Mapping tool – preamble for Mathematics

This mapping tool matches essential content elements from two curriculum frameworks: *Every chance to learn* ELA 16, ELA 17 and ELA 18 to the Australian Curriculum (Mathematics) V1.1. Teachers using this tool are reminded to consider the underlying principles and philosophy as well.

The **Overview** of each ELA in *Every chance to learn* discusses the scope, features, concepts, values and attitudes of

- ELA 16 *The student understands and applies number*
- ELA 17 *The student chooses and uses measures*
- ELA 18 *The student recognises and represents patterns and relationships*

The **Rationale** of the Australian Curriculum (Mathematics) reminds readers that the three interrelated strands have different intentions:

- The *Statistics and Probability* strand supports students recognising and analysing data and drawing inferences.
- The *Measurement and Geometry* strand supports students developing an increasingly sophisticated understanding of size, shape, relative position and movement of two-dimensional figures in the plane and three-dimensional objects in space.
- The *Number and Algebra* strand supports the exploration of number representation, computation, patterns and relationships.

Further information can be inferred from

- opening **hyperlinked codes** to the Australian Curriculum, and pasting them into the 'search' function to identify content elaborations, general capabilities and links to cross-curriculum priorities.

Mathematics – Early Childhood

Every chance to learn		Australian Curriculum		
16. The student understands and applies number		Number and algebra		
		Foundation	Year 1	Year 2
16.EC.1	the concepts of counting and ordering whole numbers	**Number and place value** • Establish understanding of the language and processes of counting by saying sequences, initially to and from 20, moving from any starting point (ACMNA001) • Compare, order and make correspondences between collections, initially to 20, and explain reasoning (ACMNA289)	**Number and place value** • Develop confidence with number sequenced to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero (ACMNA012) • Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line (ACMNA013)	**Number and place value** • Recognise, model, represent and order numbers to at least 1000 (ACMNA027) • Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting (ACMNA028)
16.EC.2	whole numbers to at least three digits	**Number and place value** • Establish understanding of the language and processes of counting by saying sequences, initially to and from 20, moving from any starting point (ACMNA001) • Connect number names, numerals and quantities, initially up to 10 and then beyond (ACMNA002) • Compare, order and make correspondences between	**Number and place value** • Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line (ACMNA013) • Count collections to 100 by partitioning numbers using place value (ACMNA014)	**Number and place value** • Recognise, model, represent and order numbers to at least 1000 (ACMNA027) • Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting (ACMNA028)

		collections, initially to 20, and explain reasoning (ACMNA289)		
16.EC.3	the fractions of a half and a quarter		**Fractions and decimals** • Recognise and describe one-half as one of two equal parts of a whole (ACMNA016)	**Fractions and decimals** • Recognise and interpret common uses of halves, quarters (and eighths) of shapes and collections (ACMNA033)
16.EC.4	operations of addition and subtraction with two-digit numbers and strategies for solving addition and subtraction problems, including counting, using concrete materials, and breaking apart and combining numbers	**Number and place value** • Represent practical situations to model addition and sharing (ACMNA004)	**Number and place value** • Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts (ACMNA015)	**Number and place value** • Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting (ACMNA028) • Explore the connection between addition and subtraction (ACMNA029) • Solve simple addition and subtraction problems using a range of efficient mental and written strategies (ACMNA030)
16.EC.5	simple situations involving multiplication and division and suitable strategies to work them out, including grouping, arrays, skip counting, repeated addition and subtraction and sharing with concrete materials	**Number and place value** • Represent practical situations to model addition and sharing (ACMNA004)		**Number and place value** • Recognise and represent multiplication as repeated addition, groups and arrays (ACMNA031) • Recognise and represent division as grouping into equal sets and solve simple problems using these representations (ACMNA032)

16.EC.6	the language of numbers to do with counting, naming and ordering	**Number and place value** • Establish understanding of the language and processes of counting by saying sequences, initially to and from 20, moving from any starting point (ACMNA001) • Connect number names, numerals and quantities, initially up to 10 and then beyond (ACMNA002) • Compare, order and make correspondences between collections, initially to 20, and explain reasoning (ACMNA289)	**Number and place value** • Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line (ACMNA013) • Count collections to 100 by partitioning numbers using place value (ACMNA014) • Develop confidence with number sequenced to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero (ACMNA012)	**Number and place value** • Recognise, model, represent and order numbers to at least 1000 (ACMNA027) • Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting (ACMNA028)
16.EC.7	create, interpret and solve practical problems involving whole numbers	**Number and place value** • Represent practical situations to model addition and sharing (ACMNA004) • Compare, order and make correspondences between collections, initially to 20, and explain reasoning (ACMNA001)	**Number and place value** • Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts (ACMNA015)	**Number and place value** • Solve simple addition and subtraction problems using a range of efficient mental and written strategies (ACMNA030) • Recognise and represent multiplication as repeated addition, groups and arrays (ACMNA031) • Recognise and represent division as grouping into equal sets and solve simple problems using these representations (ACMNA032)
16.EC.8	say, read, write, count and order whole numbers to at	**Number and place value** • Establish understanding of the language and processes of	**Number and place value** • Recognise, model, read, write and order numbers to at least	**Number and place value** • Recognise, model, represent and order numbers to at least

	least 1000	counting by saying sequences, initially to and from 20, moving from any starting point (ACMNA001)	100. Locate these numbers on a number line (ACMNA013)	1000 (ACMNA027)
16.EC.9	make whole numbers larger or smaller by adding or subtracting one, 10 or 100		**Number and place value** • Count collections to 100 by partitioning numbers using place value (ACMNA014) • Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts (ACMNA015)	**Patterns and algebra** • Describe patterns with numbers and identify missing elements (ACMNA035) **Number and place value** • Investigate number sequences, initially those increasing by twos, threes, fives and tens from any starting point, then moving to other sequences (ACMNA026)
16.EC.10	count collections fluently by ones, twos, fives and tens	**Number and place value** • Connect number names, numerals and quantities, initially up to 10 and then beyond (ACMNA002)	**Number and place value** • Develop confidence with number sequenced to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero (ACMNA012)	**Number and place value** • Investigate number sequences, initially those increasing by twos, threes, fives and tens from any starting point, then moving to other sequences (ACMNA026) • Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting (ACMNA028)
16.EC.11	recognise representations of halves and quarters (e.g. by halving		**Fractions and decimals** • Recognise and describe one-half as one of two equal parts	**Fractions and decimals** • Recognise and interpret common uses of halves, quarters (and eighths) of

	objects and collections and quartering by repeated halving) and mixed numbers involving these fractions		of a whole (ACMNA016)	shapes and collections (ACMNA033)
16.EC.12	create problems based around addition or subtraction and use concrete materials, sketches and diagrams to model and solve them	**Number and place value** • Represent practical situations to model addition and sharing (ACMNA004)	**Number and place value** • Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts (ACMNA015)	**Number and place value** • Explore the connection between addition and subtraction (ACMNA029)
16.EC.13	recall addition and subtraction facts to 20 or use efficient strategies to work them out		**Number and place value** • Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts (ACMNA015)	**Number and place value** • Solve simple addition and subtraction problems using a range of efficient mental and written strategies (ACMNA030) • Explore the connection between addition and subtraction (ACMNA029)
16.EC.14	calculate mentally using tens and ones appropriately		**Number and place value** • Count collections to 100 by partitioning numbers using place value (ACMNA014) • Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging	**Number and place value** • Solve simple addition and subtraction problems using a range of efficient mental and written strategies (ACMNA030) • Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting

			parts (ACMNA015)	(ACMNA028)
16.EC.15	explore numbers and calculations using calculators	Not addressed in Australian Curriculum Using appropriate digital technologies begins in Year 3		
16.EC.16	talk about their observations and ideas about situations involving number in their own words	Not specifically addressed in Australian Curriculum. It is useful for students to discuss their ideas involving number to share and clarify understanding		

Every chance to learn		Australian Curriculum		
17. The student chooses and uses measures		Statistics and probability Space and geometry		
		Foundation	Year 1	Year 2
17.EC.1	measurement attributes of length, area, mass, capacity and volume	**Using units of measurement** • Use direct and indirect comparison to decide which is longer, heavier and holds more, and explain reasoning in everyday language (ACMMG006)	**Using units of measurement** • Measure and compare the lengths and capacities of pairs of objects using uniform informal units (ACMMG019)	
17.EC.2	direct comparison and measurement of shapes and objects in relation to these attributes using informal units	**Using units of measurement** • Use direct and indirect comparison to decide which is longer, heavier and holds more, and explain reasoning in everyday language (ACMMG006)	**Using units of measurement** • Measure and compare the lengths and capacities of pairs of objects using uniform informal units (ACMMG019)	
17.EC.3	questions or problems that can best be answered by measuring or collecting data, and suitable ways to do this	**Data representation and interpretation** • Answer “yes/no” questions to collect information (ACMSP011)	**Data representation and interpretation** • Choose simple questions and gather responses (ACMSP262)	**Data representation and interpretation** • Identify a question of interest based on one categorical variable. Gather data relevant to the question (ACMSP048) • Collect, check and classify data (ACMSP049)

17.EC.4	identify, distinguish and name the attributes of shapes and objects with respect to length, area, mass, capacity and volume	**Using units of measurement** • Use direct and indirect comparison to decide which is longer, heavier and holds more, and explain reasoning in everyday language (ACMMG006)	**Using units of measurement** • Measure and compare the lengths and capacities of pairs of objects using uniform informal units (ACMMG019)	**Using units of measurement** • Compare and order several shapes and objects based on length, area, volume and capacity using uniform informal units (ACMMG037)
17.EC.5	directly compare shapes and objects through physical manipulation, estimation and measurement using informal units, and use various strategies to judge whether a measure is 'less than', 'about the same as' or 'more than' a given unit	**Using units of measurement** • Use direct and indirect comparison to decide which is longer, heavier and holds more, and explain reasoning in everyday language (ACMMG006)	**Using units of measurement** • Measure and compare the lengths and capacities of pairs of objects using uniform informal units (ACMMG019)	**Using units of measurement** • Compare and order several shapes and objects based on length, area, volume and capacity using uniform informal units (ACMMG037)
17.EC.6	use whole units in a consistent way and know that sometimes a part unit is left over (e.g. measure length using a common baseline and no gaps or overlaps between units; measure capacity through packing or pouring activities using equal units such as same-size blocks or full cups)		**Using units of measurement** • Measure and compare the lengths and capacities of pairs of objects using uniform informal units (ACMMG019)	

