Year 9<br>- Simplifying Algebra<br>- Indices |
| Number and Algebra | Patterns and Algebra | ACMNA213 | Apply the distributive law to the expansion of algebraic expressions, including binomials, and collect like terms where appropriate. | Expanding with Negatives<br>Expanding Brackets<br>Expand then Simplify | Year 8<br>- Expanding and Factorising<br>Year 9<br>- Simplifying Algebra |
| Number and Algebra | Linear and non-linear Relationships | ACMNA214 | Find the distance between two points located on a Cartesian plane using a range of strategies, including graphing software. | Distance Between Two Points<br>Coordinate Methods in Geometry | Year 9<br>- Coordinate Geometry |

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## Australian Curriculum Year 9

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Linear and non-linear Relationships | ACMNA215 | Sketch linear graphs using the coordinates of two points and solve linear equations. | Determining a Rule for a Line<br>Which Straight Line?<br>Equation of a Line 1<br>Horizontal and Vertical Lines<br>Equation from Point and Gradient<br>Equation from Two Points | Year 9<br>- Linear Relationships<br>Year 10<br>- Straight Lines |
| Number and Algebra | Linear and non-linear Relationships | ACMNA294 | Find the midpoint and gradient of a line segment (interval) on the Cartesian plane using a range of strategies, including graphing software. | Midpoint by Formula<br>Gradient<br>Slope of a Line<br>Gradients for Real<br>y=ax<br>Graphing Parabolas<br>Graphing Circles<br>Centre and Radius 1 | Year 8<br>- Straight Lines<br>- Linear Relationships<br>Year 9<br>- Coordinate Geometry |
| Statistics and Probability | Chance | ACMSP225 | List all outcomes for two-step chance experiments, both with and without replacement using tree diagrams or arrays. Assign probabilities to outcomes and determine probabilities for events. | Probability With Replacement<br>Probability Without Replacement<br>Tree Diagrams | Year 7<br>- Chance<br>Year 8<br>- Probability<br>Year 9<br>- Probability |
| Statistics and Probability | Chance | ACMSP226 | Calculate relative frequencies from given or collected data to estimate probabilities of events involving 'and' or 'or'. | Relative Frequency<br>Two-way Table<br>Probability | Year 8<br>- Probability<br>Year 9<br>- Probability |
| Statistics and Probability | Chance | ACMSP227 | Investigate reports of surveys in digital media and elsewhere for information on how data were obtained to estimate population means and medians. | Under review | Under review |
| Statistics and Probability | Data representation and interpretation | ACMSP228 | Identify everyday questions and issues involving at least one numerical and at least one categorical variable, and collect data directly from secondary sources. | Under review | Year 8<br>- Analysing Statistical Data* |

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## Australian Curriculum Year 9

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Statistics and Probability | Data representation and interpretation | ACMSP282 | Construct back-to-back stem-and-leaf plots and histograms and describe data, using terms including 'skewed', 'symmetric' and 'bi modal' . | Frequency Histograms<br>Cumulative Frequency Table<br>Histogram or Polygon?<br>Data Terms<br>Cumulative Frequency Histogram<br>Double Stem and Leaf Plots | Year 8<br>- Statistical Graphs* |
| Statistics and Probability | Data representation and interpretation | ACMSP283 | Compare data displays using mean, median and range to describe and interpret numerical data sets in terms of location (centre) and spread. | Data Terms<br>Mean<br>Median<br>Mode | Year 9<br>- Data<br>Year 10<br>- Interpreting Data |

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## Australian Curriculum Year 10

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Using units of Measurement | ACMMG242 | Solve problems involving surface area and volume for a range of prisms, cylinders and composite solids. | Surface Area: Triangular Prisms<br>Volume: Composite Figures | Year 9<br>- Measuring Solids |
| Measurement and Geometry | Location and transformation | ACMMG243 | Formulate proofs involving congruent triangles and angle properties. | Angle Sum of a Triangle | Year 9<br>- Similarity and Congruence |
| Measurement and Geometry | Geometric Reasoning | ACMMG244 | Apply logical reasoning, including the use of congruence and similarity, to proofs and numerical exercises involving plane shapes. | Congruent Figures: Find Values<br>Similarity Proofs | Year 9<br>- Similarity and Congruence |
| Measurement and Geometry | Pythagoras' Theorem and Trigonometry | ACMMG245 | Solve right-angled triangle problems including those involving direction and angles of elevation and depression. | Elevation and Depression<br>True and Compass Bearings | Year 8<br>- Pythagoras' Theorem<br>Year 9<br>- Trigonometry |
| Number and Algebra | Money and Financial Mathematics | ACMNA229 | Connect the compound interest formula to repeated applications of simple interest using appropriate digital technologies. | Compound Interest<br>Compound Interest by Formula | Year 10<br>- Interest |
| Number and Algebra | Patterns and Algebra | ACMNA230 | Factorise algebraic expressions by taking out a common algebraic factor. | Factorising Expressions<br>Factorising with Indices<br>Highest Common Algebraic Factor<br>Expanding with Negatives | Year 8<br>- Expanding and Factorising<br>Year 9<br>- Simplifying Algebra |
| Number and Algebra | Patterns and Algebra | ACMNA231 | Simplify algebraic products and quotients using index laws. | Simplifying with Index Laws 2 | Year 8<br>- Simplifying Algebra |
| Number and Algebra | Patterns and Algebra | ACMNA232 | Apply the four operations to simple algebraic fractions with numerical denominators. | Algebraic Fractions 1<br>Algebraic Fractions 2<br>Special Binomial Products<br>Factorising Quadratics 1<br>Grouping in Pairs<br>Completing the Square<br>Simplifying Binomial Expressions | Year 9<br>- Simplifying Algebra<br>Year 10<br>- Factorising |

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## Australian Curriculum Year 10

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Patterns and Algebra | ACMNA234 | Substitute values into formulas to determine an unknown. | Changing the Subject<br>Real Formulae<br>Rearranging the Equation<br>More Substitution in Formulae | Year 8<br>- Equations<br>Year 9<br>- Equations and Inequalities<br>Year 10<br>- Depreciation<br>- Interest<br>- Non Right-angled Triangles |
| Number and Algebra | Linear and non-linear Relationships | ACMNA235 | Solve problems involving linear equations, including those derived from formulas. | General Form of a Line<br>Changing the Subject<br>Constructing Formulae | Year 8<br>- Equations<br>Year 9<br>- Equations and Inequalities |
| Number and Algebra | Linear and non-linear Relationships | ACMNA236 | Solve linear inequalities and graph their solutions on a number line. | Solve Two-Step Equations<br>Solving Inequalities 1<br>Graphing Inequalities 1<br>Solve One-Step Inequalities 1<br>Solve One-Step Inequalities 2<br>Solving Inequalities 2<br>Linear Regions<br>Solving Inequalities 3<br>Graphing Inequalities 3 | Year 8<br>- Equations<br>Year 9<br>- Equations and Inequalities |
| Number and Algebra | Linear and non-linear Relationships | ACMNA237 | Solve linear simultaneous equations, using algebraic and graphical techniques including using digital technology. | Intersecting Linear Regions<br>Simultaneous Equations 1<br>Simultaneous Equations 2<br>Simultaneous Linear Equations<br>Breakeven Point<br>Expanding Binomial Surds<br>Equation of a Line 2 | Year 8<br>- Linear Relationship<br>- Inequalities<br>Year 9<br>- Equations and Inequalities<br>- Linear Relationships |
| Number and Algebra | Linear and non-linear Relationships | ACMNA238 | Solve problems involving parallel and perpendicular lines. | Are they Parallel?<br>Are they Perpendicular?<br>Equation of a Line 3 | Year 9<br>- Linear Relationships |

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## Australian Curriculum Year 10

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Linear and non-linear Relationships | ACMNA239 | Explore the connection between algebraic and graphical representations of relations such as simple quadratics, circles and exponentials using digital technology as appropriate. | Vertex of a Parabola<br>Graphing Parabolas<br>Graphing Exponentials<br>Parabolas and Marbles<br>Parabolas and Rectangles<br>Centre and Radius 2 | Year 10<br>- Circle Graphs<br>- Simple Non Linear Graphs<br>- Parabolas<br>- Exponential and Power Graphs<br>- Functions |
| Number and Algebra | Linear and non-linear Relationships | ACMNA240 | Solve linear equations involving simple algebraic fractions. | Equations with Fractions<br>Equations with Square Roots<br>Equations with Cube Roots<br>Equations with Fractions 2 | Year 8<br>- Equations<br>- Inequalities<br>Year 9<br>- Equations and Inequalities |
| Number and Algebra | Linear and non-linear Relationships | ACMNA241 | Solve simple quadratic equations using a range of strategies. | Quadratic Equations 1<br>Quadratic Formula<br>Simultaneous Equations 3<br>Quadratic Equations 2 | Year 10<br>- Quadratic Equations |
| Statistics and Probability | Chance | ACMSP246 | Describe the results of two- and three-step chance experiments, both with and without replacements, assign probabilities to outcomes and determine probabilities of events. Investigate the concept of independence. | Probability With Replacement<br>Dice and Coins<br>Probability Without Replacement | Year 8<br>- Probability<br>Year 9<br>- Probability |
| Statistics and Probability | Chance | ACMSP247 | Use the language of 'if .... then, 'given', 'of', 'knowing that' to investigate conditional statements and identify common mistakes in interpreting such language. | Venn Diagrams<br>Tree Diagrams<br>Two-way Table Probability | Year 8<br>- Probability<br>Year 9<br>- Probability |
| Statistics and Probability | Data representation and interpretation | ACMSP248 | Determine quartiles and interquartile range. | Calculating Interquartile Range<br>Data Extremes and Range | Year 10<br>- Interpreting Data |
| Statistics and Probability | Data representation and interpretation | ACMSP249 | Construct and interpret box plots and use them to compare data sets. | Box-and-Whisker Plots 2<br>Box-and-Whisker Plots 1<br>Double Stem and Leaf Plots | Year 10<br>- Interpreting Data |

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## Australian Curriculum Year 10

