

# Mathletics

## The Australian Curriculum v8.4

### Activities (Courses)



Years F-10



# The Australian Curriculum

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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.



Engage



Target



Diagnose



Assess



Report



Fluency



Mobile

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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 Compare Length Which Holds More?	Kindergarten Measurement - Length - Mass - 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 Time, Money and Data - Time
Measurement and Geometry	Shape	ACMMG009	Sort, describe and name familiar two-dimensional shapes and three-dimensional objects in the environment	Collect the Shapes Match the Object Same and Different Sort It	Kindergarten Space and Shape - 2D Space - 3D Space
Measurement and Geometry	Location and transformation	ACMMG010	Describe position and movement	Where is it?	Kindergarten Space and Shape - 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 Ordinal Numbers Order Numbers to 20 Compare Numbers to 20	Kindergarten Numbers and Patterns - Numbers to 10 - Numbers to 20 - 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 Numbers and Patterns - Numbers to 10 - Numbers to 20 - Numbers to 30
Number and Algebra	Number and Place Value	ACMNA004	Represent practical situations to model addition and sharing	Adding to Ten All about Ten Share the Treasure	Kindergarten Operations with Number - Addition - Subtraction - Grouping and Sharing
Number and Algebra	Number and Place Value	ACMNA003	Subitise small collections of objects	Count to 5	Kindergarten Numbers and Patterns - 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 Pattern Error Missing it! Hot or Cold?	Kindergarten Numbers and Patterns - 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 Numbers and Patterns - Numbers to 10 - Numbers to 20 - Numbers to 30 - 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 Time, Money and Data - 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? Filling Fast! Everyday Length Compare Length	Year 1 Measurement - Length - Volume and Capacity
Measurement and Geometry	Using units of measurement	ACMMG020	Tell the time to the half-hour	Hour Times Half Hour Times	Year 1 Time and Money - Time
Measurement and Geometry	Using units of measurement	ACMMG021	Describe duration using months, weeks, days and hours	Days of the Week Months of the Year	Year 1 Time and Money - Time
Measurement and Geometry	Shape	ACMMG022	Recognise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features	Collect the Shapes Match the Object Relate Shapes and Solids Count Sides and Corners	Year 1 Space and Shape - 2D Space - 3D Space
Measurement and Geometry	Location and transformation	ACMMG023	Give and follow directions to familiar locations	Left or Right?	Year 1 Space and Shape - 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 Counting Forwards Going Up Going Down	Year 1 Numbers - Numbers to 20 - Numbers to 50 - Numbers to 100 - 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 Reading Numbers to 30 Number Line Order 1st to 31st Number Lines Compare Numbers to 100	Year 1 Numbers - Ordinal Numbers - Numbers to 20 - Numbers to 50 - Numbers to 100
Number and Algebra	Number and Place Value	ACMNA014	Count collections to 100 by partitioning numbers using place value	Making Numbers Count Making Big Numbers Count	Year 1 Numbers - 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 All about Twenty Subtracting from Ten Additive Addition Simple Subtraction Subtraction Facts to 18 Add and Subtract Using Graphs Model Addition Model Subtraction Addition Facts to 18	Year 1 Operations with Number - Addition - Subtraction
Number and Algebra	Fractions and Decimals	ACMNA016	Recognise and describe one-half as one of two equal parts of a whole	Halves and Quarters	Year 1 Numbers - Fractions
Number and Algebra	Money and Financial Mathematics	ACMNA017	Recognise, describe and order Australian coins according to their value	Everyday Money	Year 1 Time and Money - Money
Number and Algebra	Patterns and Algebra	ACMNA018	Investigate and describe number patterns formed by skip counting and patterns with objects	Simple Patterns Pattern Error Missing it! Balancing Act Colour Patterns	Year 1 Patterns and Relationships - Patterns and Rules - Year 1 Numbers - 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? Read Graphs	Year 1 Chance and Data - 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 Chance and Data - 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 Chance and Data - 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? Comparing Length Equal Areas Comparing Volume	Year 2 Measurement - Length - Volume and Capacity
Measurement and Geometry	Using units of measurement	ACMMG038	Compare masses of objects using balance scales	Everyday Mass	Year 2 Measurement - Mass
Measurement and Geometry	Using units of measurement	ACMMG039	Tell time to the quarter-hour, using the language of 'past' and 'to'.	Hour Times Tell Time to the Half Hour	Year 2 Time and Money - Time
Measurement and Geometry	Using units of measurement	ACMMG040	Name and order months and seasons	Months of the Year	Year 2 Time and Money - Time
Measurement and Geometry	Using units of measurement	ACMMG041	Use a calendar to identify the date and determine the number of days in each month	Using a Calendar	Year 2 Time and Money - Time
Measurement and Geometry	Shape	ACMMG042	Describe and draw two-dimensional shapes, with and without digital technologies	Collect More Shapes Shapes	Year 2 Space and Shape - 2D Space
Measurement and Geometry	Shape	ACMMG043	Describe the features of three-dimensional objects	Collect the Objects Collect the Objects 1 How many Edges? How many Corners? Relate Shapes and Solids	Year 2 Space and Shape - 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 Space and Shape - Position
Measurement and Geometry	Location and transformation	ACMMG045	Investigate the effect of one-step slides and flips with and without digital technologies	Flip, Slide, Turn	Year 2 Space and Shape - 2D Space
Measurement and Geometry	Location and transformation	ACMMG046	Identify and describe half and quarter turns	Flip, Slide, Turn	Year 2 Space and Shape - 2D Space
Number and Algebra	Number and Place Value	ACMNA027	Recognise, model, represent and order numbers to at least 1000	Model Numbers Ascending Order Descending Order Which is Bigger?	Year 2 Numbers - Numbers to 999 - 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	Additive Addition Simple Subtraction Magic Mental Addition Magic Mental Subtraction Columns that Add Column Addition 1 Column Subtraction Columns that Subtract Problems: Add and Subtract	Year 2 Operations with Number - Addition - Subtraction - Australian Curriculum Mathletics Activities Mathletics Workbooks
Number and Algebra	Number and Place Value	ACMNA031	Recognise and represent multiplication as repeated addition, groups and arrays	Groups of Two Groups of Five Groups of Ten Groups of Three Groups of Four Groups of Six Groups of Seven Groups of Eight Groups of Nine Multiplication Arrays	Year 2 Operations with Number - 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 Dividing Fives Dividing Tens Dividing Threes Dividing Fours Dividing Sixes Dividing Sevens Dividing Eights Dividing Nines Share the Treasure Fill the Jars	Year 2 Operations with Number - 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 Counting by Fives Counting by Tens	Year 2 Numbers - Skip Counting Year 2 Patterns and Relationships - 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 - Place Value to 999



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## Australian Curriculum Year 2