17.EC.7	sequence significant daily events and recognise key times on an analogue or digital clock	**Using units of measurement** • Compare and order the duration of events using the everyday language of time (ACMMG007) • Connect days of the week to familiar events and actions (ACMMG008)	**Using units of measurement** • Tell time to the half hour (ACMMG020)	**Using units of measurement** • Tell time to the quarter hour, using the language of "past" and "to" (ACMMG039)
17.EC.8	use concrete materials and measuring equipment (e.g. balance scales) to explore and represent equivalence			**Using units of measurement** • Compare masses of objects using balance scales (ACMMG038)
17.EC.9	use appropriate language when comparing and ordering objects in relation to the same attribute (e.g. 'the same', 'more than', 'less than', 'longer', 'shorter', 'wider', 'narrower', 'larger', 'smaller', 'heavier', 'lighter', 'holds more', 'holds less', 'before', 'after')	**Using units of measurement** • Use direct and indirect comparison to decide which is longer, heavier and holds more, and explain reasoning in everyday language (ACMMG006)	**Using units of measurement** • Measure and compare the lengths and capacities of pairs of objects using uniform informal units (ACMMG019)	
17.EC.10	collect, display and interpret data about themselves and their lives in meaningful	**Data representation and interpretation** • Answer "yes/no" questions to	**Data representation and interpretation** • Choose simple questions and	**Data representation and interpretation** • Identify a question of interest

	contexts and make simple statements about the data collected	collect information (ACMSP011)	gather responses (ACMSP262) • Represent data with objects and drawings where one object represents one data value. Describe the displays (ACMSP263)	based on one categorical variable. Gather data relevant to the question (ACMSP048) • Collect, check and classify data (ACMSP049)

Every chance to learn		Australian Curriculum		
18. The student recognises and represents patterns and relationships		Number and algebra Space and geometry		
		Foundation	Year 1	Year 2
18.EC.1	patterns and sequences involving repetition and regular increase and decrease	**Patterns and algebra** • Sort and classify familiar objects and explain the basis for these classifications. Copy and continue patterns with objects and drawings (ACMNA005)	**Patterns and algebra** • Investigate and describe number patterns formed by skip counting and patterns with objects (ACMNA018)	**Number and place value** • Investigate number sequences, initially those increasing by twos, threes, fives and tens from any starting point, then moving to other sequences (ACMNA026) **Patterns and algebra** • Describe patterns with numbers and identify missing elements (ACMNA035)
18.EC.2	common 2D shapes and 3D objects	**Shape** • Sort, describe and name, familiar two-dimensional shapes and three-dimensional objects in the environment (ACMMG009)	**Shape** • Recognise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features (ACMMG022)	**Shape** • Describe the features of three-dimensional shapes (ACMMG043) • Describe and draw two-dimensional shapes, with and with-out digital technologies (ACMMG042)
18.EC.3	symmetry of shapes and designs (e.g. folding or using	Not addressed in Australian Curriculum		

	mirrors)			
18.EC.4	flips, slides and turns using common shapes (e.g. half, full, quarter, three-quarter)			**Location and transformation** • Identify and describe half and quarter turns (ACMMG046) • Investigate the effect of 1-step slides and flips with and without digital technologies (ACMMG045)
18.EC.5	relationships of order, sequence and arrangement	**Patterns and algebra** • Sort and classify familiar objects and explain the basis for these classifications. Copy and continue patterns with objects and drawings (ACMNA005)	**Patterns and algebra** • Investigate and describe number patterns formed by skip counting and patterns with objects (ACMNA018)	**Number and place value** • Investigate number sequences, initially those increasing by twos, threes, fives and tens from any starting point, then moving to other sequences (ACMNA026) **Patterns and algebra** • Describe patterns with numbers and identify missing elements (ACMNA035)
18.EC.6	sequences of pictures to show a series of events or a procedure	Not addressed in Australian Curriculum		
18.EC.7	maps of familiar areas	**Location and transformation** • Describe position and movement (ACMMG010)	**Location and transformation** • Give and follow directions to familiar locations (ACMMG023)	**Location and transformation** • Interpret simple maps of familiar locations and identify the relative positions of key features (ACMMG044)

18.EC.8	simple diagrams, graphs and models representing elements, processes and relationships	Not addressed in Australian Curriculum		
18.EC.9	experiment with different ways of changing numbers and shapes, predict the effects of those changes and search for and describe simple patterns and relationships (e.g. adding or subtracting 10, make one angle of a triangle larger)	**Patterns and algebra** • Sort and classify familiar objects and explain the basis for these classifications. Copy and continue patterns with objects and drawings (ACMNA005)	**Patterns and algebra** • Investigate and describe number patterns formed by skip counting and patterns with objects (ACMNA018)	**Number and place value** • Investigate number sequences, initially those increasing by twos, threes, fives and tens from any starting point, then moving to other sequences (ACMNA026)
18.EC.10	explore strategies such as searching for similarity, difference and repetition and use these to make sense of the mathematics they are learning	**Patterns and algebra** • Sort and classify familiar objects and explain the basis for these classifications. Copy and continue patterns with objects and drawings (ACMNA005)	**Patterns and algebra** • Investigate and describe number patterns formed by skip counting and patterns with objects (ACMNA018)	**Patterns and algebra** • Describe patterns with numbers and identify missing elements (ACMNA035) **Number and place value** • Investigate number sequences, initially those increasing by twos, threes, fives and tens from any starting point, then moving to other sequences (ACMNA026)
18.EC.11	recognise, describe and create patterns and sequences and identify whether they	**Patterns and algebra** • Sort and classify familiar objects and explain the basis	**Patterns and algebra** • Investigate and describe number patterns formed by skip	**Number and place value** • Investigate number sequences, initially those increasing by

	involve repetition or regular increases or decreases	for these classifications. Copy and continue patterns with objects and drawings (ACMNA005)	counting and patterns with objects (ACMNA018)	twos, threes, fives and tens from any starting point, then moving to other sequences (ACMNA026) **Patterns and algebra** • Describe patterns with numbers and identify missing elements (ACMNA035)
18.EC.12	analyse patterns, determine the rules that apply and continue and create patterns	**Patterns and algebra** • Sort and classify familiar objects and explain the basis for these classifications. Copy and continue patterns with objects and drawings (ACMNA005)	**Patterns and algebra** • Investigate and describe number patterns formed by skip counting and patterns with objects (ACMNA018)	**Patterns and algebra** • Describe patterns with numbers and identify missing elements (ACMNA035)
18.EC.13	recognise, sort, group, draw and make models of common 2D shapes and 3D objects and describe them using everyday language and geometric names	**Shape** • Sort, describe and name, familiar two-dimensional shapes and three-dimensional objects in the environment (ACMMG009) **Patterns and algebra** • Sort and classify familiar objects and explain the basis for these classifications. Copy and continue patterns with objects and drawings (ACMNA005)	**Shape** • Recognise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features (ACMMG022)	**Shape** • Describe and draw two-dimensional shapes, with and without digital technologies (ACMMG042) • Describe the features of three-dimensional objects (ACMMG043)
18.EC.14	use flips, slides and turns to complete simple visual puzzles, to make			**Location and transformation** • Investigate the effect of 1-step slides and flips with and without digital technologies

	patterns and to explore the characteristics of shapes			(ACMMG045) • Identify and describe half and quarter turn (ACMMG046)
18.EC.15	recognise and describe simple relationships, including those related to order, sequence and arrangement	**Patterns and algebra** • Sort and classify familiar objects and explain the basis for these classifications. Copy and continue patterns with objects and drawings (ACMNA005)	**Patterns and algebra** • Investigate and describe number patterns formed by skip counting and patterns with objects (ACMNA018)	**Number and place value** • Investigate number sequences, initially those increasing by twos, threes, fives and tens from any starting point, then moving to other sequences (ACMNA026) **Patterns and algebra** • Describe patterns with numbers and identify missing elements (ACMNA035)
18.EC.16	establish correspondences between sets (e.g. students in the class and their favourite colour)	**Patterns and algebra** • Sort and classify familiar objects and explain the basis for these classifications. Copy and continue patterns with objects and drawings (ACMNA005)		
18.EC.17	order sets and explain reasoning used (e.g. arrange objects using certain attributes, order numbers)	**Patterns and algebra** • Sort and classify familiar objects and explain the basis for these classifications. Copy and continue patterns with objects and drawings (ACMNA005)		
18.EC.18	create and follow step-by-step instructions about	Not addressed in Australian Curriculum		

	simple procedures where order or the sequence of actions is important			
18.EC.19	make and interpret picture sequences and pictographs		**Data representation and interpretation** • Represent data with objects and drawings where one object represents one data value. Describe the displays (ACMSP263)	**Data representation and interpretation** • Create displays of data using lists, tables, and picture graphs and interpret (ACMSP050)
18.EC.20	interpret simple maps and plans and identify the most obvious features that have been marked	**Location and transformation** • Describe position and movement (ACMMG010)	**Location and transformation** • Give and follow directions to familiar locations (ACMMG023)	**Location and transformation** • Interpret simple maps of familiar locations and identify the relative positions of key features (ACMMG044)
18.EC.21	draw sketch maps or make simple models of familiar places (e.g. room, school grounds)			

Australian curriculum content not previously required at this band of development in *Every chance to learn*:

Kindergarten

- Subitise small collections of objects (Subitising is the ability to instantly recognise the number of items in a small group without counting) (ACMNA003)

Year 1

- Recognise, describe and order Australian coins according to their value (This is included in ELA 24: the student makes informed choices about money and finance) (ACMNA017)

- Identify outcomes of familiar events involving chance and describe them using every day language such as “will happen”, “won’t happen” or might happen” (ACMSP024)
- Describe duration using months, weeks ,days and hours (ACMMG021)

Year 2

- Count and order small collections of Australian coins and notes according to their value (This is included in ELA 24: the student makes informed choices about money and finance) (ACMNA034)
- Name and order months and seasons (ACMMG040)
- Use the calendar to identify the dates and determine the number of days in each month (ACMMG041)
- Recognise and interpret common uses of halves, quarters and *eighths* of shapes and collections (ECTL requires knowledge and understanding of halves and quarters)
- Solve problems by writing number sentences for addition or subtraction (ACMNA036)
- Identify practical activities and everyday events that involve chance. Describe the outcome as “likely” or “unlikely” and identify some events as certain or impossible (ACMSP047)