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Statistics and Probability | Data representation and interpretation | ACMSP250 | Compare shapes of box plots to corresponding histograms and dot plots. | Box-and-Whisker Plots 2<br>Box-and-Whisker Plots 1<br>Cumulative Frequency Histogram<br>Frequency Histograms<br>Dot Plots | Under review |
| Statistics and Probability | Data representation and interpretation | ACMSP251 | Use scatter plots to investigate and comment on relationships between two continuous variables | Scatter Plots | Under review |
| Statistics and Probability | Data representation and interpretation | ACMSP252 | Investigate and describe bivariate numerical data where the independent variable is time. | Under review | Under review |
| Statistics and Probability | Data representation and interpretation | ACMSP253 | Evaluate statistical reports in the media and other places by linking claims to displays, statistics and representative data. | Under review | Under review |

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## Australian Curriculum Year 10A

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Measurement and Geometry | Using units of Measurement | ACMMG271 | Solve problems involving surface area and volume of right pyramids, right cones, spheres and related composite solids. | Surface Area: Square Pyramids<br>Surface Area: Spheres<br>Surface Area: Cones<br>Volume: Pyramids<br>Volume: Cones<br>Volume: Spheres<br>Surface Area: Rearrange Formula<br>Surface Area: Rectangular Pyramids | Year 9<br>- Measuring Solids |
| Measurement and Geometry | Geometric Reasoning | ACMMG272 | Prove and apply angle and chord properties of circles. | Circle Theorem<br>Perimeter and Circles<br>Arc Length | Year 10<br>- Geometry of the Circle:<br>- Chords and Angles |
| Measurement and Geometry | Pythagoras' Theorem and Trigonometry | ACMMG274 | Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies . | Period and Amplitude<br>Trigonometric Relationships<br>Sine and Cosine Curves<br>Sign of the Angle<br>Which Quadrant? | Year 10<br>- Trigonometric Relationships |
| Measurement and Geometry | Pythagoras' Theorem and Trigonometry | ACMMG275 | Solve simple trigonometric equations.. | Trig Equations 1<br>Trig Equations 2 | Under review |
| Measurement and Geometry | Pythagoras' Theorem and Trigonometry | ACMMG276 | Apply Pythagoras' theorem and trigonometry to solving three-dimensional problems in right-angled triangles. | Under review | Under review |
| Number and Algebra | Real Numbers | ACMNA264 | Define rational and irrational numbers and perform operations with surds and fractional indices. | Simplifying Surds<br>Adding and Subtracting Surds<br>Multiplying Surds<br>Expanding Surd Expressions<br>Rationalising the Denominator<br>Surd Form to Index Form<br>Fractional Indices<br>Dividing Surds<br>Expanding Binomial Surds | Year 9<br>- Indices<br>Year 10<br>- Surds and Indices |
| Number and Algebra | Real Numbers | ACMNA265 | Use the definition of a logarithm to establish and apply the laws of logarithms. | Log Base 'e'<br>Log Laws<br>Change of Base | Year 10<br>- Logarithms |

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## Australian Curriculum Year 10A

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Number and Algebra | Patterns and Algebra | ACMNA266 | Investigate the concept of a polynomial and apply the factor and remainder theorems to solve problems. | Polynomial Long Division | Year 10<br>- Polynomials |
| Number and Algebra | Linear and non-linear Relationships | ACMNA267 | Describe, interpret and sketch parabolas, hyperbolas, circles and exponential functions and their transformations. | Identifying Graphs<br>Graphing Hyperbolas<br>Non Linear Graphs | Year 10<br>- Circle Graphs<br>- Simple Non Linear Graphs<br>- Exponential and Power Graphs<br>- Functions<br>- Parabolas |
| Number and Algebra | Linear and non-linear Relationships | ACMNA269 | Factorise monic and non-monic quadratic expressions and solve a wide range of quadratic equations derived from a variety of contexts. | Factorising Quadratics 1<br>Factorising Quadratics 2<br>Rearranging the Equation<br>Factorising and Fractions 1 | Year 10<br>- Quadratic Equations |
| Number and Algebra | Linear and non-linear Relationships | ACMNA270 | Solve simple exponential equations. | Exponential Equations | Under review |
| Statistics and Probability | Data representation and interpretation | ACMSP278 | Calculate and interpret the mean and standard deviation of data and use these to compare data sets. | Calculating Standard Deviation<br>Interpreting Standard Deviation | Year 10<br>- Interpreting Data |
| Statistics and Probability | Data representation and interpretation | ACMSP279 | Use information technologies to investigate bivariate numerical data sets. Where appropriate use a straight line to describe the relationship allowing for variation. | Correlation | Under review |

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## Essential Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Calculations, Percentages and Rates | Calculations | Calculations.1 | solve practical problems requiring basic number operations | Common Denominator<br>No Common Denominator<br>Multiplying Fractions<br>Dividing Fractions<br>Divide Whole Number by Fraction<br>Fraction by Whole Number<br>Adding and Subtracting Decimals<br>Decimal by Decimal<br>Divide Decimal by Whole Number<br>Divide Decimal by Decimal<br>Integers: Add and Subtract<br>More with Integers<br>Integers: Multiply and Divide | Year 7<br>Whole Numbers<br>Decimals<br>Fractions |
| Topic 1: Calculations, Percentages and Rates | Calculations | Calculations.2 | apply arithmetic operations according to their correct order | Integers: Order of Operations<br>Order of Operations 1<br>Order of Operations 2 (PEDMAS) | Year 7<br>Whole Numbers<br>Directed Numbers |
| Topic 1: Calculations, Percentages and Rates | Calculations | Calculations.3 | reasonableness of answers to arithmetic calculations | Compatible Numbers<br>Estimation: Multiply and Divide<br>Estimation: Add and Subtract<br>Estimate Products<br>Estimate Quotients | Year 7<br>Whole Numbers<br>Directed Numbers |
| Topic 1: Calculations, Percentages and Rates | Calculations | Calculations.4 | use leading-digit approximation | Compatible Numbers<br>Estimation: Multiply and Divide<br>Estimation: Add and Subtract<br>Estimate Products<br>Estimate Quotients | Year 7<br>Whole Numbers<br>Directed Numbers |
| Topic 1: Calculations, Percentages and Rates | Calculations | Calculations.5 | check results of calculations for accuracy | Compatible Numbers<br>Estimation: Multiply and Divide<br>Estimation: Add and Subtract<br>Estimate Products<br>Estimate Quotients | Year 7<br>Whole Numbers<br>Directed Numbers |
| Topic 1: Calculations, Percentages and Rates | Calculations | Calculations.6 | significance of place value after the decimal point | Decimal Place Value<br>Comparing Decimals 1<br>Comparing Decimals 2 | Year 8<br>Decimals<br>Year 9<br>Decimals |
| Topic 1: Calculations, Percentages and Rates | Calculations | Calculations.7 | evaluate decimal fractions to the required number of decimal places | Rounding Decimals | Year 8<br>Decimals<br>Year 9<br>Decimals |

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## Essential Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Calculations, Percentages and Rates | Calculations | Calculations.8 | round up or round down numbers to the required number of decimal places | Rounding Decimals<br>Rounding Decimals 2 | Year 8 Decimals<br>Year 9 Decimals |
| Topic 1: Calculations, Percentages and Rates | Percentages | Percentages.1 | calculate a percentage of a given amount | Calculating Percentages | Year 7 Percentage Basics<br>Year 8 Percentage Calculations |
| Topic 1: Calculations, Percentages and Rates | Percentages | Percentages.2 | determine one amount expressed as a percentage of another | Percent of a Number<br>Percentage Composition | Year 7 Percentage Basics<br>Year 8 Percentage Calculations |
| Topic 1: Calculations, Percentages and Rates | Percentages | Percentages.3 | apply percentage increases and decreases in situations | Percentage Increase and Decrease<br>Percentage Word Problems | Year 7 Percentage Basics<br>Year 8 Percentage Calculations |
| Topic 1: Calculations, Percentages and Rates | Rates | Rates.1 | identify common usage of rates | Rates | Year 9 Decimals |
| Topic 1: Calculations, Percentages and Rates | Rates | Rates.2 | convert units of rates occurring in practical situations | Converting Rates | Year 9 Decimals |
| Topic 1: Calculations, Percentages and Rates | Rates | Rates.3 | use rates to make comparisons; for example, using unit prices to compare best buys | Best Buy<br>Purchase Options | Under review |
| Topic 2: Measurement | Linear Measure | Linear Measure.1 | use metric units of length | Centimetres and Metres<br>Converting cm and mm<br>Metres and Kilometres<br>Converting Units of Length<br>Operations with Length | Year 7 Converting Units |
| Topic 2: Measurement | Linear Measure | Linear Measure.2 | convert between metric units of length | Centimetres and Metres<br>Converting cm and mm<br>Metres and Kilometres<br>Converting Units of Length<br>Operations with Length | Year 7 Converting Units |
| Topic 2: Measurement | Linear Measure | Linear Measure.3 | calculate perimeters of familiar shapes, including triangles, squares, rectangles, and composites of these | Perimeter: Squares and Rectangles<br>Perimeter: Triangles<br>Perimeter: Composite Shapes | Year 7 Area and Perimeter<br>Year 9 Perimeter and Area |

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## Essential Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 2: Measurement | Area measure | Area.1 | use metric units of area | Converting Units of Area | Year 7 Area and Perimeter<br>Year 9 Perimeter and Area |
| Topic 2: Measurement | Area measure | Area.2 | convert between metric units of area | Converting Units of Area | Year 7 Area and Perimeter<br>Year 9 Perimeter and Area |
| Topic 2: Measurement | Area measure | Area.3 | calculate areas of rectangles and triangles | Area: Squares and Rectangles<br>Area: Triangles<br>Area: Right Angled Triangles | Year 7 Area and Perimeter<br>Year 9 Perimeter and Area |
| Topic 2: Measurement | Mass | Mass.1 | use metric units of mass | Mass Word Problems<br>Converting Units of Mass<br>Kilogram Conversions<br>Grams and Kilograms<br>Grams and Milligrams | Year 7 Converting Units |
| Topic 2: Measurement | Mass | Mass.2 | conversions between them | Mass Word Problems<br>Converting Units of Mass<br>Kilogram Conversions<br>Grams and Kilograms<br>Grams and Milligrams | Year 7 Converting Units |
| Topic 2: Measurement | Volume and capacity | Volume.1 | use metric units of volume | Converting Volume | Under review |
| Topic 2: Measurement | Volume and capacity | Volume.2 | understand the relationship between volume and capacity | Converting Volume | Under review |
| Topic 2: Measurement | Volume and capacity | Volume.3 | calculate the volume of objects, such as cubes and rectangular and triangular prisms | Volume: Rectangular Prisms 1<br>Volume: Rectangular Prisms 2<br>Volume: Triangular Prisms<br>Volume: Cylinders | Year 9 Measuring Solids |
| Topic 3: Algebra | Single Substitution | Substitution.1 | substitute numerical values into algebraic expressions | Simple Substitution<br>Substitution with Fractions | Year 7 Algebra Basics<br>Year 8 Simplifying Algebra |
| Topic 3: Algebra | General Substitution | Substitution.2 | substitute given values for the other pronumerals in a mathematical formula to find the value of the subject of the formula | Simple Substitution<br>Complex Substitution<br>More Substitution in Formulae<br>Solving Simple Equations | Year 7 Algebra Basics<br>Year 8 Simplifying Algebra |