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 Add to 18 Addition Facts to 18 Subtraction Facts to 18	Year 2 Operations with Number - Addition - 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 Counting by Fives Counting by Tens	Year 2 Numbers - Skip Counting Year 2 Patterns and Relationships - 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 Problems: Multiply and Divide	Year 2 Patterns and Relationships - Number Relationships - Addition - 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 Chance and Data - Chance
Statistics and Probability	Data representation and interpretation	ACMSP049	Collect, check and classify data	Tallies	Year 2 Chance and Data - 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 Chance and Data - 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 How Long is That? How Heavy?	Year 3 Measurement - Units of Length - Volume and capacity - 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? Five Minute Times	Year 3 Time - Telling time - Measuring time
Measurement and Geometry	Shape	ACMMG063	Make models of three-dimensional objects and describe key features	How many Faces? How many Edges? How many Corners? What Pyramid am I? What Prism am I? Prisms and Pyramids Faces, Edges and Vertices	Year 3 Space, Shape and Position - Investigating 3D shapes
Measurement and Geometry	Geometric Reasoning	ACMMG064	Identify angles as measures of turn and compare angle sizes in everyday situations	Equal Angles Comparing Angles	Year 3 Space, Shape and Position - Lines and Angles
Measurement and Geometry	Location and transformation	ACMMG065	Create and interpret simple grid maps to show position and pathways	Following Directions Coordinate Meeting Place Map Coordinates	Year 3 Space, Shape and Position - Position
Measurement and Geometry	Location and transformation	ACMMG066	Identify symmetry in the environment	Symmetry	Year 3 Space, Shape and Position - Investigating 2D shapes
Number and Algebra	Number and Place Value	ACMNA052	Recognise, model, represent and order numbers to at least 10 000	Expanding Numbers Which is Bigger?	Year 3 Reading and Understanding Whole Numbers - 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 Magic Mental Subtraction Columns that Add Column Addition 1 Column Subtraction Columns that Subtract	Year 3 Reading and Understanding Whole Numbers - 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 Related Facts 1	Year 3 Addition and Subtraction - 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 Place Value to Thousands Complements to 50 and 100 Add Three 1-Digit Numbers	Year 3 Addition and Subtraction - 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 Groups of Five Groups of Ten Groups of Three Dividing Twos Dividing Fives Dividing Tens Dividing Threes Multiplication Arrays	Year 3 Multiplication and Division - Introducing Multiplication - Multiplication Facts - 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 - 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 - Mental Multiplication Strategies
Number and Algebra	Fractions and Decimals	ACMNA058	Model and represent unit fractions including $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{1}{3}$ , $\frac{1}{5}$ and their multiples to a complete whole	Halves and Quarters Thirds and Sixths What Fraction is Shaded?	Year 3 Fractions - 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? Money	Year 3 Addition and Subtraction - Money

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## Australian Curriculum Year 3

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 Counting by Tens Increasing Patterns Decreasing Patterns Count Forward Patterns Count Backward Patterns	Year 3 Patterns and Algebra - 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 Chance and Data - 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 Carroll Diagram	Year 3 Chance and Data - Data
Statistics and Probability	Data representation and interpretation	ACMSP070	Interpret and compare data displays	Sorting Data Sorting Data Picture Graphs Pictographs Column Graphs Reading from a Column Graph	Year 3 Chance and Data - 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? How Heavy? Measuring Length	Year 4 Length, Perimeter and Area - Units of length Year 4 Volume, Capacity and Mass - Volume and capacity - Mass
Measurement and Geometry	Using units of measurement	ACMMG086	Use am and pm notation and solve simple time problems	Using Timetables Elapsed Time	Year 4 Time - Measuring time
Measurement and Geometry	Using units of measurement	ACMMG085	Convert between units of time	Hours and Minutes	Year 4 Time - 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 What Type of Angle? Comparing Angles Right Angle Relation What Time Will it Be?	Year 4 Space, Shape and Position - 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? Using a Key More Directions!	Year 4 Space, Shape and Position - 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 - 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 How many Blocks?	Year 4 Length, Perimeter and Area - Area Year 4 Volume, Capacity and Mass - 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 Place Value to Thousands Greater Than or Less Than? Expanded Notation	Year 4 Reading and Understanding Whole Numbers - 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 Subtracting Colossal Columns	Year 4 Reading and Understanding Whole Numbers - 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 $10 \times 10$ and related division facts	Multiplication Facts Division Facts Related Facts 2 Times Tables	Year 4 Multiplication and Division - Multiplication facts - 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 Halve it! Contracted Multiplication	Year 4 Multiplication and Division - 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 - 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 - 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 Decimal Place Value Nearest Whole Number	Year 4 Fractions - Fractions, decimals and percentages
Number and Algebra	Fractions and Decimals	ACMNA077	Investigate equivalent fractions used in contexts	Shading Equivalent Fractions	Year 4 Fractions - 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 - 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? Money	Year 4 Addition and Subtraction - 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 Skip Counting Multiply Multiples of 10	Year 4 Patterns and Algebra - 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 Mass Word Problems	Year 4 Multiplication and Division - Patterns and Functions
Number and Algebra	Patterns and Algebra	ACMNA083	Use equivalent number sentences involving addition and subtraction to find unknown quantities	Missing Values Complements to 50 and 100 Complements to 10, 20, 50	Year 4 Patterns and Algebra - Division
Statistics and Probability	Chance	ACMSP092	Describe possible everyday events and order their chances of occurring	What are the Chances? What are the Chances?	Year 4 Chance and Data - Chance
Statistics and Probability	Chance	ACMSP093	Identify everyday events where one cannot happen if the other happens	Probability Scale	Year 4 Chance and Data - 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 - 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 Interpreting Tables Reading from a Column Graph	Year 4 Chance and Data - Data
Statistics and Probability	Data representation and interpretation	ACMSP095	Select and trial methods for data collection, including survey questions and recording sheets	Tallies Interpreting Tables	Year 4 Chance and Data - 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 - 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 - Units of length Year 5 Volume, Capacity and Mass - Volume and capacity - Mass
Measurement and Geometry	Using units of Measurement	ACMMG109	Calculate the perimeter and area of rectangles using familiar metric unit	Area: Squares and Rectangles Perimeter of Shapes Perimeter: Squares and Rectangles	Year 5 Length, Perimeter and Area - 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 - 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 - 3D Shapes
Measurement and Geometry	Geometric Reasoning	ACMMG112	Estimate, measure and compare angles using degrees. Construct angles using a protractor	Angles in a Revolution Classifying Angles Estimating Angles Labelling Angles 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 - 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? Rotational Symmetry	Year 5 Geometry - Transformation, tessellation and 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 - Transformation, tessellation and 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 Nearest 10? Nearest 100? Nearest 1000? Rounding Numbers	Year 5 Reading and Understanding Whole Numbers - 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 Long Multiplication Mental Methods Multiplication 1	Year 5 Multiplication and Division - Mental multiplication strategies - 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 Remainders by Tables Short Division	Year 5 Multiplication and Division - 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 Divisibility Tests Multiply More Multiples of 10	Year 5 Multiplication and Division - 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 Subtract: Common Denominator	Year 5 Fractions, Decimals and Percentages - Calculating
Number and Algebra	Fractions and Decimals	ACMNA104	Recognise that the number system can be extended beyond hundredths	Multiply Decimals: 10, 100, 1000 Multiply decimals 10, 100, 1000 Divide Decimals: 10, 100, 1000	Year 5 Fractions, Decimals and Percentages - Fractions, decimals and percentages
Number and Algebra	Fractions and Decimals	ACMNA105	Compare, order and represent decimals	Comparing Decimals Comparing Decimals 1 Decimal Order Decimals on a Number Line Decimals on the Number Line	Year 5 Fractions, Decimals and Percentages - 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 Pick the Next Number Table of Values	Year 5 Patterns and Algebra - 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 Find the Missing Number 2 Missing Values: Decimals	Year 5 Patterns and Algebra - 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 Bump Add and Subtract Compensation - Add Compensation - Subtract Decimal Complements Dividing by 10, 100, 1000 Jump Add and Subtract Mental Methods Division Mental Methods Division 2 Mental Methods Division 3 Mental Methods Multiplication 2 Mental Methods Multiplication 3 Multiply More Multiples of 10 Multiply Multiples of 10 Multiplying by 10, 100, 1000 Place Value to Millions Problems: Times and Divide Split Add and Subtract Subtracting Colossal Columns	Year 5 Multiplication and Division - Mental multiplication strategies - Mental division strategies - Written methods Year 5 Addition and Subtraction - 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 Comparing Fractions 1	Year 5 Fractions, Decimals and Percentages - 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 - 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 - 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 Interpreting Tables Step Graphs	Year 5 Data Representation - 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 - 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 Millilitres and Litres Centimetres and Metres Converting cm and mm Kilogram Conversions Litre Conversions Kilometre Conversions Metres and Kilometres Converting Units of Length Capacity Addition Converting Units of Mass Mass Addition Converting Units of Area Converting Volume Capacity Word Problems	Year 6 Length, Perimeter and Area - Units of length Year 6 Volume, Capacity and Mass - 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 - Units of length 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 - Volume and capacity
Measurement and Geometry	Using units of Measurement	ACMMG139	Interpret and use timetables	Time Zones	Year 6 Time - 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 - 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 Estimating Angles	Year 6 Geometry - 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 - 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 - The Number Plane
Measurement and Geometry	Shape	ACMMG140	Construct simple prisms and pyramids	Prisms and Pyramids	Year 6 Geometry - 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 Line Graphs: Interpretation Sector Graphs Divided Bar Graphs Step Graphs Dot Plots	Year 6 Chance and Probability - Chance and probability Year 6 Data Representation - 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 - Collecting and analysing data - 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 - 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 - 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 - 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 Order of Operations 1	Year 6 Multiplication and Division 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? Temperature	Year 6 Reading and Understanding Whole Numbers - 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 Subtract: Common Denominator Fraction Word Problems	Year 6 Fractions, Decimals and Percentages - 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 Unit Fractions Hours and Minutes	Year 6 Fractions, Decimals and Percentages - 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 Adding Decimals Subtracting Decimals Capacity Addition Mass Addition Adding and Subtracting Decimals Rounding Decimals Capacity Word Problems Decimal Complements	Year 6 Fractions, Decimals and Percentages - 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 - Calculating
Number and Algebra	Fractions and Decimals	ACMNA130	Multiply and divide decimals by powers of 10	Multiply Decimals: 10, 100, 1000 Divide Decimals: 10, 100, 1000	Year 6 Fractions, Decimals and Percentages - Calculating
Number and Algebra	Fractions and Decimals	ACMNA131	Make connections between equivalent fractions, decimals and percentage	Fractions to Decimals Decimals to Fractions 1 Decimal to Percentage Decimals to Fractions 2 Percentage to Fraction Modelling Percentages	Year 6 Fractions, Decimals and Percentages - 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 Percent of a Number	Year 6 Fractions, Decimals and Percentages - 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 Describing Patterns Pattern Rules and Tables	Year 6 Patterns and Algebra - 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 - 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 Area: Triangles Area: Right Angled Triangles Surface Area: Rectangular Prisms Area: Quadrilaterals	Year 7 - Perimeter and Area Year 8 - Surface Area and Volume* Year 8 - Expanding and Factorising Year 8 - Equations
Measurement and Geometry	Using units of Measurement	ACMMG160	Calculate volumes of rectangular prisms.	Volume: Rectangular Prisms 1	Year 7 - Solids
Measurement and Geometry	Using units of Measurement	ACMMG161	Draw different views of prisms and solids formed from combinations of prisms.	Nets	Year 7 - 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 Equal, Complement or Supplement?	Year 7 - 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 - Angles
Measurement and Geometry	Geometric Reasoning	ACMMG165	Classify triangles according to their side and angle properties and describe quadrilaterals.	Triangle Tasters Triangles: Acute, Right, Obtuse	Year 7 - Polygons Year 7 - Angles and Polygons
Measurement and Geometry	Geometric Reasoning	ACMMG166	Demonstrate that the angle sum of a triangle is $180^\circ$ and use this to find the angle sum of a quadrilateral.	Angle Sum of a Triangle Angle Sum of a Quadrilateral	Year 7 - Angles and Polygons Year 8 - Equations
Measurement and Geometry	Location and transformation	ACMMG181	Describe translations, reflections in an axis, and rotations of multiples of $90^\circ$ on the Cartesian plane using coordinates. Identify line and rotational symmetries.	Transformations Symmetry or Not? Rotational Symmetry Transformations: Coordinate Plane Rotations: Coordinate Plane	Year 7 - Polygons