Mathematics – Later Childhood

Every chance to learn		Australian Curriculum		
16. The student understands and applies number		Number and algebra		
		Year 3	Year 4	Year 5
16.LC.1	whole numbers to at least thousands and decimal fractions to at least hundredths	**Number and place value** • Investigate the condition required for a number to be odd or even and identify odd and even numbers (ACMNA051) • Recognise, model, represent and order numbers to at least 10 000 (ACMNA052)	**Fractions and decimals** • Recognise that the place value system can be extended to tenths and hundredths. Make connections between fraction and decimal notation (ACMNA079)	
16.LC.2	the concept of place value for comparing and ordering numbers (e.g. place numbers on number lines) and how place value changes as numbers (including decimal fractions) are multiplied and divided by 10 and 100	**Number and place value** • Recognise, model, represent and order numbers to at least 10 000 (ACMNA052)	**Number and place value** • Recognise, represent and order numbers to at least tens of thousands (ACMNA072) **Fractions and decimals** • Recognise that the place value system can be extended to tenths and hundredths. Make connections between fraction and decimal notation (ACMNA079)	**Fractions and decimals** • Compare, order and represent decimals (ACMNA105)
16.LC.3	simple common fractions and mixed numbers involving denominators to	**Fractions and decimals** • Model and represent unit fractions including ½, ¼, 1/3, 1/5 and their multiples to a	**Fractions and decimals** • Investigate equivalent fractions used in contexts (ACMNA077)	**Fractions and decimals** • Compare and order common unit fractions and locate and represent them on a number

	tenths	complete whole (ACMNA058)		line (ACMNA102)
16.LC.4	operations of addition and subtraction using whole numbers to thousands and decimal fractions to hundredths in familiar contexts, and multiplication and division of whole numbers by whole numbers to 10	**Number and place value** • Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053) • Recall addition facts for single-digit numbers and related subtraction facts to develop increasing efficient mental strategies for computation (ACMNA055) • Recall multiplication facts of two, three, five and 10 and related division facts (ACMNA056) • Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057) **Money and financial mathematics** • *Represent money values in multiple ways and* count out the change of simple transactions to the nearest 5 cents (ACMNA059)	**Number and place value** • Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA073) • Recall multiplication facts up to 10 x 10 and related division facts (ACMNA075) • Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for division where there is no remainder (ACMNA076) **Money and financial mathematics** • Solve problems involving purchase and the calculation of change to the nearest 5 cents, with and without digital technologies (ACMNA080)	**Number and place value** • Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies (ACMNA100) • Solve problems involving division by a one digit number, including those that result in a remainder (ACMNA101)
16.LC.5	factors of whole numbers and prime numbers	**Number and place value** • Recall multiplication facts of two, three, five and 10 and	**Number and place value** • Recall multiplication facts up to 10 x 10 and related division	**Number and place value** • Identify and describe factors and multiples of whole numbers

		related division facts (ACMNA056)	facts (ACMNA075)	and solve problems involving these (ACMNA098)
16.LC.6	inverse operations	**Number and place value** • Recognise and explain the connection between addition and subtraction (ACMNA054) • Recall addition facts for single-digit numbers and related subtraction facts to develop increasing efficient mental strategies for computation (ACMNA055) • Recall multiplication facts of two, three, five and 10 and related division facts (ACMNA056)	**Number and place value** • Recall multiplication facts up to 10 x 10 and related division facts (ACMNA075)	
16.LC.7	mathematical situations and problems that involve any one of the four arithmetic operations—addition, subtraction, multiplication or division	**Number and place value** • Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053) • Recognise and explain the connection between addition and subtraction (ACMNA054) • Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057) **Money and financial**	**Number and place value** • Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for division where there is no remainder (ACMNA076) **Money and financial mathematics** • Solve problems involving purchase and the calculation of change to the nearest 5 cents, with and without digital technologies (ACMNA080) **Patterns and algebra** • Solve word problems by using	**Number and place value** • Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies (ACMNA100) • Solve problems involving division by a one digit number, including those that result in a remainder (ACMNA101)

		mathematics • Represent money values in multiple ways and count out the change of simple transactions to the nearest 5 cents (ACMNA059)	number sentences involving multiplication or division where there is no remainder (ACMNA082) • Write equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)	
16.LC.8	computation using mental, written and electronic methods, and forming estimates to check the reasonableness of answers	**Number and place value** • Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053) • Recognise and explain the connection between addition and subtraction (ACMNA054) • Recall addition facts for single-digit numbers and related subtraction facts to develop increasing efficient mental strategies for computation (ACMNA055) • Recall multiplication facts of two, three, five and 10 and related division facts (ACMNA056) • Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)	**Number and place value** • Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA073) • Recall multiplication facts up to 10 x 10 and related division facts (ACMNA075) • Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for division where there is no remainder (ACMNA076)	**Number and place value** • Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099) • Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies (ACMNA100) • Solve problems involving division by a one digit number, including those that result in a remainder (ACMNA101) • Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)

16.LC.9	appropriate language for talking about whole numbers, decimals, fractions and operations carried out with them	Not specifically addressed in Australian Curriculum It is useful for students to discuss their ideas involving number using appropriate terminology to share ideas and clarify understanding. This has an influence on most Australian Curriculum content.		
16.LC.10	the history of whole numbers, counting and symbol systems in one or more cultures	Not specifically addressed in Australian Curriculum, it does however feature in some elaborations		
16.LC.11	represent and explore whole numbers, using concrete materials and calculators (e.g. list all their factors and identify prime numbers; create, interpret and solve practical problems)	**Number and place value** • Investigate the condition required for a number to be odd or even and identify odd and even numbers (ACMNA051)		**Number and place value** • Identify and describe factors and multiples of whole numbers and solve problems involving these (ACMNA098)
16.LC.12	recognise and represent whole numbers and decimal fractions, and use them in familiar contexts (e.g. when measuring)	**Money and financial mathematics** • Represent money values in multiple ways and count out the change of simple transactions to the nearest five cents (ACMNA059)	**Money and financial mathematics** • Solve problems involving purchase and the calculation of change to the nearest 5 cents, with and without digital technologies (ACMNA080)	**Fractions and decimals** • (Compare, order) and represent decimals (ACMNA105)
16.LC.13	represent, describe and solve practical problems involving common fractions and mixed numbers		**Fractions and decimals** • Investigate equivalent fractions used in contexts (ACMNA077) • Count by quarters, halves and	**Fractions and decimals** • Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominators

	using collections of objects, lines and areas of shapes		thirds, including with mixed numerals. Locate and represent these fractions on a number line (ACMNA078)	(ACMNA103)
16.LC.14	estimate the position of common fractions on a number line using 0, ½ and 1 as reference points	**Fractions and decimals** • Model and represent unit fractions including ½, ¼, 1/3, 1/5 and their multiples to a complete whole (ACMNA058)	**Fractions and decimals** • Count by quarters, halves and thirds, including with mixed numerals. Locate and represent these fractions on a number line (ACMNA078)	**Fractions and decimals** • Compare and order common unit fractions and locate and represent them on a number line (ACMNA102)
16.LC.15	compare and order common fractions, recognise when they are equivalent and mentally calculate using fractions with the same or easily related denominators, using a variety of concrete models		**Fractions and decimals** • Investigate equivalent fractions used in contexts (ACMNA077) • Count by quarters, halves and thirds, including with mixed numerals. Locate and represent these fractions on a number line (ACMNA078)	**Fractions and decimals** • Compare and order common unit fractions and locate and represent them on a number line (ACMNA102) • Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominators (ACMNA103)
16.LC.16	recall addition and subtraction facts, recall or use suitable strategies to work out multiplication and related division facts and apply facts to calculate mentally with larger numbers	**Number and place value** • Recognise and explain the connection between addition and subtraction (ACMNA054) • Recall addition facts for single-digit numbers and related subtraction facts to develop increasing efficient mental strategies for computation (ACMNA055) • Recall multiplication facts of two, three, five and 10 and	**Number and place value** • Investigate number sequences involving multiples of 3, 4, 6, 7, 8 and 9 (ACMNA074) • Recall multiplication facts up to 10 x 10 and related division facts (ACMNA075) • Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for division where there is no	**Number and place value** • Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies (ACMNA100)

		related division facts (ACMNA056) • Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)	remainder (ACMNA076)	
16.LC.17	use calculators to explore, develop and refine strategies for multiplication and division and for calculations using numbers beyond their mental scope	**Number and place value** • Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)	**Number and place value** • Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for division where there is no remainder (ACMNA076)	**Number and place value** • Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies (ACMNA100) • Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)
16.LC.18	explain the calculation approaches they use, compare them with other approaches and check the reasonableness of their answers	**Number and place value** • Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053)	**Number and place value** • Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for division where there is no remainder (ACMNA076)	
16.LC.19	apply number properties to modify calculations so that they can more easily be carried out (e.g. doubling, halving and	**Number and place value** • Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve	**Number and place value** • Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and also for	**Number and place value** • Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written

	bridging to the nearest decade number) and use inverse operations to solve relevant problems	problems (ACMNA053) • Recognise and explain the connection between addition and subtraction (ACMNA054) • Recall addition facts for single-digit numbers and related subtraction facts to develop increasing efficient mental strategies for computation (ACMNA055) • Recall multiplication facts of 2, 3, 5 and 10 and related division facts (ACMNA056) • Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)	division where there is no remainder (ACMNA076)	strategies and appropriate digital technologies (ACMNA100) • Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)
16.LC.20	choose when to use mental computation, written or electronic methods to calculate with numbers and form quick mental estimates to check calculations	**Number and place value** • Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053) • Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)		**Number and place value** • Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099) • Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)