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## Essential Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 4: Graphs | Reading and interpreting graphs | Graphs.1 | interpret information presented in graphs, such as conversion graphs, line graphs, step graphs, column graphs and picture graphs | Sector Graphs<br>Histograms<br>Divided Bar Graphs<br>Line Graphs: Interpretation<br>Step Graphs | Year 9<br>Data<br>Year 10<br>Interpreting Data |
| Topic 4: Graphs | Reading and interpreting graphs | Graphs.2 | two-way tables | Two-way Table Probability | Year 9<br>Probability |
| Topic 1: Representing and comparing data | Data Presentation and Interpretation | Data.1 | display categorical data in tables and column graphs | Histogram or Polygon?<br>Cumulative Frequency Histogram | Year 9<br>Data<br>Year 10<br>Interpreting Data |
| Topic 1: Representing and comparing data | Data Presentation and Interpretation | Data.2 | display numerical data as frequency distributions, dot plots, stem and leaf plots, and histograms | Cumulative Frequency Table<br>Dot Plots<br>Stem and Leaf Introduction<br>Stem-and-Leaf Plots<br>Double Stem and Leaf Plots | Year 9<br>Data<br>Year 10<br>Interpreting Data |
| Topic 1: Representing and comparing data | Summarising and interpreting data | Data.3 | identify the mode | Mode<br>Mode from Frequency Table | Year 9<br>Data<br>Year 10<br>Interpreting Data |
| Topic 1: Representing and comparing data | Summarising and interpreting data | Data.4 | mean | Mean<br>Mean from Frequency Table | Year 9<br>Data<br>Year 10<br>Interpreting Data |
| Topic 1: Representing and comparing data | Summarising and interpreting data | Data.5 | median | Median<br>Median from Frequency<br>Median and Cumulative Frequency | Year 9<br>Data<br>Year 10<br>Interpreting Data |
| Topic 1: Representing and comparing data | Summarising and interpreting data | Data.6 | quartiles, deciles and percentiles | Calculating Interquartile Range | Year 10<br>Interpreting Data |
| Topic 1: Representing and comparing data | Summarising and interpreting data | Data.7 | range and standard deviation | Data Extremes and Range<br>Calculating Standard Deviation<br>Interpreting Standard Deviation | Year 10<br>Interpreting Data |
| Topic 1: Representing and comparing data | Comparing data sets | Data.8 | back-to-back stem plots | Double Stem and Leaf Plots | Under review |

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## Essential Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Representing and comparing data | Comparing data sets | Data.9 | five number summary | Calculating Interquartile Range | Under review |
| Topic 1: Representing and comparing data | Comparing data sets | Data.10 | box plots | Box-and-Whisker Plots 1<br>Box-and-Whisker Plots 2 | Year 10<br>Interpreting Data |
| Topic 1: Representing and comparing data | Comparing data sets | Data.11 | compare the characteristics of the shape of histograms using symmetry, skewness and bimodality | Box-and-Whisker Plots 1<br>Box-and-Whisker Plots 2 | Year 10<br>Interpreting Data |
| Topic 2: Percentages | Percentage Calculations | Percent.1 | calculating a percentage of a given amount | Percentage of a Quantity | Year 7<br>Percentage Basics<br>Year 8<br>Percentage Calculations |
| Topic 2: Percentages | Percentage Calculations | Percent.2 | one amount expressed as a percentage of another | Solve Percent Equations | Year 7<br>Percentage Basics<br>Year 8<br>Percentage Calculations |
| Topic 2: Percentages | Applications of percentages | Percent.3 | calculate simple interest for different rates and periods | Simple Interest | Year 10<br>Interest |
| Topic 3: Rates and ratios | Ratios | Ratios.1 | express a ratio in simplest form | Ratio<br>Unitary Method<br>Equivalent Ratios | Year 9<br>Decimals |
| Topic 3: Rates and ratios | Ratios | Ratios.2 | find the ratio of two quantities | Ratio and Proportion<br>Solve Proportions<br>Ratio Word Problems | Year 9<br>Decimals |
| Topic 3: Rates and ratios | Ratios | Ratios.3 | divide a quantity in a given ratio | Dividing a Quantity in a Ratio | Year 9<br>Decimals |
| Topic 3: Rates and ratios | Rates | Rates.1 | common usage of rates such as km/h | Average Speed | Under review |
| Topic 3: Rates and ratios | Rates | Rates.2 | convert between units for rates | Average Speed | Under review |

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## Essential Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 3: Rates and ratios | Rates | Rates.3 | complete calculations with rates, including solving problems involving direct proportion in terms of rate | Rates Word Problems | Year 9<br>Decimals |
| Topic 4: Time and Motion | Time | Time.1 | represent time using 12-hour and 24-hour clocks | 24 Hour Time | Year 7<br>Time Calculations |
| Topic 4: Time and Motion | Time | Time.2 | calculate time intervals, such as time between, time ahead, time behind | Time Differences<br>Elapsed Time<br>What Time Will it Be? | Year 7<br>Time Calculations |
| Topic 4: Time and Motion | Time | Time.3 | interpret complex timetables | Using Timetables | Year 7<br>Time Calculations |
| Topic 4: Time and Motion | Distance | Distance.1 | use scales to find distances, such as on maps | Scale | Under review |
| Topic 4: Time and Motion | Speed | Speed.1 | calculate speed, distance or time using the formula speed = distance/time | Distance Travelled<br>Time Taken | Under review |
| Topic 4: Time and Motion | Speed | Speed.2 | interpret distance-versus-time graphs | Under review | Under review |
| Topic 1: Measurement | Linear Measure | Linear Measure.4 | review metric units of length, their abbreviations, conversions between them, estimation of lengths, and appropriate choices of units | Compare Length<br>Measuring Length | Year 7<br>Converting Units |
| Topic 1: Measurement | Linear Measure | Linear Measure.5 | calculate perimeters of familiar shapes, including triangles, squares, rectangles, polygons, circles, arc lengths, and composites of these. | Perimeter: Triangles 1<br>Perimeter: Triangles 2<br>Perimeter: Composite Shapes | Year 7<br>Area and Perimeter<br>Year 9<br>Perimeter and Area |
| Topic 1: Measurement | Area measure | Area.4 | use formulas to calculate areas of regular shapes, including triangles, squares, rectangles, parallelograms, trapeziums, circles and sectors | Area of Shapes<br>Area: Quadrilaterals<br>Area: Parallelograms<br>Area: Compound Figures<br>Area: Sectors<br>Area: Annulus<br>Area: Circles 1 | Year 7<br>Area and Perimeter<br>Year 9<br>Perimeter and Area |

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## Essential Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Measurement | Area measure | Area.5 | Conversion of area units | Area of Shapes<br>Area: Quadrilaterals<br>Area: Parallelograms<br>Area: Compound Figures<br>Area: Sectors<br>Area: Annulus<br>Area: Circles 1 | Year 7<br>Area and Perimeter<br>Year 9<br>Perimeter and Area |
| Topic 1: Measurement | Area measure | Area.6 | find the area of irregular figures by decomposition | Area: Compound Figures | Year 7<br>Area and Perimeter<br>Year 9<br>Perimeter and Area |
| Topic 1: Measurement | Area measure | Area.7 | surface area of familiar solids, including cubes, rectangular and triangular prisms, spheres and cylinders | Surface Area: Rectangular Prisms<br>Surface Area: Cylinders | Year 9<br>Measuring Solids |
| Topic 1: Measurement | Area measure | Area.8 | surface area of pyramids, such as rectangular- and triangular-based pyramids | Surface Area: Rectangular Pyramids<br>Surface Area: Square Pyramids<br>Surface Area: Spheres<br>Surface Area: Rearrange Formula | Year 9<br>Measuring Solids |
| Topic 1: Measurement | Mass | Mass.1 | review metric units of mass (and weight), their abbreviations, conversions between them, and appropriate choices of units | Mass Word Problems<br>Converting Units of Mass<br>Kilogram Conversions<br>Grams and Kilograms<br>Grams and Milligrams | Year 7<br>Converting Units |
| Topic 1: Measurement | Mass | Mass.2 | convert between grams and milligrams | Mass Word Problems<br>Converting Units of Mass<br>Kilogram Conversions<br>Grams and Kilograms<br>Grams and Milligrams | Year 7<br>Converting Units |
| Topic 1: Measurement | Volume and capacity | Volume.4 | review metric units of volume, their abbreviations, conversions between them, and appropriate choices of units | Volume: Prisms | Year 9<br>Measuring Solids |
| Topic 1: Measurement | Volume and capacity | Volume.5 | recognise relations between volume and capacity, recognising that 1cm3=1mL and 1m3=1kL | Volume: Prisms | Year 9<br>Measuring Solids |