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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 Perimeter: Composite Shapes Perimeter	Year 7 - Perimeter and Area Year 8 - Simplifying Algebra - Surface Area and Volume* Year 9 - 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? Highest Common Factor Index Notation Lowest Common Multiple Product of Prime Factors	Year 7 - Whole Numbers
Number and Algebra	Number and Place Value	ACMNA150	Investigate and use square roots of perfect square numbers	Estimating Square Roots Square Roots	Year 7 - 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 Arithmetic Laws Addition Properties	Year 7 - 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 Simplifying Fractions Mixed to Improper Converting Mixed and Improper Ordering Fractions Comparing Fractions 1 Comparing Fractions with Signs Comparing Fractions 2	Year 7 - Fractions - Decimals
Number and Algebra	Real Numbers	ACMNA153	Solve problems involving addition and subtraction of fractions, including those with unrelated denominators	One take Fraction Add: Common Denominator Subtract: Common Denominator Subtract: No Common Denominator Mixed Numerals Add Unlike Mixed Numbers Subtract Mixed Numbers: Renaming Add Like Mixed Numbers Subtract Unlike Mixed Numbers	Year 7 - 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 Multiply Decimals: 10, 100, 1000 Divide Decimals: 10, 100, 1000 Decimal by Whole Number Decimal by Decimal Multiplying Fractions Dividing Fractions Multiply Mixed Numbers Divide Mixed Numbers Operations with Fractions	Year 7 - Fractions - Decimals - 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 Fraction of an Amount More Fraction Problems	Year 7 - Fractions
Number and Algebra	Real Numbers	ACMNA156	Round decimals to a specified number of decimal places	Nearest Whole Number Rounding Decimals	Year 7 - Decimals Year 9 - Decimals
Number and Algebra	Real Numbers	ACMNA157	Connect fractions, decimals and percentages and carry out simple conversions	Fractions to Decimals Decimals to Fractions 1 Decimal by Decimal 1 Decimals to Fractions 2 Percentage to Fraction Percentage Composition	Year 7 - Decimals - Percentage Basics Year 8 - 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 Calculating Percentages 1 Percentage of a Quantity Percentage Word Problems Solve Percent Equations	Year 7 - Percentage Basics Year 8 - Percentage Calculations
Number and Algebra	Real Numbers	ACMNA173	Recognise and solve problems involving simple ratios.	Ratio Equivalent Ratios	Year 8 - Rates and Ratios* Year 9 - Decimals
Number and Algebra	Money and Financial Mathematics	ACMNA174	Investigate and calculate 'best buys', with and without digital technologies	Best Buy	Year 7 - Rates and Ratios* Year 8 - 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 - 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 Simple Substitution 1 Complex Substitution Simple Substitution 3	Year 7 - Algebra Basics Year 8 - Simplifying Algebra Year 8 - 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 - Algebra Basics Year 8 - Simplifying Algebra Year 8 - 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 Ordered Pairs Coordinate Graphs Horizontal and Vertical Change	Year 7 - The Number Plane Year 7 - Polygons Year 8 - Coordinate Geometry
Number and Algebra	Linear and non-linear Relationships	ACMNA179	Solve simple linear equations.	Find the Missing Number Find the Missing Number 2 Missing Values: Decimals I am Thinking of a Number! Solving Simple Equations Solve Two-Step Equations Simple Interest Solve Equations: Add, Subtract 2 Solve Equations: Multiply, Divide 1 Solve Equations: Multiply, Divide 2	Year 7 - Algebra Basics Year 8 - Equations
Number and Algebra	Linear and non-linear Relationships	ACMNA180	Investigate, interpret and analyse graphs from authentic data .	Line Graphs: Interpretation Travel Graphs Conversion Graphs	Year 7 - Tables and Graphs* Year 7 - The Number Plane Year 8 - Straight Lines
Number and Algebra	Number and Place Value	ACMNA280	Compare, order, add and subtract integers	Integers: Add and Subtract Negative or Positive? Ordering Integers Comparing Integers More with Integers Directed Numbers	Year 7 - Whole Numbers - 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 What are the Chances? Most Likely and Least Likely Simple Probability Find the Probability	Year 7 - 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 - 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 Stem-and-Leaf Plots Dot Plots	Year 7 - Data for Statistics* Year 8 - 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 Mean Median Mode Mean from Frequency Table Mode from Frequency Table Median from Frequency Median from Stem and Leaf Plot Mode from Stem and Leaf Plot Median and Cumulative Frequency Data Terms Data Extremes and Range	Year 7 - Data for Statistics* Year 9 - Data
Statistics and Probability	Data representation and interpretation	ACMSP172	Describe and interpret data displays using median, mean and range.	Data Terms Mean Median Mode	Year 7 - Data for Statistics* Year 8 - Statistical Graphs*