Every chance to learn		Australian Curriculum		
17. The student chooses and uses measures		Statistics and probability Measurement and geometry		
		Year 3	Year 4	Year 5
17.LC.1	measurement attributes of length, area, mass, capacity, volume, angle and time	**Using units of measurement** • Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061) • Tell time to the minute and investigate the relationship between units of time (ACMMG062) **Geometric reasoning** • Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064)	**Using units of measurement** • Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084) • Compare objects using familiar metric units of area and volume (ACMMG290) **Shape** • Compare the area of regular and irregular shapes by informal means (ACMMG087) **Geometric reasoning** • Compare angles and classify them as equal to, greater than or less than a right angle (ACMMG089)	**Using units of measurement** • Choose appropriate units of measurement for length, area, volume, capacity and mass (ACMMG108) • Calculate perimeter and area of rectangles using familiar metric units (ACMMG109) **Geometric reasoning** • Estimate, measure and compare angles using degrees. (Construct angles using a protractor) (ACMMG112)
17.LC.2	informal and standard units of measurement of these attributes, including metre, centimetre, millimetre, square	**Using units of measurement** • Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061) • Tell time to the minute and	**Using units of measurement** • Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084) • Compare objects using familiar	**Using units of measurement** • Choose appropriate units of measurement for length, area, volume, capacity and mass (ACMMG108) • Calculate perimeter and area of

	metre, square centimetre, kilogram, gram, litre, millilitre, degrees, hours and minutes	investigate the relationship between units of time (ACMMG062) **Geometric reasoning** • Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064)	metric units of area and volume (ACMMG290) **Shape** • Compare the area of regular and irregular shapes by informal means (ACMMG087)	rectangles using familiar metric units (ACMMG109) **Geometric reasoning** • Estimate, measure and compare angles using degrees. (Construct angles using a protractor) (ACMMG112)
17.LC.3	the concept of conservation, including different ways of recording the same measurement (e.g. in metres, centimetres or millimetres)	**Using units of measurement** • Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061) • Tell time to the minute and investigate the relationship between units of time (ACMMG062)	**Using units of measurement** • Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084) • Convert between units of time (ACMMG085)	**Using units of measurement** • Choose appropriate units of measurement for length, area, volume, capacity and mass (ACMMG108)
17.LC.4	the concept of measurements as approximations, with the measurement context influencing levels of precision required and ways of refining measurements (e.g. by changing units or instruments)	**Using units of measurement** • Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061) • Tell time to the minute and investigate the relationship between units of time (ACMMG062)	**Using units of measurement** • Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084) **Shape** • Compare the area of regular and irregular shapes by informal means (ACMMG087)	
17.LC.5	measurement units and instruments used by different civilisations in history	Not specifically addressed in Australian Curriculum content descriptions Within Year 5 the ELA is in the elaborations		

17.LC.6	perimeter (as a linear measurement of the distance around a shape) as distinct from area (as a measure of the space within a shape) and the relationship between the length of sides and the perimeters of shapes		**Using units of measurement** • Compare objects using familiar metric units of area and volume (ACMMG290) **Shape** • Compare the area of regular and irregular shapes by informal means (ACMMG087)	**Using units of measurement** • Calculate perimeter and area of rectangles using familiar metric units (ACMMG109)
17.LC.7	collecting and using data to answer questions or respond to issues	**Data representation and interpretation** • Identify questions or issues for categorical variables. Identify data sources and plan methods of data collection and recording (ACMSP068) • Collect data and organise into categories and create displays using lists, tables, picture graphs and simple column graphs, with and without the use of digital technologies (ACMSP069)	**Data representation and interpretation** • Select and trial methods for data collection, including survey questions and recording sheets (ACMSP095)	**Data representation and interpretation** • Pose questions and collect categorical or numerical data by observation or survey (ACMSP118) • Construct displays, including column graphs, appropriate for data types, with and without the use of digital technologies (ACMSP119)
17.LC.8	measure, compare and order lengths, areas, masses, capacities, volumes, angles and time by selecting and using suitable units and instruments, measuring to the nearest whole unit	**Using units of measurement** • Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061) • Tell time to the minute and investigate the relationship between units of time	**Using units of measurement** • Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084) • Compare objects using familiar metric units of area and volume (ACMMG290)	**Using units of measurement** • Choose appropriate units of measurement for length, area, volume, capacity and mass (ACMMG108) **Geometric reasoning** • Estimate, measure and compare angles using degrees.

	and arranging measurements of the same attribute in order of magnitude	(ACMMG062) **Geometric reasoning** • Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064)	**Shape** • Compare the area of regular and irregular shapes by informal means (ACMMG087) **Geometric reasoning** • Compare angles and classify them as equal to, greater than or less than a right angle (ACMMG089)	(Construct angles using a protractor) (ACMMG112)
17.LC.9	make reasonable estimates by applying strategies that suit the situations and objects		**Shape** • Compare the area of regular and irregular shapes by informal means (ACMMG087)	
17.LC.10	interpret and read the graduated scales of units on a range of measuring instruments	**Using units of measurement** • Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061) • Tell time to the minute and investigate the relationship between units of time (ACMMG062)	**Using units of measurement** • Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084)	**Using units of measurement** • Choose appropriate units of measurement for length, area, volume, capacity and mass (ACMMG108) **Geometric reasoning** • Estimate, measure and compare angles using degrees. (Construct angles using a protractor) (ACMMG112)
17.LC.11	estimate, measure and compare angles (e.g. interpret angle as amount of turn involving multiples and parts of right angles)	**Geometric reasoning** • Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064)	**Geometric reasoning** • Compare angles and classify them as equal to, greater than or less than a right angle (ACMMG089)	**Geometric reasoning** • Estimate, measure and compare angles using degrees. (Construct angles using a protractor) (ACMMG112)

17.LC.12	read the time of the day to the nearest minute using analogue and digital clocks, and recognise and use 'a.m.' and 'p.m.'	**Using units of measurement** • Tell time to the minute and investigate the relationship between units of time (ACMMG062)	**Using units of measurement** • Use am and pm notation and solve simple time problems (ACMMG086)	
17.LC.13	estimate and calculate duration using starting and finishing times or dates		**Using units of measurement** • Use am and pm notation and solve simple time problems (ACMMG086)	
17.LC.14	interpret times, calendars, timetables and timelines to seek specific information or to schedule and sequence events		**Using units of measurement** • Convert between units of time (ACMMG085) • Use am and pm notation and solve simple time problems (ACMMG086)	
17.LC.15	identify and describe possible outcomes for familiar events involving chance, make judgements about their likelihood and predict whether some are more likely than others	**Chance** • Conduct chance experiments, identify and describe possible outcomes (and recognise variation in results) (ACMSP067)	**Chance** • Describe possible everyday events and order their chances of occurring (ACMSP092)	**Chance** • List outcomes of chance experiments involving equally likely outcomes (and represent probabilities of those outcomes using fractions) (ACMSP116)
17.LC.16	collect data from experiments or observation to justify or adjust predictions involving chance and distinguish situations	**Chance** • Conduct chance experiments, identify and describe possible outcomes and recognise variation in results		

	that involve equally likely events from those that do not	(ACMSP067)		
17.LC.17	select and use a range of ways to collect data, including surveys, observations and experiments, choose suitable tables or graphs to present the information (e.g. using ICT) and use these to support statements or predictions made about the data	**Data representation and interpretation** • Identify questions or issues for categorical variables. Identify data sources and plan methods of data collection and recording (ACMSP068) • Collect data and organise into categories and create displays using lists, tables, picture graphs and simple column graphs, with and without the use of digital technologies (ACMSP069)	**Data representation and interpretation** • Select and trial methods for data collection, including survey questions and recording sheets (ACMSP095) • 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 (ACMSP096)	**Data representation and interpretation** • Pose questions and collect categorical or numerical data by observation or survey (ACMSP118) • Construct displays, including column graphs, appropriate for data types, with and without the use of digital technologies (ACMSP119)
17.LC.18	read data from tables and graphs, compare information from related data sets, look for and describe expected or unexpected variation within the sets of data and decide whether additional data should be collected to draw reasonable conclusions	**Data representation and interpretation** • Interpret and compare data displays (ACMSP070)	**Data representation and interpretation** • Evaluate the effectiveness of different displays in terms of illustrating data features including variability (ACMSP097)	**Data representation and interpretation** • Describe and interpret different data sets in context (ACMSP120)

Every chance to learn		Australian Curriculum		
18. The student recognises and represents patterns and relationships		Number and algebra Measurement and geometry		
		Year 3	Year 4	Year 5
18.LC.1	patterns in number and space (e.g. multiple copies of shapes, tessellation) and the role that position plays in patterns	**Patterns and algebra** • Describe, continue and create number patterns resulting from performing addition and subtraction (ACMNA060)	**Number and place value** • Investigate number sequences involving multiples of 3, 4, 6, 7, 8 and 9 (ACMNA074) **Location and transformation** • Create symmetrical patterns, pictures and shapes with and without digital technologies (ACMMG091) **Patterns and algebra** • Explore and describe number patterns resulting from performing multiplication (ACMNA081)	**Location and transformation** • Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries (ACMMG114) **Patterns and algebra** • Describe, continue and create patterns with (fractions, decimals) and whole numbers resulting from addition and subtraction (ACMNA107)
18.LC.2	symmetry in shapes and designs	**Location and transformation** • Identify symmetry in the environment (ACMMG066)	**Location and transformation** • Create symmetrical patterns, pictures and shapes with and without digital technologies (ACMMG091)	**Location and transformation** • Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries (ACMMG114)
18.LC.3	angles, both as characteristics of	**Geometric reasoning** • Identify angles as measures of	• Compare angles and classify them as equal to, greater than	**Geometric reasoning** • Estimate, measure and

	shapes and objects and as turns	turn and compare angle sizes in everyday situations (ACMMG064)	or less than a right angle (ACMMG089)	compare angles using degrees. Construct angles using a protractor (ACMMG112)
18.LC.4	basic transformations (flips, slides and turns) of shapes and description of the changes that occur			**Location and transformation** • Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries (ACMMG114)
18.LC.5	the language of turns (e.g. 'half', 'full', 'quarter', 'three-quarter') for giving directions for moving around a familiar environment or for locating specific features	**Geometric reasoning** • Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064)		**Location and transformation** • Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries (ACMMG114)
18.LC.6	features of shapes and objects and their description using spatial language (e.g. 'parallel', 'perpendicular', 'vertex', 'face', 'edge', 'base' and 'acute', 'right', 'obtuse' and 'reflex' angles)	**Shape** • Make models of three dimensional objects and describe key features (ACMMG063)	**Shape** • Compare and describe two dimensional shapes which result from combining and splitting common shapes, with and without the use of digital technologies (ACMMG088)	
18.LC.7	simple relationships between elements of shapes (e.g. between the length, width and perimeter of a	Not specifically addressed in Australian Curriculum		