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## Essential Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Measurement | Volume and capacity | Volume.6 | volume and capacity of regular objects such as cubes, rectangular and triangular prisms and cylinders | Volume: Prisms | Year 9 Measuring Solids |
| Topic 1: Measurement | Volume and capacity | Volume.7 | find the volume of pyramids and spheres | Volume: Prisms | Year 9 Measuring Solids |
| Topic 2: Scales, plans and models | Geometry | Geometry.1 | recognise the properties of common two-dimensional geometric shapes and three-dimensional solids | Plane Figure Theorems<br>Nets | Year 9 Polygons and Angles |
| Topic 2: Scales, plans and models | Geometry | Geometry.2 | different forms of two-dimensional representations of three-dimensional objects, including nets and perspective diagrams | Nets<br>Relate Shapes and Solids<br>Right and Oblique Objects<br>Properties of Solids | Year 9 Measuring Solids |
| Topic 2: Scales, plans and models | Right-angled triangles | Trigonometry.1 | apply Pythagoras' theorem to solve problems | Pythagoras' Theorem<br>Hypotenuse of a Right Triangle<br>Pythagorean Triads | Year 8 Pythagoras' Theorem |
| Topic 2: Scales, plans and models | Right-angled triangles | Trigonometry.2 | apply the tangent ratio to find unknown angles and sides in right-angled triangles | Tan A<br>Find Unknown Sides<br>Find Unknown Angles | Grade 9 Trigonometry |
| Topic 2: Scales, plans and models | Right-angled triangles | Trigonometry.3 | angle of elevation and angle of depression | Elevation and Depression | Grade 9 Trigonometry |
| Topic 2: Scales, plans and models | Right-angled triangles | Trigonometry.4 | cosine and sine ratios to find unknown angles and sides in right-angled triangles | Sin A<br>Cos A | Grade 9 Trigonometry |
| Topic 2: Scales, plans and models | Right-angled triangles | Trigonometry.5 | solve problems involving bearings | Bearings | Grade 9 Trigonometry |
| Topic 3: Graphs | Cartesian plane | Graphs.1 | plotting points on the Cartesian plane | Ordered Pairs<br>Coordinate Graphs: 1st Quadrant | Year 7 The Number Plane |

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## Essential Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 3: Graphs | Cartesian plane | Graphs.2 | generate tables of values for linear functions, including for negative values of x | Table of Values<br>Function Rules and Tables<br>Find the Function Rule<br>Graphing from a Table of Values<br>Graphing from a Table of Values 2<br>Reading Values from a Line | Year 7<br>The Number Plane<br>Year 8<br>Linear Relationships<br>Year 9<br>Linear Relationships |
| Topic 3: Graphs | Cartesian plane | Graphs.3 | graph linear functions for all values of x | y=ax<br>Which Straight Line?<br>Equation of a Line 1<br>Equation of a Line 2<br>Equation of a Line 3<br>Determining a Rule for a Line<br>Intercepts<br>Gradient<br>Horizontal and Vertical Lines | Year 7<br>The Number Plane<br>Year 8<br>Linear Relationships<br>Year 9<br>Linear Relationships |
| Topic 3: Graphs | Using graphs | Graphs.4 | interpret the point of intersection and other important features of given graphs of two linear functions drawn from practical contexts; for example, the 'break-even' point | Simultaneous Linear Equations | Year 9<br>Equations and Inequalities |
| Topic 4: Data collection | Bivariate scatterplots | Data.3 | describe the patterns and features of bivariate data | Scatter Plots | Under review |
| Topic 4: Data collection | Bivariate scatterplots | Data.4 | describe the association between two numerical variables in terms of direction (positive/negative), form (linear/non-linear) and strength (strong/moderate/weak) | Correlation | Under review |

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## Essential Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Probability and relative frequencies | Describing and interpreting patterns in time series data | Probability.1 | interpret commonly used probability statements, including 'possible', 'probable', 'likely', 'certain | Probability Scale | Year 7 Chance<br>Year 8 Probability<br>Year 9 Probability |
| Topic 1: Probability and relative frequencies | Describing and interpreting patterns in time series data | Probability.2 | describe ways of expressing probabilities formally using fractions, decimals, ratios, and percentages | What are the Chances?<br>Simple Probability<br>Find the Probability | Year 7 Chance<br>Year 8 Probability<br>Year 9 Probability |
| Topic 1: Probability and relative frequencies | Simulations | Probability.3 | perform simulations of experiments using technology | Dice and Coins | Year 7 Chance<br>Year 8 Probability<br>Year 9 Probability |
| Topic 1: Probability and relative frequencies | Simple probabilities | Probability.4 | construct a sample space for an experiment | Probability Tables<br>Possible Outcomes<br>Probability Without Replacement<br>Probability With Replacement | Year 7 Chance<br>Year 8 Probability<br>Year 9 Probability |
| Topic 1: Probability and relative frequencies | Simple probabilities | Probability.5 | use arrays or tree diagrams to determine the outcomes and the probabilities for experiments | Tree Diagrams | Year 7 Chance<br>Year 8 Probability<br>Year 9 Probability |
| Topic 1: Probability and relative frequencies | Probability applications | Probability.6 | probabilities associated with simple games | Dice and Coins | Year 7 Chance<br>Year 8 Probability<br>Year 9 Probability |
| Topic 2: Earth geometry and time zones | Location | Earth Geometry.1 | find distances between two places on Earth on the same longitude | Great Circle Distances | Under review |
| Topic 2: Earth geometry and time zones | Time | Earth Geometry.2 | understand the link between longitude and time | Latitude and Longitude | Under review |
| Topic 2: Earth geometry and time zones | Time | Earth Geometry.3 | time zones | Australian Time Zones<br>Time Zones | Under review |

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## Essential Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 3: Loans and compound interest | Compound interest | Finance.1 | simple interest | Simple Interest | Year 10 Interest |
| Topic 3: Loans and compound interest | Compound interest | Finance.2 | compound interest as a recurrence relation | Compound Interest<br>Compound Interest by Formula | Year 10 Interest |
| Topic 3: Loans and compound interest | Reducing balance loans | Finance.3 | investigate the effect of the interest rate and repayment amount on the time taken to repay a loan | Comparing Loans | Year 10 Interest |

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## General Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Consumer Arithmetic | Applications of rates and percentages | Percentage.1 | review rates and percentages | Rates Word Problems<br>Rates<br>Converting Rates<br>Rates Calculations<br>Profit and Loss<br>Calculating Percentages<br>Percentage of a Quantity<br>Calculating Percentages<br>Percentage Increase and Decrease<br>Percentage Increase and Decrease<br>Percentage Composition<br>Percentage Word Problems<br>Solve Percent Equations | Year 7<br>Percentage Basics<br>Year 8<br>Calculating Percentages |
| Topic 1: Consumer Arithmetic | Applications of rates and percentages | Percentage.2 | calculate weekly or monthly wage from an annual salary, wages from an hourly rate including situations involving overtime and other allowances and earnings based on commission or piecework | Wages and Salaries<br>Commission<br>Working Overtime | Year 9<br>Earning Money |
| Topic 1: Consumer Arithmetic | Applications of rates and percentages | Percentage.3 | calculate payments based on government allowances and pensions | Wages and Salaries<br>Commission<br>Working Overtime | Year 9<br>Earning Money |
| Topic 1: Consumer Arithmetic | Applications of rates and percentages | Percentage.4 | prepare a personal budget for a given income taking into account fixed and discretionary spending | Budgeting | Year 9<br>Earning Money |
| Topic 1: Consumer Arithmetic | Applications of rates and percentages | Percentage.5 | compare prices and values using the unit cost method | Best Buy | Year 9<br>Earning Money |
| Topic 1: Consumer Arithmetic | Applications of rates and percentages | Percentage.6 | apply percentage increase or decrease in various contexts | Percentage Increase and Decrease | Year 7<br>Percentage Basics<br>Year 8<br>Calculating Percentages |
| Topic 1: Consumer Arithmetic | Applications of rates and percentages | Percentage.7 | currency exchange rates | Percentage Increase and Decrease | Under review |

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## General Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 2: Algebra and Matrices | Linear and non-linear expressions | Expressions.1 | substitute numerical values into linear algebraic and simple non-linear algebraic expressions | Simple Substitution 1<br>Simple Substitution 2<br>Simple Substitution 3<br>Complex Substitution<br>More Substitution in Formulae<br>Real Formulae<br>Substitution with Fractions | Year 7<br>Algebra Basics<br>Year 8<br>Simplifying Algebra<br>Year 9<br>Simplifying Algebra |
| Topic 2: Algebra and Matrices | Linear and non-linear expressions | Expressions.2 | find the value of the subject of the formula, given the values of the other pronumerals in the formula | Rearranging the Equation<br>Changing the Subject | Year 8<br>Equations Inequalities<br>Year 9<br>Equations and Inequalities |
| Topic 2: Algebra and Matrices | Matrices and matrix arithmetic | Matrices.1 | different types of matrices (row, column, square, zero, identity) | Under review | Under review |
| Topic 2: Algebra and Matrices | Matrices and matrix arithmetic | Matrices.2 | matrix addition, subtraction, multiplication by a scalar, and matrix multiplication | Under review | Under review |
| Topic 2: Algebra and Matrices | Matrices and matrix arithmetic | Matrices.3 | model and solve problems | Under review | Under review |
| Topic 3: Shape and Measurement | Pythagoras' Theorem | Pythagoras.1 | Pythagoras' Theorem and use it to solve practical problems in two dimensions | Pythagoras' Theorem<br>Hypotenuse of a Right Triangle | Year 8<br>Pythagoras' Theorem |
| Topic 3: Shape and Measurement | Pythagoras' Theorem | Pythagoras.2 | simple applications in three dimensions | Under review | Under review |

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## General Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 3: Shape and Measurement | Mensuration | Mensuration.1 | perimeters and areas of circles, sectors of circles, triangles, rectangles, parallelograms and composites | Perimeter: Squares and Rectangles<br>Perimeter: Triangles<br>Perimeter: Composite Shapes<br>Circumference: Circles<br>Perimeter and Circles<br>Arc Length<br>Area: Squares and Rectangles<br>Area: Triangles<br>Area: Right Angled Triangles<br>Area: Quadrilaterals<br>Area: Parallelograms<br>Area: Composite Shapes<br>Area: Circles 1<br>Area: Sectors<br>Area: Annulus<br>Area: Ellipse | Year 8<br>Area and Perimeter<br>Year 9<br>Perimeter and Area |
| Topic 3: Shape and Measurement | Mensuration | Mensuration.2 | calculate the volumes of standard three-dimensional objects | Volume: Rectangular Prisms 1<br>Volume: Rectangular Prisms 2<br>Volume: Triangular Prisms<br>Volume: Cylinders<br>Volume: Pyramids<br>Volume: Cones<br>Volume: Spheres<br>Volume: Rearrange Formula | Year 9<br>Measuring Solids |
| Topic 3: Shape and Measurement | Similar figures and scale factors | Similarity.1 | similarity of two-dimensional figures | Similar Figures<br>Similarity Proofs | Year 9<br>Similarity and Congruence |
| Topic 3: Shape and Measurement | Similar figures and scale factors | Similarity.2 | scale factor for two similar figures to solve linear scaling problems | Using Similar Triangles<br>Scale Factor | Year 9<br>Similarity and Congruence |