### 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 Converting Volume	Year 7 - Converting Units Year 8 - Surface Area and Volume* - Circles and Cylinders
Measurement and Geometry	Using units of Measurement	ACMMG196	Find perimeters and areas of parallelograms, rhombuses and kites.	Perimeter: Triangles	Year 7 - Perimeter and Area Year 8 - Simplifying Algebra - Surface Area and Volume* Year 9 - 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 Area: Circles 1 Labelling Circles	Year 8 - Circles and Cylinders* Year 9 - 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 Volume: Triangular Prisms Right and Oblique Objects Volume: Prisms	Year 8 - 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 Elapsed Time 24 Hour Time Australian Time Zones Time Zones	Year 7 - Time Calculations - Converting Units
Measurement and Geometry	Geometric Reasoning	ACMMG200	Define congruence of plane shapes using transformations.	Congruent Figures Congruent Figures: Find Values	Year 8 - Similarity and Congruence*
Measurement and Geometry	Geometric Reasoning	ACMMG201	Develop the conditions for congruence of triangles.	Congruent Triangles	Year 8 - Reasoning in Geometry* - Similarity and Congruence* Year 9 - 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 - Polygons Year 8 - Reasoning in Geometry* Year 9 - 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 The Zero Index Simplifying with Index Laws 1 Properties of Exponents	Year 7 - 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 Integers: Multiply and Divide Integers: Order of Operations	Year 7 - Directed Number
Number and Algebra	Real Numbers	ACMNA184	Investigate terminating and recurring decimals.	Fraction to Terminating Decimal Recurring Decimals	Year 7 - Decimals - Percentage Basics
Number and Algebra	Real Numbers	ACMNA186	Investigate the concept of irrational numbers, including.	Estimating Cube Roots	Year 7 - Whole Numbers - Directed Number Year 8 - 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 GST	Year 7 - Percentage Basics Year 8 - Percentage Calculations
Number and Algebra	Real Numbers	ACMNA188	Solve a range of problems involving rates and ratios, with and without digital technologies.	Time Taken Average Speed Distance Travelled Dividing a Quantity in a Ratio Rate Word Problems Ratio Word Problems Converting Rates Rates Calculations Unitary Method Ratio and Proportion	Year 8 - Rates and Ratio* Year 9 - 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 Purchase Options Successive Discounts	Year 8 - Percentage Calculations Year 9 - Earning Money
Number and Algebra	Patterns and Algebra	ACMNA190	Extend and apply the distributive law to the expansion of algebraic expressions.	Expanding with Negatives Expanding Brackets Using the Distributive Property	Year 8 - Equations - Expanding and Factorising Year 9 - Simplifying Algebra
Number and Algebra	Patterns and Algebra	ACMNA191	Factorise algebraic expressions by identifying numerical factors.	Highest Common Factor Divisibility Tests Factorising	Year 8 - Expanding and Factorising
Number and Algebra	Patterns and Algebra	ACMNA192	Simplify algebraic expressions involving the four operations.	Recognising Like Terms Like Terms: Add and Subtract Algebraic Multiplication Dividing Expressions Simplifying Expressions	Year 8 - Simplifying Algebra - Expanding and Factorising Year 9 - 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 Pattern Rules and Tables Function Rules and Tables Graphing from a Table of Values Graphing from a Table of Values 2 Reading Values from a Line Determining a Rule for a Line General Form of a Line Horizontal and Vertical Lines	Year 7 - The Number Plane Year 8 - Straight Lines - Linear Relationships Year 10 - 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 Equations with Grouping Symbols Solve Multi-Step Equations Equations with Decimals Equations: Variables, Both Sides Writing Equations Find the Mistake Checking Solutions Solve Systems by Graphing Write an Equation: Word Problems	Year 8 - Equations - Inequalities - Linear Relationships - Straight Lines
Statistics and Probability	Chance	ACMSP204	Identify complementary events and use the sum of probabilities to solve problems.	Probability Scale Complementary Events	Year 8 - 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 - 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 - 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 Mean Median Mode	Year 8 - 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 - Data for Statistics*
Statistics and Probability	Chance	ACMSP292	Represent such events in two-way tables and Venn diagrams and solve related problems.	Venn Diagrams Two-way Table Probability Venn Diagram1	Year 8 - 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 - Analysing Statistical Data*