	rectangle)			
18.LC.8	lists, tables and graphs to represent relationships and to analyse and predict change (e.g. petrol prices on different days of the month)	Not specifically addressed in Australian Curriculum		
18.LC.9	inverse and equivalence relationships, including how inverse operations enable them to work out related number facts and solve unknown elements of simple equations involving addition and subtraction		**Patterns and algebra** • Write equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)	
18.LC.10	drawing conventions for 2D representations of 3D objects			**Shape** • Connect three dimensional objects with their nets and other two dimensional representations (ACMMG111)
18.LC.11	equations (number sentences) and models to represent mathematical problems and situations based around a single operation		**Patterns and algebra** • Solve word problems by using number sentences involving multiplication or division where there is no remainder (ACMNA082) • Write equivalent number sentences involving addition	**Patterns and algebra** • Use equivalent number sentences involving multiplication and division to find unknown quantities (ACMNA121)

			and subtraction to find unknown quantities (ACMNA083)	
18.LC.12	symbols and conventions used on maps, plans and grids (e.g. north symbol, symbols within the legend, alpha-numeric grids)	**Location and transformation** • Create and interpret simple grid maps to show position and pathways (ACMMG065)	**Location and transformation** • Use simple scales, legends and directions to interpret information contained in basic maps (ACMMG090)	**Location and transformation** • Use a grid reference system to describe locations. Describe routes using landmarks and directional language (ACMMG113)
18.LC.13	the relationship between the four major compass points and the amount of turn (quarter, half, three-quarter and full turns) and how these can be used when giving directions	**Geometric reasoning** • Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064) **Location and transformation** • Create and interpret simple grid maps to show position and pathways (ACMMG065)	**Location and transformation** • Use simple scales, legends and directions to interpret information contained in basic maps (ACMMG090)	**Location and transformation** • Use a grid reference system to describe locations. Describe routes using landmarks and directional language (ACMMG113)
18.LC.14	simple scales to estimate distances on maps and plans	**Location and transformation** • Create and interpret simple grid maps to show position and pathways (ACMMG065)	**Location and transformation** • Use simple scales, legends and directions to interpret information contained in basic maps (ACMMG090)	**Location and transformation** • Use a grid reference system to describe locations. Describe routes using landmarks and directional language (ACMMG113)
18.LC.15	concept maps, flow charts, diagrams and bar, column and line graphs to represent ideas, processes and relationships	Not specifically addressed in Australian Curriculum		

18.LC.16	represent and interpret patterns in number and space, identify the rules that describe the pattern, work out further elements and use materials to model and continue spatial patterns	**Patterns and algebra** • Describe, continue and create number patterns resulting from performing addition and subtraction (ACMNA060)	**Number and place value** • Investigate number sequences involving multiples of 3, 4, 6, 7, 8 and 9 (ACMNA074) **Patterns and algebra** • Explore and describe number patterns resulting from performing multiplication (ACMNA081)	**Patterns and algebra** • Describe, continue and create patterns with (fractions, decimals) and whole numbers resulting from addition and subtraction (ACMNA107)
18.LC.17	recognise, name, sort and represent a range of 2D shapes and 3D objects according to their essential features (e.g. number of sides and edges, sizes of angles, parallel lines, equal sides, lines of symmetry)	**Shape** • Make models of three dimensional objects and describe key features (ACMMG063)	**Shape** • Compare and describe two dimensional shapes which result from combining and splitting common shapes, with and without the use of digital technologies (ACMMG088)	
18.LC.18	identify particular features and give more specific names to shapes and objects within broad groups (e.g. isosceles triangle)	Not specifically addressed in Australian Curriculum		
18.LC.19	sketch representations of objects from different viewpoints, knowing that the same two-dimensional shapes			**Shape** • Connect three dimensional objects with their nets and other two dimensional representations (ACMMG111)

	can be drawn in different orientations			
18.LC.20	make models (e.g. skeletal models using straws, solid models using clay) and nets of common three-dimensional objects	**Shape** • Make models of three dimensional objects and describe key features (ACMMG063)		
18.LC.21	recognise and describe relationships and represent them using concrete materials, drawings, lists, tables and some mathematical symbols	Not specifically addressed in Australian Curriculum		
18.LC.22	analyse simple relationships and make predictions based on the information they have	Not specifically addressed in Australian Curriculum		
18.LC.23	create relationships in relevant situations and make up rules or criteria for sorting, ordering and arranging data and objects	Not specifically addressed in Australian Curriculum		
18.LC.24	interpret and use some of the symbols and conventions used to represent		**Patterns and algebra** • Solve word problems by using number sentences involving multiplication or division where	**Patterns and algebra** • Use equivalent number sentences involving multiplication and division to

	mathematical situations (e.g. concrete materials, words, drawings, diagrams, physical models and a range of mathematical symbols)		there is no remainder (ACMNA082) • Write equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)	find unknown quantities (ACMNA121)
18.LC.25	recognise the links between different representations of the same situation and use those which make most sense to them	Not specifically addressed in Australian Curriculum		
18.LC.26	make reasonable sketches of familiar local environments (e.g. the school grounds or a particular room)	**Location and transformation** • Create and interpret simple grid maps to show position and pathways (ACMMG065)		
18.LC.27	recognise and interpret symbols and conventions used on different maps, plans and grids to locate key features and landmarks and to plan movement around environments	**Location and transformation** • Create and interpret simple grid maps to show position and pathways (ACMMG065)	**Location and transformation** • Use simple scales, legends and directions to interpret information contained in basic maps (ACMMG090)	**Location and transformation** • Use a grid reference system to describe locations. Describe routes using landmarks and directional language (ACMMG113)

Australian curriculum content not previously required at this band of development in *Every chance to learn*:

Year 3

None

Year 4

- Investigate and use the properties of odd and even number (ACMNA071)
- Identify everyday events where one cannot happen if the other happens (ACMSP093)
- Identify events where the chance of one will not be affected by the occurrence of the other (ACMSP094)

Year 5

- Compare 12 and 24 hour time and convert between them (ACMMG110)
- Apply the enlargement transformation to familiar two dimensional shapes and explore the properties of the resulting image compared with the original (ACMMG115)
- Recognise the number system can be extended beyond hundredths (ACMNA104)
- Create financial simple plans and examine financial records (ACMNA106)
- Recognise that probabilities range from 0 to 1 (ACMSP117)

Mathematics – Early Adolescence

Every chance to learn		Australian Curriculum		
16. The student understands and applies number		Number and algebra		
		Year 6	Year 7	Year 8
16.EA.1	the base 10 number system and its number properties	**Number and place value** • Identify and describe properties of prime, composite, square and triangular numbers (ACMNA122)	**Number and place value** • Investigate index notation and represent numbers as a products of powers of prime numbers (ACMNA149)	
16.EA.2	positive and negative numbers to at least seven digits and decimal fractions to at least three decimal places	**Number and place value** • Investigate everyday situations that use positive and negative whole numbers and zero. Locate and represent them on a number line (ACMNA124)	**Real numbers** • Round decimals to a specified number of decimal places (ACMNA156)	**Real numbers** • Investigate terminating and recurring decimals (ACMNA184)
16.EA.3	addition, subtraction and multiplication, including small whole number powers and division using one- and two digit whole number divisors	**Number and place value** • Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123)	**Number and place value** • Apply the associative, commutative and distributive laws to aid mental and written computation (ACMNA151)	**Number and place value** • Carry out the four operations with integers, using efficient mental and written strategies and appropriate digital technologies (ACMNA183)
16.EA.4	common fractions and families of equivalent fractions, including those expressed in simplest	**Fractions and decimals** • Compare fractions with related denominators and locate and represent them on a number	**Real numbers** • Compare fractions using equivalence. Locate and represent fractions and mixed	

	form and as decimals and percentages	line (ACMNA125) • Make connections between equivalent fractions, decimals and percentages (ACMNA131)	numerals on a number line (ACMNA152) • Connect fractions, decimals and percentages and carry out simple conversions (ACMNA157)	
16.EA.5	addition and subtraction of fractions where a common denominator is readily identifiable, and multiplication and simple division of fractions	**Fractions and decimals** • Solve problems involving addition and subtraction of fractions with the same or related denominators (ACMNA126) • Find a simple fraction of a quantity where the result is a whole number, with and without digital technologies (ACMNA127)	**Real numbers** • Solve problems involving addition and subtraction of fractions (including those with unrelated denominators) (ACMNA153) • Multiply and divide fractions and decimals using efficient written strategies and digital technologies (ACMNA154)	
16.EA.6	problems that involve simple percentages, proportions, ratios and rates in practical situations, including money, time and other measurements	**Money and financial mathematics** • Investigate and calculate percentage discounts of 10%, 25% and 50% on sale items, with and without digital technologies (ACMNA132)	**Real numbers** • Find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies (ACMNA158) • Express one quantity as a fraction of another with and without the use of digital technologies (ACMNA155) • Recognise and solve problems involving simple ratios (ACMNA173) **Money and financial mathematics**	**Real numbers** • Solve problems involving use of percentages, including percentage increase and decrease, with and without digital technologies (ACMNA187) • Solve a range of problems involving rates and ratios, with and without digital technologies (ACMNA188) **Money and financial mathematics** • Solve problems involving profit and loss, with and without digital technologies