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## General Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 3: Shape and Measurement | Similar figures and scale factors | Similarity.3 | calculation of surface areas | Surface Area: Rearrange Formula<br>Surface Area: Rectangular Prisms<br>Surface Area: Cylinders<br>Surface Area: Square Pyramids<br>Surface Area: Rectangular Pyramids<br>Surface Area: Spheres<br>Surface Area: Rearrange Formula | Year 9 Measuring Solids |
| Topic 1: Univariate data analysis and statistical investigation | Making sense of data relating to a single statistical variable | Data.1 | classify a numerical variable as discrete | Under review | Under review |
| Topic 1: Univariate data analysis and statistical investigation | Making sense of data relating to a single statistical variable | Data.2 | dot plot, stem plot, bar chart or histogram | Dot Plots<br>Stem and Leaf Introduction<br>Stem-and-Leaf Plots<br>Double Stem and Leaf Plots<br>Median from Stem and Leaf Plot<br>Mode from Stem and Leaf Plot<br>Histogram or Polygon?<br>Frequency Histograms<br>Cumulative Frequency Histogram | Year 9 Data<br>Year 10 Interpreting Data |
| Topic 1: Univariate data analysis and statistical investigation | Making sense of data relating to a single statistical variable | Data.3 | mean and standard deviation | Mean<br>Median<br>Mode<br>Mean from Frequency Table<br>Mode from Frequency Table<br>Median from Frequency<br>Median and Cumulative Frequency | Year 9 Data<br>Year 10 Interpreting Data |
| Topic 1: Univariate data analysis and statistical investigation | Comparing data for a numerical variable across two or more groups | Data.4 | parallel box plots | Box-and-Whisker Plots 1<br>Box-and-Whisker Plots 2 | Year 9 Data<br>Year 10 Interpreting Data |
| Topic 1: Univariate data analysis and statistical investigation | Comparing data for a numerical variable across two or more groups | Data.5 | IQR and range | Calculating Interquartile Range | Year 9 Data<br>Year 10 Interpreting Data |

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## General Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Univariate data analysis and statistical investigation | Comparing data for a numerical variable across two or more groups | Data.6 | median | Calculating Interquartile Range | Year 9 Data<br>Year 10 Interpreting Data |
| Topic 1: Univariate data analysis and statistical investigation | Comparing data for a numerical variable across two or more groups | Data.7 | range | Data Extremes and Range | Year 9 Data<br>Year 10 Interpreting Data |
| Topic 1: Univariate data analysis and statistical investigation | Comparing data for a numerical variable across two or more groups | Data.8 | standard deviation | Data Extremes and Range | Year 9 Data<br>Year 10 Interpreting Data |
| Topic 2: Applications of trigonometry | Applications of trigonometry | Trigonometry.1 | trigonometric ratios to find the length of an unknown side or the size of an unknown angle in a right-angled triangle | Sin A<br>Cos A<br>Tan A<br>Find Unknown Angles<br>Find Unknown Sides<br>Elevation and Depression | Year 9 Trigonometry |
| Topic 2: Applications of trigonometry | Applications of trigonometry | Trigonometry.2 | Area rule | Area Rule 1<br>Area Rule 2<br>Area Problems | Year 10 Non Right Angled Triangles |
| Topic 2: Applications of trigonometry | Applications of trigonometry | Trigonometry.3 | sine rule | Sine Rule 1<br>Sine Rule 2 | Year 10 Non Right Angled Triangles |
| Topic 2: Applications of trigonometry | Applications of trigonometry | Trigonometry.4 | cosine rule | Cosine Rule 1<br>Cosine Rule 2 | Year 10 Non Right Angled Triangles |
| Topic 3: Linear equations and their graphs | Linear equations: | Equations.1 | identify and solve linear equations | Solve Equations: Add, Subtract 1<br>Solve Equations: Multiply, Divide 1<br>Solving Simple Equations<br>Solve Two-Step Equations<br>Solving More Equations<br>Solve Multi-Step Equations<br>Equations with Decimals<br>Equations: Variables, Both Sides<br>Equations with Fractions<br>Equations with Fractions 2 | Year 8 Equations Inequalities<br>Year 9 Equations and Inequalities |

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## General Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 3: Linear equations and their graphs | Linear equations: | Equations.2 | develop a linear formula from a word description | Write an Equation: Word Problems<br>Writing Equations | Year 8<br>Equations Inequalities<br>Year 9<br>Equations and Inequalities |
| Topic 3: Linear equations and their graphs | Straight-line graphs and their applications | Line Graphs.1 | construct straight-line graphs | Graphing from a Table of Values<br>Reading Values from a Line<br>y=ax<br>Determining a Rule for a Line<br>Slope of a Line<br>Which Straight Line? | Year 8<br>Linear Relationships<br>Year 9<br>Linear Relationships<br>Coordinate Geometry<br>Year 10<br>Straight Lines |
| Topic 3: Linear equations and their graphs | Straight-line graphs and their applications | Line Graphs.2 | determine the slope and intercepts of a straight-line graph | Are they Parallel?<br>Are they Perpendicular?<br>Equation of a Line 1<br>Equation of a Line 2<br>Equation of a Line 3<br>General Form of a Line<br>Equation from Two Points | Year 8<br>Linear Relationships<br>Year 9<br>Linear Relationships<br>Coordinate Geometry<br>Year 10<br>Straight Lines |
| Topic 3: Linear equations and their graphs | Simultaneous linear equations and their applications: | Simultaneous.1 | solve a pair of simultaneous linear equations | Simultaneous Linear Equations<br>Breakeven Point<br>Simultaneous Equations 1<br>Simultaneous Equations 2 | Year 9<br>Equations and Inequalitties |
| Topic 3: Linear equations and their graphs | Simultaneous linear equations and their applications: | Simultaneous.2 | solve practical problems that involve finding the point of intersection of two straight-line graphs | Breakeven Point | Year 9<br>Equations and Inequalitties |
| Topic 3: Linear equations and their graphs | Piece-wise linear graphs and step graphs | Line Graphs.3 | sketch piece-wise linear graphs and step graphs | Under review | Under review |
| Topic 1: Bivariate data analysis | Identifying and describing associations between two categorical variables | Bivariate.1 | construct two-way frequency tables | Cumulative Frequency Table | Year 9<br>Data |

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## General Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Bivariate data analysis | Identifying and describing associations between two numerical variables | Bivariate.2 | scatterplot | Scatter Plots | Under review |
| Topic 1: Bivariate data analysis | Identifying and describing associations between two numerical variables | Bivariate.3 | describe an association between two numerical variables in terms of direction (positive/ negative), form (linear/ non-linear) and strength (strong/ moderate/weak) | Correlation | Under review |
| Topic 1: Bivariate data analysis | Identifying and describing associations between two numerical variables | Bivariate.4 | correlation coefficient ( r ) | Correlation | Under review |
| Topic 1: Bivariate data analysis | Fitting a linear model to numerical data | Bivariate.5 | least-squares line | Under review | Under review |
| Topic 1: Bivariate data analysis | Fitting a linear model to numerical data | Bivariate.6 | interpret the intercept and slope of the fitted line | Under review | Under review |
| Topic 1: Bivariate data analysis | Fitting a linear model to numerical data | Bivariate.7 | coefficient of determination to assess the strength of a linear association | Under review | Under review |
| Topic 2: Growth and decay in sequences | The arithmetic sequence | Sequence.1 | use recursion to generate an arithmetic sequence | Terms: Arithmetic Progressions | Year 11 Sequence and Series: Arithmetic |
| Topic 2: Growth and decay in sequences | The arithmetic sequence | Sequence.2 | deduce a rule for the nth term of a particular arithmetic sequence | Under review | Year 11 Sequence and Series: Arithmetic |
| Topic 2: Growth and decay in sequences | The geometric sequence | Sequence.3 | recursion to generate a geometric sequence | Terms: Geometric Progressions 1<br>Terms: Geometric Progressions 2 | Year 11 Sequence and Series: Arithmetic |
| Topic 2: Growth and decay in sequences | The geometric sequence | Sequence.4 | deduce a rule for the nth term of a particular geometric sequence | Terms: Geometric Progressions 1<br>Terms: Geometric Progressions 2 | Year 11 Sequence and Series: Arithmetic |
| Topic 3: Graphs and networks | Planar graphs | Networks.1 | Euler's formula, $v + f - e = 2$ | Euler's Formula | Under review |

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## General Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 3: Graphs and networks | Paths and cycles | Networks.2 | walk, trail, path, closed walk, closed trail, cycle, connected graph, and bridge | Under review | Under review |
| Topic 3: Graphs and networks | Paths and cycles | Networks.3 | Eulerian graph, Eulerian trail, semi-Eulerian graph, semi-Eulerian trail and the conditions for their existence | Under review | Under review |
| Topic 3: Graphs and networks | Paths and cycles | Networks.4 | Hamiltonian graph and semi-Hamiltonian graph | Under review | Under review |
| Topic 1: Time series analysis | Describing and interpreting patterns in time series data | Time series.1 | construct time series plots | Under review | Under review |
| Topic 1: Time series analysis | Describing and interpreting patterns in time series data | Time series.2 | time series plots | Under review | Under review |
| Topic 2: Loans, investments and annuities | Compound interest loans and investments | Finance.1 | use a recurrence relation to model a compound interest loan or investment | Compound Interest<br>Compound Interest by Formula | Year 10 Interest |
| Topic 2: Loans, investments and annuities | Compound interest loans and investments | Finance.2 | calculate the effective annual rate of interest and use the results to compare investment returns and cost of loans when interest is paid or charged daily, monthly, quarterly or six-monthly | Effective Interest Rate | Year 10 Interest |
| Topic 2: Loans, investments and annuities | Reducing balance loans | Finance.3 | use a recurrence relation to model a reducing balance loan | Comparing Loans<br>Comparing Home Loans | Under review |
| Topic 2: Loans, investments and annuities | Annuities and perpetuities | Finance.4 | use a recurrence relation to model an annuity | Future Value of an Annuity<br>Present Value of an Annuity | Under review |