### 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 Area: Annulus	Year 7 - Perimeter and Area Year 8 - Surface area and Volume* - Circles and Cylinders* Year 9 - Perimeter and Area
Measurement and Geometry	Using units of Measurement	ACMMG217	Calculate the surface area and volume of cylinders and solve related problems.	Volume: Cylinders Surface Area: Cylinders Nets	Year 8 - Circles and Cylinders* Year 9 - 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 - Surface Area and Volume* Year 9 - Measuring Solids
Measurement and Geometry	Using units of Measurement	ACMMG219	Investigate very small and very large time scales and intervals.	Scientific Notation	Year 7 - Converting Units Year 9 - 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 Using Similar Triangles 1 Scale Measurement Similar Figures 1 Scale Factor	Year 8 - Similarity and Congruence* Year 9 - 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 - Similarity and Congruence* Year 9 - 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 Pythagoras' Theorem Hypotenuse of a Right Triangle	Year 8 - 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 - 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 Sin A Cos A Tan A Find Unknown Angles Find Unknown Sides Exact Trigonometric Ratios	Year 9 - 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 Converting Rates Rates Solve Proportions Rates Calculations Direct Variation Indirect Variation Ratio and Proportion	Year 7 - The Number Plane Year 8 - Rates and Ratios* Year 9 - Decimals
Number and Algebra	Real Numbers	ACMNA209	Apply index laws to numerical expressions with integer indices.	Index Notation Index Form to Numbers	Year 9 - Indices
Number and Algebra	Real Numbers	ACMNA210	Express numbers in scientific notation.	Scientific Notation 2 Scientific Notation Scientific Notation 1	Year 9 - Indices
Number and Algebra	Money and Financial Mathematics	ACMNA211	Solve problems involving simple interest.	Simple Interest	Year 10 - 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 Dividing Expressions Index Notation and Algebra Multiplication with Indices Index Laws with Brackets Zero Index and Algebra	Year 8 - Simplifying Algebra Year 9 - Simplifying Algebra - 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 Expanding Brackets Expand then Simplify	Year 8 - Expanding and Factorising Year 9 - 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 Coordinate Methods in Geometry	Year 9 - 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 Which Straight Line? Equation of a Line 1 Horizontal and Vertical Lines Equation from Point and Gradient Equation from Two Points	Year 9 - Linear Relationships Year 10 - 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 Gradient Slope of a Line Gradients for Real $y=ax$ Graphing Parabolas Graphing Circles Centre and Radius 1	Year 8 - Straight Lines - Linear Relationships Year 9 - 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 Probability Without Replacement Tree Diagrams	Year 7 - Chance Year 8 - Probability Year 9 - 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 Two-way Table Probability	Year 8 - Probability Year 9 - 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 - 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 Cumulative Frequency Table Histogram or Polygon? Data Terms Cumulative Frequency Histogram Double Stem and Leaf Plots	Year 8 - 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 Mean Median Mode	Year 9 - Data Year 10 - 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 Volume: Composite Figures	Year 9 - Measuring Solids
Measurement and Geometry	Location and transformation	ACMMG243	Formulate proofs involving congruent triangles and angle properties.	Angle Sum of a Triangle	Year 9 - 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 Similarity Proofs	Year 9 - 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 True and Compass Bearings	Year 8 - Pythagoras' Theorem Year 9 - 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 Compound Interest by Formula	Year 10 - Interest
Number and Algebra	Patterns and Algebra	ACMNA230	Factorise algebraic expressions by taking out a common algebraic factor.	Factorising Expressions Factorising with Indices Highest Common Algebraic Factor Expanding with Negatives	Year 8 - Expanding and Factorising Year 9 - Simplifying Algebra
Number and Algebra	Patterns and Algebra	ACMNA231	Simplify algebraic products and quotients using index laws.	Simplifying with Index Laws 2	Year 8 - Simplifying Algebra
Number and Algebra	Patterns and Algebra	ACMNA232	Apply the four operations to simple algebraic fractions with numerical denominators.	Algebraic Fractions 1 Algebraic Fractions 2 Special Binomial Products Factorising Quadratics 1 Grouping in Pairs Completing the Square Simplifying Binomial Expressions	Year 9 - Simplifying Algebra Year 10 - 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 Real Formulae Rearranging the Equation More Substitution in Formulae	Year 8 - Equations Year 9 - Equations and Inequalities Year 10 - Depreciation - Interest - 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 Changing the Subject Constructing Formulae	Year 8 - Equations Year 9 - 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 Solving Inequalities 1 Graphing Inequalities 1 Solve One-Step Inequalities 1 Solve One-Step Inequalities 2 Solving Inequalities 2 Linear Regions Solving Inequalities 3 Graphing Inequalities 3	Year 8 - Equations Year 9 - 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 Simultaneous Equations 1 Simultaneous Equations 2 Simultaneous Linear Equations Breakeven Point Expanding Binomial Surds Equation of a Line 2	Year 8 - Linear Relationship - Inequalities Year 9 - Equations and Inequalities - Linear Relationships
Number and Algebra	Linear and non-linear Relationships	ACMNA238	Solve problems involving parallel and perpendicular lines.	Are they Parallel? Are they Perpendicular? Equation of a Line 3	Year 9 - 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 Graphing Parabolas Graphing Exponentials Parabolas and Marbles Parabolas and Rectangles Centre and Radius 2	Year 10 - Circle Graphs - Simple Non Linear Graphs - Parabolas - Exponential and Power Graphs - Functions
Number and Algebra	Linear and non-linear Relationships	ACMNA240	Solve linear equations involving simple algebraic fractions.	Equations with Fractions Equations with Square Roots Equations with Cube Roots Equations with Fractions 2	Year 8 - Equations - Inequalities Year 9 - Equations and Inequalities
Number and Algebra	Linear and non-linear Relationships	ACMNA241	Solve simple quadratic equations using a range of strategies.	Quadratic Equations 1 Quadratic Formula Simultaneous Equations 3 Quadratic Equations 2	Year 10 - 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 Dice and Coins Probability Without Replacement	Year 8 - Probability Year 9 - 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 Tree Diagrams Two-way Table Probability	Year 8 - Probability Year 9 - Probability
Statistics and Probability	Data representation and interpretation	ACMSP248	Determine quartiles and interquartile range.	Calculating Interquartile Range Data Extremes and Range	Year 10 - 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 Box-and-Whisker Plots 1 Double Stem and Leaf Plots	Year 10 - 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 Box-and-Whisker Plots 1 Cumulative Frequency Histogram Frequency Histograms 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 Surface Area: Spheres Surface Area: Cones Volume: Pyramids Volume: Cones Volume: Spheres Surface Area: Rearrange Formula Surface Area: Rectangular Pyramids	Year 9 - Measuring Solids
Measurement and Geometry	Geometric Reasoning	ACMMG272	Prove and apply angle and chord properties of circles.	Circle Theorem Perimeter and Circles Arc Length	Year 10 - Geometry of the Circle: - 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 Trigonometric Relationships Sine and Cosine Curves Sign of the Angle Which Quadrant?	Year 10 - Trigonometric Relationships
Measurement and Geometry	Pythagoras' Theorem and Trigonometry	ACMMG275	Solve simple trigonometric equations..	Trig Equations 1 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 Adding and Subtracting Surds Multiplying Surds Expanding Surd Expressions Rationalising the Denominator Surd Form to Index Form Fractional Indices Dividing Surds Expanding Binomial Surds	Year 9 - Indices Year 10 - 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' Log Laws Change of Base	Year 10 - 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 - 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 Graphing Hyperbolas Non Linear Graphs	Year 10 - Circle Graphs - Simple Non Linear Graphs - Exponential and Power Graphs - Functions - 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 Factorising Quadratics 2 Rearranging the Equation Factorising and Fractions 1	Year 10 - 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 Interpreting Standard Deviation	Year 10 - 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 No Common Denominator Multiplying Fractions Dividing Fractions Divide Whole Number by Fraction Fraction by Whole Number Adding and Subtracting Decimals Decimal by Decimal Divide Decimal by Whole Number Divide Decimal by Decimal Integers: Add and Subtract More with Integers Integers: Multiply and Divide	Year 7 Whole Numbers Decimals Fractions
Topic 1: Calculations, Percentages and Rates	Calculations	Calculations.2	apply arithmetic operations according to their correct order	Integers: Order of Operations Order of Operations 1 Order of Operations 2 (PEDMAS)	Year 7 Whole Numbers Directed Numbers
Topic 1: Calculations, Percentages and Rates	Calculations	Calculations.3	reasonableness of answers to arithmetic calculations	Compatible Numbers Estimation: Multiply and Divide Estimation: Add and Subtract Estimate Products Estimate Quotients	Year 7 Whole Numbers Directed Numbers
Topic 1: Calculations, Percentages and Rates	Calculations	Calculations.4	use leading-digit approximation	Compatible Numbers Estimation: Multiply and Divide Estimation: Add and Subtract Estimate Products Estimate Quotients	Year 7 Whole Numbers Directed Numbers
Topic 1: Calculations, Percentages and Rates	Calculations	Calculations.5	check results of calculations for accuracy	Compatible Numbers Estimation: Multiply and Divide Estimation: Add and Subtract Estimate Products Estimate Quotients	Year 7 Whole Numbers Directed Numbers
Topic 1: Calculations, Percentages and Rates	Calculations	Calculations.6	significance of place value after the decimal point	Decimal Place Value Comparing Decimals 1 Comparing Decimals 2	Year 8 Decimals Year 9 Decimals
Topic 1: Calculations, Percentages and Rates	Calculations	Calculations.7	evaluate decimal fractions to the required number of decimal places	Rounding Decimals	Year 8 Decimals Year 9 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 Rounding Decimals 2	Year 8 Decimals 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 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 Percentage Composition	Year 7 Percentage Basics Year 8 Percentage Calculations
Topic 1: Calculations, Percentages and Rates	Percentages	Percentages.3	apply percentage increases and decreases in situations	Percentage Increase and Decrease Percentage Word Problems	Year 7 Percentage Basics 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 Purchase Options	Under review
Topic 2: Measurement	Linear Measure	Linear Measure.1	use metric units of length	Centimetres and Metres Converting cm and mm Metres and Kilometres Converting Units of Length Operations with Length	Year 7 Converting Units
Topic 2: Measurement	Linear Measure	Linear Measure.2	convert between metric units of length	Centimetres and Metres Converting cm and mm Metres and Kilometres Converting Units of Length 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 Perimeter: Triangles Perimeter: Composite Shapes	Year 7 Area and Perimeter 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 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 Year 9 Perimeter and Area
Topic 2: Measurement	Area measure	Area.3	calculate areas of rectangles and triangles	Area: Squares and Rectangles Area: Triangles Area: Right Angled Triangles	Year 7 Area and Perimeter Year 9 Perimeter and Area
Topic 2: Measurement	Mass	Mass.1	use metric units of mass	Mass Word Problems Converting Units of Mass Kilogram Conversions Grams and Kilograms Grams and Milligrams	Year 7 Converting Units
Topic 2: Measurement	Mass	Mass.2	conversions between them	Mass Word Problems Converting Units of Mass Kilogram Conversions Grams and Kilograms 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 Volume: Rectangular Prisms 2 Volume: Triangular Prisms Volume: Cylinders	Year 9 Measuring Solids
Topic 3: Algebra	Single Substitution	Substitution.1	substitute numerical values into algebraic expressions	Simple Substitution Substitution with Fractions	Year 7 Algebra Basics 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 Complex Substitution More Substitution in Formulae Solving Simple Equations	Year 7 Algebra Basics Year 8 Simplifying Algebra