			• Investigate and calculate best buys, with and without digital technologies (ACMNA174)	(ACMNA189)
16.EA.7	relationships between whole numbers, decimal fractions, percentages and common fractions	**Fractions and decimals** • Make connections between equivalent fractions, decimals and percentages (ACMNA131)	**Real numbers** • Connect fractions, decimals and percentages and carry out simple conversions (ACMNA157)	
16.EA.8	magnitude of numbers based on powers of 10	Not addressed in Australian Curriculum Concept is useful for developing understanding for scientific notation		
16.EA.9	equivalences between linear expressions to solve linear equations (e.g. 'backtracking')		**Patterns and algebra** • Introduce the concept of variables as a way of representing numbers using letters (ACMNA175) • Write algebraic expressions and evaluate them by substituting a given value for each variable (ACMNA176) • Extend and apply the laws and properties of arithmetic to algebraic terms and expressions (ACMNA177) **Linear and non-linear relationships** • Solve simple linear equations (ACMNA179)	**Patterns and algebra** • Extend and apply the distributive law to the expansion of algebraic expressions (ACMNA190) • Factorise algebraic expressions by identifying numerical factors (ACMNA191) • Simplify algebraic expressions involving the four operations (ACMNA192) **Linear and non-linear relationships** • Solve linear equations using algebraic and (graphical techniques). Verify solutions using substitution (ACMNA194)
16.EA.10	the contributions of different cultures to the development of	Not addressed in Australian Curriculum The content is useful for building students' deep understand of number and different cultural aspects		

	number systems and mathematical knowledge throughout history			
16.EA.11	compare and order sets of positive and negative numbers and decimal fractions	**Number and place value** • Investigate everyday situations that use positive and negative whole numbers and zero. Locate and represent them on a number line (ACMNA124)	**Number and place value** • Compare, order, add and subtract integers (ACMNA280)	**Real numbers** • Investigate terminating and recurring decimals (ACMNA184)
16.EA.12	represent and order common fractions and identify families of equivalent fractions, including simple forms, decimals and percentages	**Fractions and decimals** • Compare fractions with related denominators and locate and represent them on a number line (ACMNA125) • Make connections between equivalent fractions, decimals and percentages (ACMNA131)	**Real numbers** • Compare fractions using equivalence. Locate and represent fractions and mixed numerals on a number line (ACMNA152) • Connect fractions, decimals and percentages and carry out simple conversions (ACMNA157)	
16.EA.13	explore general number properties and apply these to computation	**Number and place value** • Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123)	**Number and place value** • Apply the associative, commutative and distributive laws to aid mental and written computation (ACMNA151)	**Number and place value** • Carry out the four operations with integers, using efficient mental and written strategies and appropriate digital technologies (ACMNA183)
16.EA.14	apply their understanding of the meaning and order of operations when	**Patterns and algebra** • Explore the use of brackets and order of operations to write number sentences	**Patterns and algebra** • Extend and apply the laws and properties of arithmetic to algebraic terms and	• Extend and apply the distributive law to the expansion of algebraic expressions (ACMNA190)

	carrying out more complicated calculations	(ACMNA134)	expressions (ACMNA177)	
16.EA.15	use mental, written and electronic methods to carry out computations involving addition and subtraction of fractions where a common denominator is readily identifiable, and multiplication and simple division of fractions	**Fractions and decimals** • Solve problems involving addition and subtraction of fractions with the same or related denominators (ACMNA126) • Find a simple fraction of a quantity where the result is a whole number, with and without digital technologies (ACMNA127)	**Real numbers** • Solve problems involving addition and subtraction of fractions (including those with unrelated denominators) (ACMNA153) • Multiply and divide fractions and decimals using efficient written strategies and digital technologies (ACMNA154)	
16.EA.16	interpret and solve practical problems, using an appropriate sequence of operations and suitable methods when dealing with integers, decimals, simple percentages, proportions, ratios and rates including money, time and other measurements	**Number and place value** • Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123) **Fractions and decimals** • Add and subtract decimals, with and without digital technologies, and use estimation and rounding to check the reasonableness of answers (ACMNA128) • Multiply decimals by whole numbers and perform divisions that result in terminating	**Number and place value** • Apply the associative, commutative and distributive laws to aid mental and written computation (ACMNA151) **Real numbers** • Multiply and divide fractions and decimals using efficient written strategies and digital technologies (ACMNA154) • Express one quantity as a fraction of another with and without the use of digital technologies (ACMNA155) • Connect fractions, decimals and percentages and carry out simple conversions	**Number and place value** • Carry out the four operations with integers, using efficient mental and written strategies and appropriate digital technologies (ACMNA183) **Real numbers** • Solve problems involving use of percentages, including percentage increase and decrease, with and without digital technologies (ACMNA187) • Solve a range of problems involving rates and ratios, with and without digital technologies (ACMNA188) **Money and financial**

		decimals , with and without digital technologies (ACMNA129) • Multiply and divide decimals by powers of 10 (ACMNA130) **Money and financial mathematics** • Investigate and calculate percentage discounts of 10%, 25% and 50% on sale items, with and without digital technologies (ACMNA132)	(ACMNA157) • Find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies (ACMNA158) • Recognise and solve problems involving simple ratios (ACMNA173) **Money and financial mathematics** • Investigate and calculate best buys, with and without digital technologies (ACMNA174)	**mathematics** • Solve problems involving profit and loss, with and without digital technologies (ACMNA189)
16.EA.17	choose and use a range of strategies to solve problems, including sensible choices about mental, written and electronic methods for calculation	**Number and place value** • Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123) **Fractions and decimals** • Multiply decimals by whole numbers and perform divisions that result in terminating decimals , with and without digital technologies (ACMNA129) • Multiply and divide decimals by powers of 10 (ACMNA130)	**Number and place value** • Apply the associative, commutative and distributive laws to aid mental and written computation (ACMNA151) **Real numbers** • Round decimals to a specified number of decimal places (ACMNA156)	**Number and place value** • Carry out the four operations with integers, using efficient mental and written strategies and appropriate digital technologies (ACMNA183)

16.EA.18	make estimates for calculations using their knowledge of number systems and relationships, mental calculation, rounding and magnitude based on powers of 10	**Fractions and decimals** • Add and subtract decimals, with and without digital technologies, and (use estimation and rounding to check the reasonableness of answers) (ACMNA128)	**Real numbers** • Round decimals to a specified number of decimal places (ACMNA156)	
		Estimation should be used for many calculations within this band of development		

Every chance to learn		Australian Curriculum		
17. The student chooses and uses measures		Statistics and probability Space and Geometry		
		Year 6	Year 7	Year 8
17.EA.1	metric measurement units and International System (SI) units and the relationships between units (e.g. length in metres, centimetres and millimetres; area in square metres and square centimetres; volume in cubic metres and cubic centimetres; capacity in litres and millilitres; and mass in kilograms and grams)	**Using units of measurement** • Connect decimal representations to the metric system (ACMMG135) • Convert between common metric units of length, mass and capacity (ACMMG136)		**Using units of measurement** • Choose appropriate units of measurement for area and volume and convert from one unit to another (ACMMG195)
17.EA.2	imperial and metric systems used in Australia and other countries (e.g. origins of the different systems and reasons for change of system in Australia)	Not addressed in Australian Curriculum, but is useful for proportion understanding and creating Global awareness		
17.EA.3	measurement error and ranges of values	Not addressed in Australian Curriculum		

	for given measurements relating to the context for measuring			
17.EA.4	formulas to calculate quantities that cannot be measured directly or to measure more efficiently, including making judgements about the reasonableness of results		**Using units of measurement** • Establish formulas for areas of rectangles, triangles and parallelograms and use these in problem solving (ACMMG159) • Calculate volumes of rectangular prisms (ACMMG160)	**Using units of measurement** • Find perimeters and areas of parallelograms, rhombuses and kites (ACMMG196) • Investigate the relationship between features of circles such as circumference, area, radius and diameter. Use formulas to solve problems involving circumference and area (ACMMG197) • Develop the formulas for volumes of rectangular and triangular prisms and prisms in general. Use formulas to solve problems involving volume (ACMMG198)
17.EA.5	the probability of events in familiar situations	**Chance** • Describe probabilities using fractions, decimals and percentages (ACMSP144)	**Chance** • Construct sample spaces for single-step experiments with equally likely outcomes (ACMSP167) • Assign probabilities to the outcomes of events and determine probabilities for events (ACMSP168)	**Chance** • Identify complementary events and use the sum of the probabilities to solve problems (ACMSP204)
17.EA.6	discrete and continuous data, and summary statistics to		**Data representation and interpretation**	**Data representation and interpretation**

	describe the distribution of data, including frequency, relative frequency, mean, median and mode		• Identify and investigate issues involving continuous or large count data collected from primary and secondary sources (ACMSP169) • Calculate mean, median and range for sets of data. Interpret these statistics in the context of data (ACMSP171) • Describe and interpret data displays and the relationship between the median and mean (ACMSP172)	• Explore the variations of mean and proportions in representative data (ACMSP293)
17.EA.7	ways in which statistics and probability are used in society (e.g. to inform decision-making, in medicine and in meteorology)	**Data representation and interpretation** • Interpret secondary data presented in digital media and elsewhere (ACMSP148)	**Data representation and interpretation** • Identify and investigate issues involving continuous or large count data collected from primary and secondary sources (ACMSP169)	**Data representation and interpretation** • Explore the practicalities and implications of obtaining representative data using a variety of investigative processes (ACMSP206)
17.EA.8	choose and use standard units to measure and compare the magnitudes of lengths, areas, volumes, masses, angles, times (including those on 24-hour clocks, schedules, timelines, time elapsed) and temperatures, as applicable to various	**Using units of measurement** • Solve problems involving the comparison of lengths and areas using appropriate units (ACMMG137) • Interpret and use timetables (ACMMG139)		**Using units of measurement** • Choose appropriate units of measurement for area and volume and convert from one unit to another (ACMMG195) • Solve problems involving duration, including using 12- and 24-hour time within a single time zone (ACMMG199)

	objects and events			
17.EA.9	select appropriate instruments and other technology when measuring, including those involving scales where not all of the graduations are numbered	Not addressed in Australian Curriculum however is considered an aspect of pedagogy for teaching measurement		
17.EA.10	estimate quantities with respect to common everyday measures within a given range	Not addressed in Australian Curriculum however is considered an aspect of pedagogy for teaching measurement		
17.EA.11	develop and use simple formulas to calculate perimeter, area, surface area and volume of common regular shapes from the relevant measured linear dimensions, and apply these to practical problems	**Using units of measurement** • Solve problems involving the comparison of lengths and areas using appropriate units (ACMMG137) • Connect volume and capacity and their units of measurement (ACMMG138)	**Using units of measurement** • Establish formulas for areas of rectangles, triangles and parallelograms and use these in problem solving (ACMMG159) • Calculate volumes of rectangular prisms (ACMMG160)	**Using units of measurement** • Find perimeters and areas of parallelograms, rhombuses and kites (ACMMG196) • Investigate the relationship between features of circles such as circumference, area, radius and diameter. Use formulas to solve problems involving circumference and area (ACMMG197) • Develop the formulas for volumes of rectangular and triangular prisms and prisms in general. Use formulas to solve problems involving volume (ACMMG198)