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## General Mathematics

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 3: Networks and decision mathematics | Trees and minimum connector problems | Networks.5 | terms tree and spanning tree | Under review | Under review |
| Topic 3: Networks and decision mathematics | Trees and minimum connector problems | Networks.6 | identify a minimum spanning tree in a weighted connected graph either by inspection or by using Prim's algorithm | Under review | Under review |
| Topic 3: Networks and decision mathematics | Project planning and scheduling using critical path analysis | Networks.7 | construct a network to represent the durations and interdependencies of activities that must be completed during the project | Under review | Under review |
| Topic 3: Networks and decision mathematics | Project planning and scheduling using critical path analysis | Networks.8 | starting time (EST) and latest starting times (LST) | Under review | Under review |
| Topic 3: Networks and decision mathematics | Project planning and scheduling using critical path analysis | Networks.9 | use the critical path to determine the minimum time for a project to be completed | Under review | Under review |
| Topic 3: Networks and decision mathematics | Project planning and scheduling using critical path analysis | Networks.10 | calculate float times for non-critical activities | Under review | Under review |
| Topic 3: Networks and decision mathematics | Flow networks | Networks.11 | solve small-scale network flow problems | Under review | Under review |
| Topic 3: Networks and decision mathematics | Assignment problems | Networks.12 | use a bipartite graph and/or its tabular or matrix | Under review | Under review |
| Topic 3: Networks and decision mathematics | Assignment problems | Networks.13 | Hungarian algorithm | Under review | Under review |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Functions and Graphs | Lines and Linear Relationships | Linear.1 | determine the coordinates of the midpoint of two points | Midpoint by Formula<br>Distance Between Two Points<br>Coordinate Methods in Geometry | Year 9<br>Coordinate Geometry |
| Topic 1: Functions and Graphs | Lines and Linear Relationships | Linear.2 | direct proportion and linearly related variables | y=ax | Year 8<br>Linear Relationships<br>Year 9<br>Linear Relationships<br>Coordinate Geometry<br>Year 10<br>Straight Lines |
| Topic 1: Functions and Graphs | Lines and Linear Relationships | Linear.3 | recognise features of the graph of y = mx + c, including its linear nature, its intercepts and its slope or gradient | Intercepts<br>Gradient<br>Gradients for Real<br>Gradient and Tan | Year 8<br>Linear Relationships<br>Year 9<br>Linear Relationships<br>Coordinate Geometry<br>Year 10<br>Straight Lines |
| Topic 1: Functions and Graphs | Lines and Linear Relationships | Linear.4 | find the equation of a straight line | Gradient and Tan<br>Equation of a Line 1<br>Equation of a Line 2<br>Equation of a Line 3<br>Equation from Point and Gradient<br>Equation from Two Points | Year 8<br>Linear Relationships<br>Year 9<br>Linear Relationships<br>Coordinate Geometry<br>Year 10<br>Straight Lines |
| Topic 1: Functions and Graphs | Lines and Linear Relationships | Linear.5 | parallel and perpendicular lines | Are they Parallel?<br>Are they Perpendicular? | Year 8<br>Linear Relationships<br>Year 9<br>Linear Relationships<br>Coordinate Geometry<br>Year 10<br>Straight Lines |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Functions and Graphs | Lines and Linear Relationships | Linear.6 | solve linear equations | Solving More Equations<br>Equations with Grouping Symbols<br>Solve Multi-Step Equations<br>Equations: Variables, Both Sides<br>Equations with Fractions 2<br>Absolute Value Equations<br>Simultaneous Equations 1<br>Simultaneous Equations 2<br>Solve Systems by Graphing<br>Simultaneous Linear Equations | Year 8<br>Equations<br>Inequalities<br>Year 9<br>Equations and Inequalities |
| Topic 1: Functions and Graphs | Review of quadratic relationships | Quadratic.1 | examples of quadratically related variables | Factorising Quadratics 1<br>Factorising Quadratics 2<br>Quadratic Equations 1<br>Quadratic Equations 2<br>Equations Reducible ton Quadratics | Year 10<br>Quadratic Equations |
| Topic 1: Functions and Graphs | Review of quadratic relationships | Quadratic.2 | quadratic graphs | Vertex of a Parabola<br>Graphing Parabolas | Year 10<br>Quadratic Equations<br>Parabolas |
| Topic 1: Functions and Graphs | Review of quadratic relationships | Quadratic.3 | solve quadratic equations using the quadratic formula and by completing the square | Completing the Square<br>Completing the Square 2<br>Quadratic Formula | Year 10<br>Quadratic Equations<br>Parabolas |
| Topic 1: Functions and Graphs | Review of quadratic relationships | Quadratic.4 | find the equation of a quadratic | Under review | Year 10<br>Quadratic Equations<br>Parabolas |
| Topic 1: Functions and Graphs | Review of quadratic relationships | Quadratic.5 | find turning points and zeros of quadratics | Graphing Parabolas<br>Parabolas and Marbles<br>Parabolas and Rectangles | Year 10<br>Quadratic Equations<br>Parabolas |
| Topic 1: Functions and Graphs | Review of quadratic relationships | Quadratic.6 | discriminant | Roots of the Quadratic<br>The Discriminant | Year 10<br>Quadratic Equations<br>Parabolas |
| Topic 1: Functions and Graphs | Review of quadratic relationships | Quadratic.7 | recognise features of the graph of the general quadratic | Roots of the Quadratic<br>The Discriminant | Year 10<br>Quadratic Equations<br>Parabolas |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Functions and Graphs | Inverse proportion | Hyperbola.1 | examine examples of inverse proportion | Under review | Under review |
| Topic 1: Functions and Graphs | Inverse proportion | Hyperbola.2 | recognise features of the graphs including their hyperbolic shapes, and their asymptotes | Graphing Hyperbolas<br>Non Linear Graphs | Year 10<br>Simple Nonlinear Graphs<br>Exponential and Power Graphs |
| Topic 1: Functions and Graphs | Powers and polynomials | Polynomials.1 | recognise features of the graphs of y = x^n where n is natural numbers, -1 and 1/2 | Under review | Year 10<br>Exponential and Power Graphs |
| Topic 1: Functions and Graphs | Powers and polynomials | Polynomials.2 | behavior at infinity | Under review | Under review |
| Topic 1: Functions and Graphs | Powers and polynomials | Polynomials.3 | coefficients and the degree of a polynomial | Under review | Year 10<br>Polynomials |
| Topic 1: Functions and Graphs | Powers and polynomials | Polynomials.4 | expand quadratic and cubic polynomials from factors | Expand then Simplify<br>Special Binomial Products<br>Simplifying Binomial Expressions | Year 9<br>Simplifying Algebra |
| Topic 1: Functions and Graphs | Powers and polynomials | Polynomials.5 | Cubic Graphs | Expand then Simplify<br>Special Binomial Products<br>Simplifying Binomial Expressions | Year 9<br>Simplifying Algebra |
| Topic 1: Functions and Graphs | Powers and polynomials | Polynomials.6 | factorise cubic polynomials | Sum and Difference of Cubes | Under review |
| Topic 1: Functions and Graphs | Powers and polynomials | Polynomials.7 | solve cubic equations | Under review | Year 10<br>Factorising Polynomials |
| Topic 1: Functions and Graphs | Graphs of relations | Graphing.1 | Graphs of cirles at (0, 0) and (a, b) | Graphing Circles<br>Centre and Radius 1<br>Centre and Radius 2 | Year 10<br>Graphing Circles |
| Topic 1: Functions and Graphs | Graphs of relations | Graphing.2 | graphs of y^2 = x | Inverse functions | Year 10<br>Functions |
| Topic 1: Functions and Graphs | Functions | Graphing.3 | function notation | Function Notation 1<br>Function Notation 2<br>Function Notation 3<br>Odd and Even Functions<br>Piecemeal Functions | Year 10<br>Functions |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Functions and Graphs | Functions | Graphing.4 | domain and range | Domain | Year 10 Functions |
| Topic 1: Functions and Graphs | Functions | Graphing.5 | understand the concept of the graph of a function | Domain | Year 10 Functions |
| Topic 1: Functions and Graphs | Functions | Graphing.6 | vertical and horizontal translations | Under review | Year 10 Functions |
| Topic 1: Functions and Graphs | Functions | Graphing.7 | dilations | Under review | Year 10 Functions |
| Topic 1: Functions and Graphs | Functions | Graphing.8 | recognise the distinction between functions and relations, and the vertical line test | Under review | Year 10 Functions |
| Topic 2: Trigonometric functions | Cosine and sine rules | Trigonometry.1 | understand the unit circle definition of sin, cos and tan and periodicity using degrees | Sin A<br>Cos A<br>Tan A<br>Sine and Cosine Curves<br>Period and Amplitude<br>Unit Circle Reductions | Year 9 Trigonometry<br>Trigonometric Relationships |
| Topic 2: Trigonometric functions | Cosine and sine rules | Trigonometry.2 | examine the relationship between the angle of inclination of a line and the gradient of that line | Gradient and Tan<br>Slope of a Line<br>Find Unknown Angles<br>Find Unknown Sides<br>Elevation and Depression | Year 9 Trigonometry<br>Linear Relationships<br>Coordinate Geometry<br>Year 10 Straight Lines |
| Topic 2: Trigonometric functions | Cosine and sine rules | Trigonometry.3 | sine rule | Sine Rule 1<br>Sine Rule 2 | Year 10 Non Right Angled Triangles |
| Topic 2: Trigonometric functions | Cosine and sine rules | Trigonometry.4 | cosine rule | Cosine Rule 1<br>Cosine Rule 2 | Year 10 Non Right Angled Triangles |
| Topic 2: Trigonometric functions | Cosine and sine rules | Trigonometry.5 | area rule | Area Rule 1<br>Area Rule 2<br>Area Problems | Year 10 Non Right Angled Triangles |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 2: Trigonometric functions | Circular measure and radian measure | Trigonometry.6 | define and use radian measure and understand its relationship with degree measure | Converting Radians and Degrees<br>Length of an Arc<br>Area of a Sector | Under review |
| Topic 2: Trigonometric functions | Circular measure and radian measure | Trigonometry.7 | calculate lengths of arcs and areas of sectors in circles | Length of an Arc<br>Area of a Sector | Under review |
| Topic 2: Trigonometric functions | Trigonometric functions | Trigonometry.8 | Exact values in degrees and radians | Exact Trigonometric Ratios | Year 9 Trigonometry<br>Year 10 Trigonometric Relationships |
| Topic 2: Trigonometric functions | Trigonometric functions | Trigonometry.9 | y = sin, cos, tan graphs | Sine and Cosine Curves<br>Trig Graphs in Radians<br>Trigonometric Intercepts | Year 9 Trigonometry<br>Year 10 Trigonometric Relationships |
| Topic 2: Trigonometric functions | Trigonometric functions | Trigonometry.10 | examine amplitude changes | Period and Amplitude | Year 9 Trigonometry<br>Year 10 Trigonometric Relationships |
| Topic 2: Trigonometric functions | Trigonometric functions | Trigonometry.11 | examine period changes | Under review | Under review |