### 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 Histograms Divided Bar Graphs Line Graphs: Interpretation Step Graphs	Year 9 Data Year 10 Interpreting Data
Topic 4: Graphs	Reading and interpreting graphs	Graphs.2	two-way tables	Two-way Table Probability	Year 9 Probability
Topic 1: Representing and comparing data	Data Presentation and Interpretation	Data.1	display categorical data in tables and column graphs	Histogram or Polygon? Cumulative Frequency Histogram	Year 9 Data Year 10 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 Dot Plots Stem and Leaf Introduction Stem-and-Leaf Plots Double Stem and Leaf Plots	Year 9 Data Year 10 Interpreting Data
Topic 1: Representing and comparing data	Summarising and interpreting data	Data.3	identify the mode	Mode Mode from Frequency Table	Year 9 Data Year 10 Interpreting Data
Topic 1: Representing and comparing data	Summarising and interpreting data	Data.4	mean	Mean Mean from Frequency Table	Year 9 Data Year 10 Interpreting Data
Topic 1: Representing and comparing data	Summarising and interpreting data	Data.5	median	Median Median from Frequency Median and Cumulative Frequency	Year 9 Data Year 10 Interpreting Data
Topic 1: Representing and comparing data	Summarising and interpreting data	Data.6	quartiles, deciles and percentiles	Calculating Interquartile Range	Year 10 Interpreting Data
Topic 1: Representing and comparing data	Summarising and interpreting data	Data.7	range and standard deviation	Data Extremes and Range Calculating Standard Deviation Interpreting Standard Deviation	Year 10 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

### 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 Box-and-Whisker Plots 2	Year 10 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 Box-and-Whisker Plots 2	Year 10 Interpreting Data
Topic 2: Percentages	Percentage Calculations	Percent.1	calculating a percentage of a given amount	Percentage of a Quantity	Year 7 Percentage Basics Year 8 Percentage Calculations
Topic 2: Percentages	Percentage Calculations	Percent.2	one amount expressed as a percentage of another	Solve Percent Equations	Year 7 Percentage Basics Year 8 Percentage Calculations
Topic 2: Percentages	Applications of percentages	Percent.3	calculate simple interest for different rates and periods	Simple Interest	Year 10 Interest
Topic 3: Rates and ratios	Ratios	Ratios.1	express a ratio in simplest form	Ratio Unitary Method Equivalent Ratios	Year 9 Decimals
Topic 3: Rates and ratios	Ratios	Ratios.2	find the ratio of two quantities	Ratio and Proportion Solve Proportions Ratio Word Problems	Year 9 Decimals
Topic 3: Rates and ratios	Ratios	Ratios.3	divide a quantity in a given ratio	Dividing a Quantity in a Ratio	Year 9 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 Decimals
Topic 4: Time and Motion	Time	Time.1	represent time using 12-hour and 24-hour clocks	24 Hour Time	Year 7 Time Calculations
Topic 4: Time and Motion	Time	Time.2	calculate time intervals, such as time between, time ahead, time behind	Time Differences Elapsed Time What Time Will it Be?	Year 7 Time Calculations
Topic 4: Time and Motion	Time	Time.3	interpret complex timetables	Using Timetables	Year 7 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 $\text{speed} = \text{distance}/\text{time}$	Distance Travelled 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 Measuring Length	Year 7 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 Perimeter: Triangles 2 Perimeter: Composite Shapes	Year 7 Area and Perimeter Year 9 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 Area: Quadrilaterals Area: Parallelograms Area: Compound Figures Area: Sectors Area: Annulus Area: Circles 1	Year 7 Area and Perimeter Year 9 Perimeter and Area