17.EA.12	calculate times that involve 12-hour and 24-hour time cycles, duration of events and schedules in practical situations, and take into account time zones	**Using units of measurement** • Interpret and use timetables (ACMMG139)		**Using units of measurement** • Solve problems involving duration, including 12- and 24-hour time within a single time zone (ACMMG199)
17.EA.13	make and interpret empirical estimates of probabilities related to familiar events with different likelihoods of occurrence, compare experimental data for simple chance events with theoretical probability expressed as percentages, fractions or decimals between zero and one, and distinguish events that are equally likely from those that are not	**Chance** • Describe probabilities using fractions, decimals and percentages (ACMSP144) • Conduct chance experiments with both small and large numbers of trials using appropriate digital technologies (ACMSP145) • Compare observed frequencies across experiments with predicted frequencies (ACMSP146)	**Chance** • Assign probabilities to the outcomes of events and determine probabilities for events (ACMSP168)	**Chance** • Identify complementary events and use the sum of the probabilities to solve problems (ACMSP204)
17.EA.14	identify data as discrete or continuous and use technology to create a variety of representations, including two-way tables, to summarise sample data obtained from a given	**Data representation and interpretation** • Interpret and compare a range of data displays, including segmented bar charts and side-by-side column graphs for two-categorical variables (ACMSP147)		**Data representation and interpretation** • Explore the practicalities and implications of obtaining representative data using a variety of investigative processes (ACMSP206)

	population			
17.EA.15	analyse and comment on data related to a particular situation, issue or topic of interest, identify and interpret variation in data, calculate and compare the range and measures of location (mean, median, mode), make informal inferences and note possible causes of bias	**Data representation and interpretation** • Interpret secondary data presented in digital media and elsewhere (ACMSP148)	**Data representation and interpretation** • Calculate mean, median, mode and range for sets of data. Interpret these statistics in the context of data (ACMSP171) • Describe and interpret data displays and the relationship between median and mean (ACMSP172)	**Data representation and interpretation** • Explore the practicalities and implications of obtaining representative data using a variety of investigative processes (ACMSP206) • Explore the variations of mean and proportions in representative data (ACMSP293) • Investigate the effect of individual data values, including outliers, on the mean and median (ACMSP207)

Every chance to learn		Australian Curriculum		
18. The student recognises and represents patterns and relationships		Number and algebra Space and Geometry		
		Year 6	Year 7	Year 8
18.EA.1	properties involving line, length, angle and surface of common 2D shapes (square, rectangle, triangle, parallelogram, trapezium, pentagon, hexagon, octagon, circle), 3D objects (prism, pyramid, sphere, cylinder) and part and composite shapes	**Geometric reasoning** • 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 (ACMMG141)	**Geometric reasoning** • Classify triangles according to their side and angle properties and describe quadrilaterals (ACMMG165) • Demonstrate that the angle sum of a triangle is 180^{o} and use this to find the angle sum of a quadrilateral (ACMMG166)	**Using units of measurement** • Choose appropriate units of measurement for area and volume and convert from one unit to another (ACMMG195) • Investigate the relationship between features of circles such as circumference, area, radius and diameter. Use formulas to solve problems involving circumference and area (ACMMG197) **Geometric reasoning** • Establish properties of quadrilaterals using congruent triangles and angle properties and solve related numerical problems using reasoning (ACMMG202)
18.EA.2	the congruence of shapes (e.g. where one shape can be superimposed on another through a sequence of	**Location and transformation** • Investigate combinations of translations, reflections and rotations, with and without the use of digital technologies		**Geometric reasoning** • Define congruence of plane shapes using transformations (ACMMG200) • Develop the conditions for

	transformations—reflections, rotations, translations) and the similarity of shapes (e.g. where one shape is an enlargement or reduction of another)	(ACMMG142)		congruence of triangles (ACMMG201)
18.EA.3	points, lines and planes of symmetry in shapes and objects and relationship of these to transformations and tessellations of suitable shapes in the plane (e.g. a spider web has a central point of rotation and symmetry by rotation through an angle of 72 degrees about this point)	**Location and transformation** • Investigate combinations of translations, reflections and rotations, with and without the use of digital technologies (ACMMG142)	**Location and transformation** • Describe translations, reflections in an axis, and rotations of multiples of 90° (on the Cartesian plane using coordinates). Identify line and rotational symmetries (ACMMG181)	
18.EA.4	the concept of variables in relationships		**Patterns and algebra** • Introduce the concept of variables as a way of representing numbers using letters (ACMNA175)	**Patterns and algebra** • Extend and apply the distributive law to the expansion of algebraic expressions (ACMNA190) • Factorise algebraic expressions by identifying numerical factors (ACMNA191) • Simplify algebraic expressions involving the four operations

				(ACMNA192)
18.EA.5	mathematical representations of relationships (e.g. expressions, formulas and equations)		**Patterns and algebra** • Create algebraic expressions and evaluate them by substituting a given value for each variable (ACMNA176) • Extend and apply the laws and properties of arithmetic to algebraic terms and expressions (ACMNA177) **Linear and non-linear relationships** • Given coordinates, plot points on the Cartesian plane and find coordinates for a given point (ACMNA178) • Solve simple linear equations (ACMNA179)	**Patterns and algebra** • Extend and apply the distributive law to the expansion of algebraic expressions (ACMNA190) • Factorise algebraic expressions by identifying numerical factors (ACMNA191) • Simplify algebraic expressions involving the four operations (ACMNA192)
18.EA.6	linear and other simple algebraic equations that involve the operations of addition, subtraction and multiplication		**Linear and non-linear relationships** • Given coordinates, plot points on the Cartesian plane and find coordinates for a given point (ACMNA178) • Solve simple linear equations (ACMNA179)	**Linear and non-linear relationships** • Plot linear relationships on the Cartesian plane with and without the use of digital technologies (ACMNA193) • Solve linear equations using algebraic and graphical techniques. Verify solutions by substitution (ACMNA194)
18.EA.7	symbols used to represent variables and operations in algebraic		**Patterns and algebra** • Create algebraic expressions and evaluate them by	**Patterns and algebra** • Extend and apply the distributive law to the

	expressions and formulas		substituting a given value for each variable (ACMNA176) • Extend and apply the laws and properties of arithmetic to algebraic terms and expressions (ACMNA177) **Linear and non-linear relationships** • Solve simple linear equations (ACMNA179)	expansion of algebraic expressions (ACMNA190) • Factorise algebraic expressions by identifying numerical factors (ACMNA191) • Simplify algebraic expressions involving the four operations (ACMNA192)
18.EA.8	functions defined by simple rules, using whole number values as inputs		**Patterns and algebra** • Introduce the concept of variables as a way of representing numbers using letters (ACMNA175) • Create algebraic expressions and evaluate them by substituting a given value for each variable (ACMNA176) • Extend and apply the laws and properties of arithmetic to algebraic terms and expressions (ACMNA177)	**Linear and non-linear relationships** • Plot linear relationships on the Cartesian plane with and without the use of digital technologies (ACMNA193) • Solve linear equations using algebraic and graphical techniques. Verify solutions by substitution (ACMNA194)
18.EA.9	purposes and conventions of different representations (e.g. grids and simple coordinate systems, maps, plans, diagrams, graphs, models, flow charts, networks and	**Location and transformation** • Introduce the Cartesian coordinate system using all four quadrants (ACMMG143)	**Linear and non-linear relationships** • Given coordinates, plot points on the Cartesian plane and find coordinates for a given point (ACMNA178) • Investigate, interpret and analyse graphs from authentic data (ACMNA180)	**Linear and non-linear relationships** • Plot linear relationships on the Cartesian plane with and without the use of digital technologies (ACMNA193) • Solve linear equations using algebraic and graphical techniques. Verify solutions by

	timelines)			substitution (ACMNA194)
18.EA.10	major and intermediate compass points, the corresponding degrees of turn, and straightforward scales, distance and annotations (e.g. arrows) used in maps and plans to specify location	Not specifically addressed in Australian Curriculum		
18.EA.11	mathematical and scientific symbols and conventions used in diagrams, tables and graphs representing concepts and relationships			**Linear and non-linear relationships** • Plot linear relationships on the Cartesian plane with and without the use of digital technologies (ACMNA193) • Solve linear equations using algebraic and graphical techniques. Verify solutions by substitution (ACMNA194)
18.EA.12	the evolution of representations in mathematics over time and common variations in their use	Not addressed in Australian Curriculum		
18.EA.13	analyse a range of patterns, generalise and apply rules, predict elements or create new variations of patterns	**Patterns and algebra** • Continue and create sequences involving whole numbers, fractions and decimals. Describe the rule used to generate the sequence	**Patterns and algebra** • Introduce the concept of variables as a way of representing numbers using letters (ACMNA175)	

		(ACMNA133)	• Create algebraic expressions and evaluate them by substituting a given value for each variable (ACMNA176) • Extend and apply the laws and properties of arithmetic to algebraic terms and expressions (ACMNA177)	
18.EA.14	sketch representations of common 2D shapes and 3D objects from different viewpoints, with attention to their geometric properties		**Shape** • Draw different views of prisms and solids formed from combinations of prisms (ACMMG161)	
18.EA.15	construct accurate representations of 2D shapes according to specification (e.g. using drawing instruments and software) and 3D objects from plans, nets and isometric diagrams	**Shape** • Construct simple prisms and pyramids (ACMMG140)		
18.EA.16	solve problems requiring knowledge of geometric properties and transformations of common 2D shapes and 3D objects	**Location and transformation** • Investigate combinations of translations, reflections and rotations, with and without the use of digital technologies (ACMMG142)	**Location and transformation** • Describe translations, reflections in an axis and rotations of multiples of 90^{o} (on the Cartesian plane using coordinates). Identify line and rotational symmetries (ACMMG181)	**Geometric reasoning** • Define congruence of plane shapes using transformations (ACMMG200) • Establish properties of quadrilaterals using congruent triangles and angle properties and solve related numerical problems using reasoning