| Topic 2: Trigonometric functions | Trigonometric functions | Trigonometry.12 | examine phase changes | Under review | Under review |
| Topic 2: Trigonometric functions | Trigonometric functions | Trigonometry.13 | prove and apply the angle sum and difference identities | Under review | Under review |
| Topic 2: Trigonometric functions | Trigonometric functions | Trigonometry.14 | solve equations involving trigonometric functions | Trig Equations 1<br>Trig Equations 2<br>Trig Equations 3<br>Trig Equations 4 | Year 9 Trigonometry<br>Year 10 Trigonometric Relationships |
| Topic 3: Counting and probability | Combinations | Combinations.1 | combination | Counting Techniques 1<br>Counting Techniques 2 | Under review |
| Topic 3: Counting and probability | Combinations | Combinations.2 | binomial theorem | Under review | Year 12 The Binomial Theorem |
| Topic 3: Counting and probability | Combinations | Combinations.3 | use Pascal's triangle and its properties | Under review | Year 12 Binomials and Pascal's Triangle |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 3: Counting and probability | Language of events and sets | Probability.1 | outcomes, sample spaces and events as sets of outcomes | Possible Outcomes<br>Dice and Coins | Year 9 Probability |
| Topic 3: Counting and probability | Language of events and sets | Probability.2 | set language and notation | Venn Diagrams | Year 9 Probability |
| Topic 3: Counting and probability | Review of the fundamentals of probability | Probability.3 | probability as a measure of 'the likelihood of occurrence' of an event | Probability Scale<br>Simple Probability<br>Complementary Events<br>Probability With Replacement<br>Probability Without Replacement<br>Probability Tables<br>Two-way Table Probability | Year 9 Probability |
| Topic 3: Counting and probability | Review of the fundamentals of probability | Probability.4 | probability scale | Probability Scale | Year 9 Probability |
| Topic 3: Counting and probability | Review of the fundamentals of probability | Probability.5 | complimentary probability | Under review | Year 9 Probability |
| Topic 3: Counting and probability | Review of the fundamentals of probability | Probability.6 | And and or in probability | Under review | Year 9 Probability |
| Topic 3: Counting and probability | Review of the fundamentals of probability | Probability.7 | relative frequencies obtained from data as point estimates of probabilities | Relative Frequency | Year 9 Probability Data |
| Topic 3: Counting and probability | Conditional probability and independence | Probability.8 | conditional probability | Under review | Under review |
| Topic 3: Counting and probability | Conditional probability and independence | Probability.9 | notation | Under review | Under review |
| Topic 3: Counting and probability | Conditional probability and independence | Probability.10 | understand the notion of independence of an event P(A\|B)=P(A) | Under review | Under review |
| Topic 1: Exponential functions | Indices and the index laws | Exponential.1 | indices (including fractional indices) and the index laws | Index Notation<br>Index Form to Numbers<br>Index Laws with Brackets<br>Surd Form to Index Form<br>Integer Exponents<br>The Zero Index<br>Fractional Indices<br>Simplifying with Index Laws 1<br>Properties of Exponents | Year 9 Indices |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Exponential functions | Indices and the index laws | Exponential.2 | radicals and convert to and from fractional indices | Surd Form to Index Form | Year 9 Indices<br>Year 10 Surds and Indices |
| Topic 1: Exponential functions | Indices and the index laws | Exponential.3 | scientific notation and significant figures | Scientific Notation 1<br>Scientific Notation 2 | Year 9 Indices |
| Topic 1: Exponential functions | Exponential functions | Exponential.4 | algebraic properties of exponential functions | Under review | Year 10 Simple Nonlinear Graphs<br>Exponential and Power Graphs |
| Topic 1: Exponential functions | Exponential functions | Exponential.5 | graph exponential functions | Graphing Exponentials | Year 10 Simple Nonlinear Graphs<br>Exponential and Power Graphs |
| Topic 1: Exponential functions | Exponential functions | Exponential.6 | solve equations involving exponential functions | Exponential Equations | Year 10 Logarithms |
| Topic 2 Arithmetic and geometric sequences and series | Arithmetic sequences | Sequences.1 | recognise and use the recursive definition of an arithmetic sequence | Terms: Arithmetic Progressions | Year 11 Sequence and Series: Arithmetic |
| Topic 2 Arithmetic and geometric sequences and series | Arithmetic sequences | Sequences.2 | linear growth or decay | Terms: Arithmetic Progressions | Year 11 Sequence and Series: Arithmetic |
| Topic 2 Arithmetic and geometric sequences and series | Arithmetic sequences | Sequences.3 | establish and use the formula for the sum of the first n terms of an arithmetic sequence | Sum: Arithmetic Progressions<br>Sigma Notation 1 | Year 11 Sequence and Series: Arithmetic |
| Topic 2 Arithmetic and geometric sequences and series | Geometric sequences | Sequences.4 | recursive definition of a geometric sequence | Terms: Geometric Progressions 1<br>Terms: Geometric Progressions 2 | Year 11 Sequence and Series: Arithmetic |
| Topic 2 Arithmetic and geometric sequences and series | Geometric sequences | Sequences.5 | n tends toward infinity | Limiting Sum | Year 11 Sequence and Series: Arithmetic |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 2 Arithmetic and geometric sequences and series | Geometric sequences | Sequences.6 | Sum of a geometric sequence | Sum: Geometric Progressions<br>Sigma Notation 2 | Year 11 Sequence and Series: Arithmetic |
| Topic 3: Introduction to differential calculus | Rates of change | Differentiation.1 | Average rate of change | Rates of Change | Year 11 Introduction to Differentiation |
| Topic 3: Introduction to differential calculus | The concept of the derivative | Differentiation.2 | Define derivative (first principles) | Under review | Year 11 Introduction to Differentiation |
| Topic 3: Introduction to differential calculus | The concept of the derivative | Differentiation.3 | instantaneous rate of change | Under review | Year 11 Introduction to Differentiation |
| Topic 3: Introduction to differential calculus | The concept of the derivative | Differentiation.4 | interpret the derivative as the slope or gradient of a tangent line of the graph of y = f(x) | Under review | Year 11 Introduction to Differentiation |
| Topic 3: Introduction to differential calculus | Computation of derivatives | Differentiation.5 | estimate numerically the value of a derivative, for simple power functions | Under review | Year 11 Introduction to Differentiation |
| Topic 3: Introduction to differential calculus | Computation of derivatives | Differentiation.6 | examine examples of variable rates of change of non-linear functions | Under review | Year 11 Introduction to Differentiation |
| Topic 3: Introduction to differential calculus | Properties of derivatives | Differentiation.7 | recognise and use linearity properties of the derivative | Differentiation 1<br>Differentiation 2 | Year 11 Introduction to Differentiation |
| Topic 3: Introduction to differential calculus | Properties of derivatives | Differentiation.8 | calculate derivatives of polynomials and other linear combinations of power functions | Differentiation 1<br>Differentiation 2 | Year 11 Introduction to Differentiation |
| Topic 3: Introduction to differential calculus | Applications of derivatives | Differentiation.9 | find instantaneous rates of change | Gradients of Tangents<br>Equations of Tangents<br>Equations of Normals | Year 11 Introduction to Differentiation |
| Topic 3: Introduction to differential calculus | Applications of derivatives | Differentiation.10 | find the slope of a tangent and the equation of the tangent | Under review | Year 11 Introduction to Differentiation |
| Topic 3: Introduction to differential calculus | Applications of derivatives | Differentiation.11 | construct and interpret position-time graphs, with velocity as the slope of the tangent | Under review | Under review |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 3: Introduction to differential calculus | Applications of derivatives | Differentiation.12 | sketch curves associated with simple polynomials | Under review | Under review |
| Topic 3: Introduction to differential calculus | Applications of derivatives | Differentiation.13 | find stationary points | Stationary Points | Under review |
| Topic 3: Introduction to differential calculus | Applications of derivatives | Differentiation.14 | local and global maxima and minima | Stationary Points | Under review |
| Topic 3: Introduction to differential calculus | Applications of derivatives | Differentiation.15 | examine behaviour of derivatives as x tends toward infinity | Stationary Points | Under review |
| Topic 3: Introduction to differential calculus | Applications of derivatives | Differentiation.16 | solve optimisation problems | Stationary Points | Under review |
| Topic 3: Introduction to differential calculus | Anti-derivatives | Integration.1 | calculate anti-derivatives of polynomial functions | Indefinite Integral 1<br>Indefinite Integral 2<br>Indefinite Integral 3 | Under review |
| Topic 3: Introduction to differential calculus | Anti-derivatives | Integration.2 | apply to solving simple problems involving motion in a straight line | Under review | Under review |
| Topic 1: Further differentiation and applications | Exponential functions | Exponential.7 | define e | Under review | Under review |
| Topic 1: Further differentiation and applications | Exponential functions | Exponential.8 | derivative of the expontntial | Derivative of the Exponential | Under review |
| Topic 1: Further differentiation and applications | Exponential functions | Exponential.9 | use exponential functions and their derivatives to solve practical problems | Derivative of the Exponential | Under review |
| Topic 1: Further differentiation and applications | Trigonometric functions | Differentiation.17 | derivative of sin and cos | Differentiate: Trig Functions 1<br>Differentiate: Trig Functions 2 | Under review |
| Topic 1: Further differentiation and applications | Trigonometric functions | Differentiation.18 | use trigonometric functions and their derivatives to solve practical problems | Differentiate: Trig Functions 1<br>Differentiate: Trig Functions 2 | Under review |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Further differentiation and applications | Differentiation rules | Differentiation.19 | product and quotient rules | Product Rule<br>Quotient Rule<br>Chain Rule | Year 11<br>Introduction to Differentiation |
| Topic 1: Further differentiation and applications | Differentiation rules | Differentiation.20 | composition of functions | Product Rule<br>Quotient Rule<br>Chain Rule | Year 11<br>Introduction to Differentiation |
| Topic 1: Further differentiation and applications | Differentiation rules | Differentiation.21 | chain rule | Chain Rule | Year 11<br>Introduction to Differentiation |