### Essential Mathematics

Strand	Substrand	Outcome	Outcome Description	Activities	eBooks
Topic 1: Measurement	Area measure	Area.5	Conversion of area units	Area of Shapes Area: Quadrilaterals Area: Parallelograms Area: Compound Figures Area: Sectors Area: Annulus Area: Circles 1	Year 7 Area and Perimeter Year 9 Perimeter and Area
Topic 1: Measurement	Area measure	Area.6	find the area of irregular figures by decomposition	Area: Compound Figures	Year 7 Area and Perimeter Year 9 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 Surface Area: Cylinders	Year 9 Measuring Solids
Topic 1: Measurement	Area measure	Area.8	surface area of pyramids, such as rectangular- and triangular-based pyramids	Surface Area: Rectangular Pyramids Surface Area: Square Pyramids Surface Area: Spheres Surface Area: Rearrange Formula	Year 9 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 Converting Units of Mass Kilogram Conversions Grams and Kilograms Grams and Milligrams	Year 7 Converting Units
Topic 1: Measurement	Mass	Mass.2	convert between grams and milligrams	Mass Word Problems Converting Units of Mass Kilogram Conversions Grams and Kilograms Grams and Milligrams	Year 7 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 Measuring Solids
Topic 1: Measurement	Volume and capacity	Volume.5	recognise relations between volume and capacity, recognising that $1\text{cm}^3=1\text{mL}$ and $1\text{m}^3=1\text{kL}$	Volume: Prisms	Year 9 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 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 Relate Shapes and Solids Right and Oblique Objects 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 Hypotenuse of a Right Triangle 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 Find Unknown Sides 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 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 Coordinate Graphs: 1st Quadrant	Year 7 The Number Plane

### 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 Function Rules and Tables Find the Function Rule Graphing from a Table of Values Graphing from a Table of Values 2 Reading Values from a Line	Year 7 The Number Plane Year 8 Linear Relationships Year 9 Linear Relationships
Topic 3: Graphs	Cartesian plane	Graphs.3	graph linear functions for all values of $x$	$y=ax$ Which Straight Line? Equation of a Line 1 Equation of a Line 2 Equation of a Line 3 Determining a Rule for a Line Intercepts Gradient Horizontal and Vertical Lines	Year 7 The Number Plane Year 8 Linear Relationships Year 9 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 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

### 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 Year 8 Probability 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? Simple Probability Find the Probability	Year 7 Chance Year 8 Probability Year 9 Probability
Topic 1: Probability and relative frequencies	Simulations	Probability.3	perform simulations of experiments using technology	Dice and Coins	Year 7 Chance Year 8 Probability Year 9 Probability
Topic 1: Probability and relative frequencies	Simple probabilities	Probability.4	construct a sample space for an experiment	Probability Tables Possible Outcomes Probability Without Replacement Probability With Replacement	Year 7 Chance Year 8 Probability 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 Year 8 Probability Year 9 Probability
Topic 1: Probability and relative frequencies	Probability applications	Probability.6	probabilities associated with simple games	Dice and Coins	Year 7 Chance Year 8 Probability 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 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 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 Rates Converting Rates Rates Calculations Profit and Loss Calculating Percentages Percentage of a Quantity Calculating Percentages Percentage Increase and Decrease Percentage Increase and Decrease Percentage Composition Percentage Word Problems Solve Percent Equations	Year 7 Percentage Basics Year 8 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 Commission Working Overtime	Year 9 Earning Money
Topic 1: Consumer Arithmetic	Applications of rates and percentages	Percentage.3	calculate payments based on government allowances and pensions	Wages and Salaries Commission Working Overtime	Year 9 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 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 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 Percentage Basics Year 8 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 Simple Substitution 2 Simple Substitution 3 Complex Substitution More Substitution in Formulae Real Formulae Substitution with Fractions	Year 7 Algebra Basics Year 8 Simplifying Algebra Year 9 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 Changing the Subject	Year 8 Equations Inequalities Year 9 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 Hypotenuse of a Right Triangle	Year 8 Pythagoras' Theorem
Topic 3: Shape and Measurement	Pythagoras' Theorem	Pythagoras.2	simple applications in three dimensions	Under review	Under review

### 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 Perimeter: Triangles Perimeter: Composite Shapes Circumference: Circles Perimeter and Circles Arc Length Area: Squares and Rectangles Area: Triangles Area: Right Angled Triangles Area: Quadrilaterals Area: Parallelograms Area: Composite Shapes Area: Circles 1 Area: Sectors Area: Annulus Area: Ellipse	Year 8 Area and Perimeter Year 9 Perimeter and Area
Topic 3: Shape and Measurement	Mensuration	Mensuration.2	calculate the volumes of standard three-dimensional objects	Volume: Rectangular Prisms 1 Volume: Rectangular Prisms 2 Volume: Triangular Prisms Volume: Cylinders Volume: Pyramids Volume: Cones Volume: Spheres Volume: Rearrange Formula	Year 9 Measuring Solids
Topic 3: Shape and Measurement	Similar figures and scale factors	Similarity.1	similarity of two-dimensional figures	Similar Figures Similarity Proofs	Year 9 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 Scale Factor	Year 9 Similarity and Congruence

### 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 Surface Area: Rectangular Prisms Surface Area: Cylinders Surface Area: Square Pyramids Surface Area: Rectangular Pyramids Surface Area: Spheres 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 Stem and Leaf Introduction Stem-and-Leaf Plots Double Stem and Leaf Plots Median from Stem and Leaf Plot Mode from Stem and Leaf Plot Histogram or Polygon? Frequency Histograms Cumulative Frequency Histogram	Year 9 Data 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 Median Mode Mean from Frequency Table Mode from Frequency Table Median from Frequency Median and Cumulative Frequency	Year 9 Data 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 Box-and-Whisker Plots 2	Year 9 Data 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 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 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 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 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 Cos A Tan A Find Unknown Angles Find Unknown Sides Elevation and Depression	Year 9 Trigonometry
Topic 2: Applications of trigonometry	Applications of trigonometry	Trigonometry.2	Area rule	Area Rule 1 Area Rule 2 Area Problems	Year 10 Non Right Angled Triangles
Topic 2: Applications of trigonometry	Applications of trigonometry	Trigonometry.3	sine rule	Sine Rule 1 Sine Rule 2	Year 10 Non Right Angled Triangles
Topic 2: Applications of trigonometry	Applications of trigonometry	Trigonometry.4	cosine rule	Cosine Rule 1 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 Solve Equations: Multiply, Divide 1 Solving Simple Equations Solve Two-Step Equations Solving More Equations Solve Multi-Step Equations Equations with Decimals Equations: Variables, Both Sides Equations with Fractions Equations with Fractions 2	Year 8 Equations Inequalities Year 9 Equations and Inequalities

### 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 Writing Equations	Year 8 Equations Inequalities Year 9 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 Reading Values from a Line $y=ax$ Determining a Rule for a Line Slope of a Line Which Straight Line?	Year 8 Linear Relationships Year 9 Linear Relationships Coordinate Geometry Year 10 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? Are they Perpendicular? Equation of a Line 1 Equation of a Line 2 Equation of a Line 3 General Form of a Line Equation from Two Points	Year 8 Linear Relationships Year 9 Linear Relationships Coordinate Geometry Year 10 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 Breakeven Point Simultaneous Equations 1 Simultaneous Equations 2	Year 9 Equations and Inequalities
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 Equations and Inequalities
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 Data

### 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 $n$ th 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 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 $n$ th term of a particular geometric sequence	Terms: Geometric Progressions 1 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 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 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 Present Value of an Annuity	Under review



### 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

### 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 Distance Between Two Points Coordinate Methods in Geometry	Year 9 Coordinate Geometry
Topic 1: Functions and Graphs	Lines and Linear Relationships	Linear.2	direct proportion and linearly related variables	$y=ax$	Year 8 Linear Relationships Year 9 Linear Relationships Coordinate Geometry Year 10 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 Gradient Gradients for Real Gradient and Tan	Year 8 Linear Relationships Year 9 Linear Relationships Coordinate Geometry Year 10 Straight Lines
Topic 1: Functions and Graphs	Lines and Linear Relationships	Linear.4	find the equation of a straight line	Gradient and Tan Equation of a Line 1 Equation of a Line 2 Equation of a Line 3 Equation from Point and Gradient Equation from Two Points	Year 8 Linear Relationships Year 9 Linear Relationships Coordinate Geometry Year 10 Straight Lines
Topic 1: Functions and Graphs	Lines and Linear Relationships	Linear.5	parallel and perpendicular lines	Are they Parallel? Are they Perpendicular?	Year 8 Linear Relationships Year 9 Linear Relationships Coordinate Geometry Year 10 Straight Lines

### 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 Equations with Grouping Symbols Solve Multi-Step Equations Equations: Variables, Both Sides Equations with Fractions 2 Absolute Value Equations Simultaneous Equations 1 Simultaneous Equations 2 Solve Systems by Graphing Simultaneous Linear Equations	Year 8 Equations Inequalities Year 9 Equations and Inequalities
Topic 1: Functions and Graphs	Review of quadratic relationships	Quadratic.1	examples of quadratically related variables	Factorising Quadratics 1 Factorising Quadratics 2 Quadratic Equations 1 Quadratic Equations 2 Equations Reducible to Quadratics	Year 10 Quadratic Equations
Topic 1: Functions and Graphs	Review of quadratic relationships	Quadratic.2	quadratic graphs	Vertex of a Parabola Graphing Parabolas	Year 10 Quadratic Equations 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 Completing the Square 2 Quadratic Formula	Year 10 Quadratic Equations Parabolas
Topic 1: Functions and Graphs	Review of quadratic relationships	Quadratic.4	find the equation of a quadratic	Under review	Year 10 Quadratic Equations Parabolas
Topic 1: Functions and Graphs	Review of quadratic relationships	Quadratic.5	find turning points and zeros of quadratics	Graphing Parabolas Parabolas and Marbles Parabolas and Rectangles	Year 10 Quadratic Equations Parabolas
Topic 1: Functions and Graphs	Review of quadratic relationships	Quadratic.6	discriminant	Roots of the Quadratic The Discriminant	Year 10 Quadratic Equations 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 The Discriminant	Year 10 Quadratic Equations 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 Non Linear Graphs	Year 10 Simple Nonlinear Graphs 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 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 Polynomials
Topic 1: Functions and Graphs	Powers and polynomials	Polynomials.4	expand quadratic and cubic polynomials from factors	Expand then Simplify Special Binomial Products Simplifying Binomial Expressions	Year 9 Simplifying Algebra
Topic 1: Functions and Graphs	Powers and polynomials	Polynomials.5	Cubic Graphs	Expand then Simplify Special Binomial Products Simplifying Binomial Expressions	Year 9 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 Factorising Polynomials
Topic 1: Functions and Graphs	Graphs of relations	Graphing.1	Graphs of circles at $(0, 0)$ and $(a, b)$	Graphing Circles Centre and Radius 1 Centre and Radius 2	Year 10 Graphing Circles
Topic 1: Functions and Graphs	Graphs of relations	Graphing.2	graphs of $y^2 = x$	Inverse functions	Year 10 Functions
Topic 1: Functions and Graphs	Functions	Graphing.3	function notation	Function Notation 1 Function Notation 2 Function Notation 3 Odd and Even Functions Piecemeal Functions	Year 10 Functions

### 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 Cos A Tan A Sine and Cosine Curves Period and Amplitude Unit Circle Reductions	Year 9 Trigonometry 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 Slope of a Line Find Unknown Angles Find Unknown Sides Elevation and Depression	Year 9 Trigonometry Linear Relationships Coordinate Geometry Year 10 Straight Lines
Topic 2: Trigonometric functions	Cosine and sine rules	Trigonometry.3	sine rule	Sine Rule 1 Sine Rule 2	Year 10 Non Right Angled Triangles
Topic 2: Trigonometric functions	Cosine and sine rules	Trigonometry.4	cosine rule	Cosine Rule 1 Cosine Rule 2	Year 10 Non Right Angled Triangles
Topic 2: Trigonometric functions	Cosine and sine rules	Trigonometry.5	area rule	Area Rule 1 Area Rule 2 Area Problems	Year 10 Non Right Angled Triangles

### 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 Length of an Arc 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 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 Year 10 Trigonometric Relationships
Topic 2: Trigonometric functions	Trigonometric functions	Trigonometry.9	$y = \sin, \cos, \tan$ graphs	Sine and Cosine Curves Trig Graphs in Radians Trigonometric Intercepts	Year 9 Trigonometry Year 10 Trigonometric Relationships
Topic 2: Trigonometric functions	Trigonometric functions	Trigonometry.10	examine amplitude changes	Period and Amplitude	Year 9 Trigonometry 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 Trig Equations 2 Trig Equations 3 Trig Equations 4	Year 9 Trigonometry Year 10 Trigonometric Relationships
Topic 3: Counting and probability	Combinations	Combinations.1	combination	Counting Techniques 1 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 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 Simple Probability Complementary Events Probability With Replacement Probability Without Replacement Probability Tables 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 Index Form to Numbers Index Laws with Brackets Surd Form to Index Form Integer Exponents The Zero Index Fractional Indices Simplifying with Index Laws 1 Properties of Exponents	Year 9 Indices



### 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 Year 10 Surds and Indices
Topic 1: Exponential functions	Indices and the index laws	Exponential.3	scientific notation and significant figures	Scientific Notation 1 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 Exponential and Power Graphs
Topic 1: Exponential functions	Exponential functions	Exponential.5	graph exponential functions	Graphing Exponentials	Year 10 Simple Nonlinear Graphs 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 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 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 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 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 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 Equations of Tangents 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



### 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 Indefinite Integral 2 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 exponential	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 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 Differentiate: Trig Functions 2	Under review



### 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 Quotient Rule Chain Rule	Year 11 Introduction to Differentiation
Topic 1: Further differentiation and applications	Differentiation rules	Differentiation.20	composition of functions	Product Rule Quotient Rule Chain Rule	Year 11 Introduction to Differentiation
Topic 1: Further differentiation and applications	Differentiation rules	Differentiation.21	chain rule	Chain Rule	Year 11 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 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 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 Velocity 2 Acceleration 1 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

### 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 Indefinite Integral 2 Indefinite Integral 3	Under review
Topic 2: Integrals	Anti-differentiation	Integration.5	indefinite integrals	Indefinite Integral 1 Indefinite Integral 2 Indefinite Integral 3 Integrate: Exponential (Indefinite)	Under review
Topic 2: Integrals	Anti-differentiation	Integration.6	sin and cos	Integrate: Trig Functions 1 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 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 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 Area by Integration 1 Area by Integration 2	Under review
Topic 2: Integrals	Definite integrals	Integration.11	Reimann sum	Definite Integral Area by Integration 1 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 Area by Integration 2 Area by Integration (y-axis)	Under review

### 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 Area by Integration 2 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 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 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? Graphing Exponentials	Year 10 Logarithms
Topic 1: The logarithmic function	Logarithmic functions	Logarithms.6	asymptotes, and of its translations	Exponential or Log Graph? 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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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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