| Topic 1: Further differentiation and applications | Differentiation rules | Differentiation.22 | apply the product, quotient and chain rule to differentiate functions | Chain Rule | Year 11<br>Introduction to Differentiation |
| Topic 1: Further differentiation and applications | The second derivative and applications of differentiation | Differentiation.23 | understand the concept of the second derivative as the rate of change of the first derivative function | Second Derivative | Year 11<br>Introduction to Differentiation |
| Topic 1: Further differentiation and applications | The second derivative and applications of differentiation | Differentiation.24 | recognise acceleration as the second derivative of position with respect to time | Velocity 1<br>Velocity 2<br>Acceleration 1<br>Acceleration 2 | Under review |
| Topic 1: Further differentiation and applications | The second derivative and applications of differentiation | Differentiation.25 | concavity | Concavity | Under review |
| Topic 1: Further differentiation and applications | The second derivative and applications of differentiation | Differentiation.26 | points of inflection | Points of Inflexion | Under review |
| Topic 1: Further differentiation and applications | The second derivative and applications of differentiation | Differentiation.27 | second derivative test for finding local maxima and minima | Points of Inflexion | Under review |
| Topic 1: Further differentiation and applications | The second derivative and applications of differentiation | Differentiation.28 | sketch the graph of a function using first and second derivatives to locate stationary points and points of inflection | Points of Inflexion | Under review |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: Further differentiation and applications | The second derivative and applications of differentiation | Differentiation.29 | solve optimisation problems | Points of Inflexion | Under review |
| Topic 2: Integrals | Anti-differentiation | Integration.3 | recognise anti-differentiation as the reverse of differentiation | Primitive Functions | Under review |
| Topic 2: Integrals | Anti-differentiation | Integration.4 | notations | Indefinite Integral 1<br>Indefinite Integral 2<br>Indefinite Integral 3 | Under review |
| Topic 2: Integrals | Anti-differentiation | Integration.5 | indefinite integrals | Indefinite Integral 1<br>Indefinite Integral 2<br>Indefinite Integral 3<br>Integrate: Exponential (Indefinite) | Under review |
| Topic 2: Integrals | Anti-differentiation | Integration.6 | sin and cos | Integrate: Trig Functions 1<br>Integrate: Trig Functions 2 | Under review |
| Topic 2: Integrals | Anti-differentiation | Integration.7 | identify families of curves with the same derivative function | Integrate: Trig Functions 1<br>Integrate: Trig Functions 2 | Under review |
| Topic 2: Integrals | Anti-differentiation | Integration.8 | find f(x) from f'(x) and an initial condition f(a)=b | Integrate: Trig Functions 1<br>Integrate: Trig Functions 2 | Under review |
| Topic 2: Integrals | Anti-differentiation | Integration.9 | determine displacement given velocity in linear motion problems | Under review | Under review |
| Topic 2: Integrals | Definite integrals | Integration.10 | area under the curve | Definite Integral<br>Area by Integration 1<br>Area by Integration 2 | Under review |
| Topic 2: Integrals | Definite integrals | Integration.11 | Reimann sum | Definite Integral<br>Area by Integration 1<br>Area by Integration 2 | Under review |
| Topic 2: Integrals | Fundamental theorem | Integration.12 | signed area function | Under review | Under review |
| Topic 2: Integrals | Fundamental theorem | Integration.13 | calculate definite integrals | Under review | Under review |
| Topic 2: Integrals | Applications of integration | Integration.14 | calculate the area under a curve | Area by Integration 1<br>Area by Integration 2<br>Area by Integration (y-axis) | Under review |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 2: Integrals | Applications of integration | Integration.15 | calculate total change by integrating instantaneous or marginal rate of change | Area by Integration 1<br>Area by Integration 2<br>Area by Integration (y-axis) | Under review |
| Topic 2: Integrals | Applications of integration | Integration.16 | area between curves | Area Between Curves | Under review |
| Topic 2: Integrals | Applications of integration | Integration.17 | determine positions given acceleration and initial values of position and velocity | Under review | Under review |
| Topic 3: Discrete random variables | General discrete random variables | Random Variable.1 | understand the concepts of a discrete random variable and its associated probability function, and their use in modelling data | Under review | Under review |
| Topic 3: Discrete random variables | General discrete random variables | Random Variable.2 | uniform discrete random variables | Under review | Under review |
| Topic 3: Discrete random variables | General discrete random variables | Random Variable.3 | examine simple examples of non-uniform discrete random variables | Under review | Under review |
| Topic 3: Discrete random variables | General discrete random variables | Random Variable.4 | recognise the mean or expected value of a discrete random variable as a measurement of centre, and evaluate it in simple cases | Under review | Under review |
| Topic 3: Discrete random variables | General discrete random variables | Random Variable.5 | variance and standard deviation | Under review | Under review |
| Topic 3: Discrete random variables | General discrete random variables | Random Variable.6 | use discrete random variables and associated probabilities to solve practical problems | Under review | Under review |
| Topic 3: Discrete random variables | Bernoulli distributions | Random Variable.7 | use a Bernoulli random variable as a model for two-outcome situations | Under review | Under review |
| Topic 3: Discrete random variables | Bernoulli distributions | Random Variable.8 | recognise the mean p and variance p(1−p) of the Bernoulli distribution with parameter p | Under review | Under review |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 3: Discrete random variables | Bernoulli distributions | Random Variable.9 | use Bernoulli random variables and associated probabilities to model data and solve practical problems | Under review | Under review |
| Topic 3: Discrete random variables | Binomial distributions | Random Variable.10 | determine and use the probabilities associated with the binomial distribution with parameters n and p ; note the mean np and variance np(1−p) of a binomial distribution | Under review | Under review |
| Topic 3: Discrete random variables | Binomial distributions | Random Variable.11 | binomial distributions and associated probabilities to solve practical problems | Under review | Under review |
| Topic 1: The logarithmic function | Logarithmic functions | Logarithms.1 | define logarithms | Log Laws<br>Change of Base | Year 10 Logarithms |
| Topic 1: The logarithmic function | Logarithmic functions | Logarithms.2 | algebraic properties of logarithms | Log Laws | Year 10 Logarithms |
| Topic 1: The logarithmic function | Logarithmic functions | Logarithms.3 | recognise the inverse relationship between logarithms and exponentials | Equations with Logs<br>Exponential Growth and Decay | Year 10 Logarithms |
| Topic 1: The logarithmic function | Logarithmic functions | Logarithms.4 | solve equations involving indices using logarithms | Equations with Logs | Year 10 Logarithms |
| Topic 1: The logarithmic function | Logarithmic functions | Logarithms.5 | recognise the qualitative features of the graphs | Exponential or Log Graph?<br>Graphing Exponentials | Year 10 Logarithms |
| Topic 1: The logarithmic function | Logarithmic functions | Logarithms.6 | asymptotes, and of its translations | Exponential or Log Graph?<br>Graphing Exponentials | Year 10 Logarithms |
| Topic 1: The logarithmic function | Logarithmic functions | Logarithms.7 | solve simple equations involving logarithmic functions algebraically and graphically | Equations with Logs | Year 10 Logarithms |
| Topic 1: The logarithmic function | Calculus of logarithmic functions | Logarithms.8 | define the natural logarithm | Log Base 'e' | Year 10 Logarithms |
| Topic 1: The logarithmic function | Calculus of logarithmic functions | Logarithms.9 | derivative of ln(x) | Under review | Under review |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 1: The logarithmic function | Calculus of logarithmic functions | Logarithms.10 | use logarithmic functions and their derivatives to solve practical problems | Under review | Under review |
| Topic 2: Continuous random variables and the normal distribution | General continuous random variables | Random Variable.12 | relative frequencies and histograms obtained from data to estimate probabilities associated with a continuous random variable | Under review | Under review |
| Topic 2: Continuous random variables and the normal distribution | General continuous random variables | Random Variable.13 | probability density function | Under review | Under review |
| Topic 2: Continuous random variables and the normal distribution | General continuous random variables | Random Variable.14 | cumulative distribution function | Under review | Under review |
| Topic 2: Continuous random variables and the normal distribution | General continuous random variables | Random Variable.15 | probabilities associated with a continuous random variable given by integrals | Under review | Under review |
| Topic 2: Continuous random variables and the normal distribution | General continuous random variables | Random Variable.16 | recognise the expected value, variance and standard deviation of a continuous random variable and evaluate them in simple cases | Under review | Under review |
| Topic 2: Continuous random variables and the normal distribution | Normal distributions | Random Variable.17 | recognise features of the graph of the probability density function of the normal distribution with mean $\mu$ and standard deviation $\sigma$ and the use of the standard normal distribution | Under review | Under review |
| Topic 2: Continuous random variables and the normal distribution | Normal distributions | Random Variable.18 | calculate probabilities and quantiles associated with a given normal distribution using technology, and use these to solve practical problems | Under review | Under review |

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## Mathematics Methods

| Strand | Substrand | Outcome | Outcome Description | Activities | eBooks |
|---|---|---|---|---|---|
| Topic 3: Interval estimates for proportions | Random sampling | Random Variable.19 | use graphical displays of simulated data to investigate the variability of random samples from various types of distributions, including uniform, normal and Bernoulli | Under review | Under review |

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