				(ACMMG202)
18.EA.17	read, interpret and use representations of practical situations (e.g. simple formulas), describe them using suitable materials and diagrams and evaluate expressions for whole number and simple fraction values		**Patterns and algebra** • Create algebraic expressions and evaluate them by substituting a given value for each variable (ACMNA176) • Extend and apply the laws and properties of arithmetic to algebraic terms and expressions (ACMNA177) **Linear and non-linear relationships** • Solve simple linear equations (ACMNA179)	
18.EA.18	use a variety of approaches, including words, diagrams, materials and symbols, to represent variables and to represent, manipulate and rearrange simple algebraic expressions that involve the operations of addition, subtraction, multiplication and division; establish equivalences and determine when they are satisfied or not for a given set of	Not specifically addressed in Australian Curriculum, however does feature in elaborations		

	values			
18.EA.19	solve linear and other simple algebraic equations using a variety of approaches and explain their reasoning (e.g. using materials, flow charts, tables, graphs, inverse operations and algebra)		**Patterns and algebra** • Extend and apply the laws and properties of arithmetic to algebraic terms and expressions (ACMNA177) **Linear and non-linear relationships** • Solve simple linear equations (ACMNA179)	**Linear and non-linear relationships** • Plot linear relationships on the Cartesian plane with and without the use of digital technologies (ACMNA193) • Solve linear equations using algebraic and graphical techniques. Verify solutions by substitution (ACMNA194)
18.EA.20	construct tables of values for functions defined by simple rules, using whole number values as inputs and plotting the corresponding set of ordered pairs (e.g. using ICT), and interpret simple functions, the set of input values used and the set of output values obtained in context		**Linear and non-linear relationships** • Given coordinates, plot points on the Cartesian plane and find coordinates for a given point (ACMNA178)	**Linear and non-linear relationships** • Plot linear relationships on the Cartesian plane with and without the use of digital technologies (ACMNA193) • Solve linear equations using algebraic and graphical techniques. Verify solutions by substitution (ACMNA194)
18.EA.21	interpret, make and use a range of representations (e.g. words, mathematical symbols and conventions, diagrams, tables,		**Linear and non-linear relationships** • Given coordinates, plot points on the Cartesian plane and find coordinates for a given point (ACMNA178)	**Linear and non-linear relationships** • Solve linear equations using algebraic and graphical techniques. Verify solutions by substitution (ACMNA194)

	graphs, maps, plans, models, flow charts, networks, timelines) to develop suitable representations of concepts and relationships, including the use of ICT (e.g. choose and create graphs to represent data entered on a spreadsheet)		• Investigate, interpret and analyse graphs from authentic data (ACMNA180)	
18.EA.22	provide and follow instructions for moving from one location to another based on maps or plans and use the scale to estimate or calculate distances between locations	Not addressed at this year level in Australian Curriculum – features in year 5 content		

Australian curriculum content not previously required at this band of development in *Every chance to learn*:

Year 6

None

Year 7

- Identify corresponding, alternate and co-interior angles when two parallel straight lines are crossed by a transversal (addressed in Later Adolescent band of development in ECTL 18.LA.2) (ACMMG163)
- Investigate conditions for two lines to be parallel and solve simple numerical problems, using reasoning (addressed in Later Adolescent band of development in ECTL 18.LA.2) (ACMMG164)
- Investigate and use square roots of perfect squares (ACMNA150)
- Solve problems involving addition and subtraction of fractions (including those with unrelated denominators) (ACMNA153)

- Construct and compare a range of data displays including stem and leaf plots and dot plots (more specific than in Every chance to learn) (ACMSP170)
- Demonstrate that the angle sum of a triangle is 180^{o} and use this to find the angle sum of a quadrilateral (has a link with 18.LA.2 as well) (ACMMG166)

Year 8

- Use index notation with numbers to establish the index laws with positive integral indices and the zero index (ACMNA182)
- Investigate the concept of irrational numbers, including π (ACMNA186)
- Describe events using language of “at least”, exclusive “or” (A or B but not both), inclusive “or” (A or B or both) and “and” (ACMSP205)
- Represent such events in two-way tables and Venn diagrams and solve related problems (both refer to statistical literacy and are more specific than in ECTL) (ACMSP292)

Mathematics – Later Adolescence

Every chance to learn		Australian Curriculum		
16. The student understands and applies number		Number and algebra		
		Year 9	Year 10	Year 10A
16.LA.1	the real number system, including integers, rational and irrational numbers	Forms a part of any number work, however is not specifically addressed in this year level in Australian Curriculum		
16.LA.2	different representations of numbers, including prime factors and scientific notation for very large or very small numbers	**Using units of measurement** • Investigate very small and large timescales and intervals (ACMMG219) **Real numbers** • Express numbers in scientific notation (ACMNA210)		
16.LA.3	irrational numbers arising in space and measurement problems	Would be addressed in trigonometry and other problems which are addressed in Australian Curriculum		
16.LA.4	simple powers and square roots	**Real numbers** • Apply index laws to numerical expressions with integer indices (ACMNA209) **Patterns and algebra** • Extend and apply the index laws to variables, using positive		

		integral indices and the zero index (ACMNA212)	
16.LA.5	the dynamic nature of mathematical knowledge developed across cultures, throughout history and continuing today	Not addressed in Australian Curriculum	
16.LA.6	formulate and solve problems involving fractions, decimals, ratio, proportion, percentage and rate, using understandings of rational numbers in different forms	**Geometric reasoning** • Solve problems using ratio and scale factors in similar figures (ACMMG221) **Real numbers** • Solve problems involving direct proportion. Explore the relationship between the graphs and equations corresponding to simple rate problems (ACMNA208) **Money and financial mathematics** • Solve problems involving simple interest (ACMNA211)	**Money and financial mathematics** • Connect the compound interest formula to repeated applications of simple interest using appropriate digital technologies (ACMNA229)
16.LA.7	recognise and use the most suitable equivalent form when comparing and ordering rational numbers	Not addressed in Australian Curriculum	
16.LA.8	locate integers, rational numbers and	Not addressed in Australian Curriculum	

	decimal approximations to some irrational numbers on the real number line		
16.LA.9	apply a range of number facts, properties and strategies to carry out computations involving integers and rational numbers for the four arithmetic operations	Not addressed in Australian Curriculum	
16.LA.10	apply the relevant operations, with attention to the meaning and order of the operations involved, in practical and theoretical situations	Not addressed in Australian Curriculum	
16.LA.11	interpret irrational numbers arising in space and measurement contexts geometrically and calculate with these numbers using decimal approximations	Would be addressed in trigonometry and other problems which are addressed in Australian Curriculum	
16.LA.12	use a range of strategies to form	Would be addressed in trigonometry and other problems which are addressed in Australian Curriculum	

	estimates for computations involving rational and some irrational numbers, and form upper and lower bounds for estimates		
16.LA.13	interpret calculator displays sensibly within the context of the calculation (e.g. rounding to an appropriate number of decimal places)	Would be addressed in trigonometry and other problems which are addressed in Australian Curriculum	

Every chance to learn		Australian Curriculum		
17. The student chooses and uses measures		Statistics and probability Space and geometry		
		Year 9	Year 10	Year 10A
17.LA.1	measurement error, including recording measurements as values that lie within a given interval of measurement error, judgements about acceptable or reasonable error in a measurement context, strategies to minimise error and estimation of error rates to provide confidence in measurement results, and risks of compounding error by repetition and calculation	Not addressed in Australian Curriculum		
17.LA.2	the history of the metric system and changing definitions of International System (SI) base units	Not addressed in Australian Curriculum		

17.LA.3	rates as comparisons of one attribute to another (e.g. speed as relating distance and time, population density as relating number of people and area)	**Real numbers** • Solve problems involving direct proportion. Explore the relationship between the graphs and equations corresponding to simple rate problems (ACMNA208)	**Data representation and interpretation** • Investigate and describe bivariate numerical data where the independent variable is time (ACMSP252)
17.LA.4	probability involving equally likely events and the use of random or nearly random event generators, including technology	Not addressed in Australian Curriculum	
17.LA.5	statistical measures of frequency, spread and centre (location) as ways to analyse and compare data, how bias can arise in data and the effect of outliers on the measures of location	**Chance** • Investigate reports of surveys in digital media and elsewhere for information on how data were obtained to estimate population means and medians (ACMSP227) **Data representation and interpretation** • Compare data displays using mean, median and range to describe and interpret numerical data sets in terms of location (centre) and spread (ACMSP283)	**Data representation and interpretation** • Determine quartiles and interquartile range (ACMSP248)
17.LA.6	choose and use instruments, technologies,	**Pythagoras and trigonometry** • Apply trigonometry to solve right-angled triangle problems	**Pythagoras and trigonometry** • Solve right-angled triangle problems including those

	strategies and formulas to estimate, measure and calculate measures of attributes, including mass, duration, temperature, angle and simple derived measures such as rates	(ACMMG224) **Using units of measurement** • Calculate the area of composite shapes (ACMMG216) • Calculate the surface area and volume of cylinders and solve related problems (ACMMG217)	involving direction and angles of elevation and depression (ACMMG245) **Data representation and interpretation** • Investigate and describe bivariate numerical data where the independent variable is time (ACMSP252)	
17.LA.7	work routinely with International System (SI) and other units with respect to both everyday and technical measurement contexts, including derived measures, choose units appropriate to the order of magnitude involved and estimate values that lie between marked graduations on scales of measuring instruments	Would be addressed in most measurement problems		
17.LA.8	recognise equivalent forms of the same measure, making conversions as required, and apply Pythagoras' theorem, scale and rates in	**Geometric reasoning** • Solve problems using ratio and scale factors in similar figures (ACMMG221) **Pythagoras and trigonometry** • Investigate Pythagoras'		

	appropriate situations to work out measures	Theorem and its application to solving simple problems involving right angled triangles (ACMMG222)		
17.LA.9	use a variety of sources, including samples and surveys, published data, databases, experiments and simulations, to estimate probabilities associated with events and assign or estimate probabilities based on personal experiences	**Chance** • Calculate relative frequencies from given or collected data to estimate probabilities of events involving 'and' or 'or' (ACMSP226)		
17.LA.10	specify sample (event) spaces for single and straightforward compound events using a variety of suitable representations, and determine corresponding probabilities using counting, measure and symmetry	**Chance** • 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 (ACMSP225)	**Chance** • 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 (ACMSP246)	
17.LA.11	choose and use a variety of suitable representations and descriptive statistics to summarise data	**Data representation and interpretation** • Investigate techniques for collecting data, including census, sampling and	**Data representation and interpretation** • Use scatter plots to investigate and comment on relationships between two continuous	

	(using technology for larger data sets) and interpret discrete and continuous data obtained by random sample from a population	observation (ACMSP284)	variables (ACMSP251)	
17.LA.12	use proportions, simple measures of spread and centre (mean, median, mode), and consideration of the distribution of data to make informal inferences in response to their own and others' questions and hypotheses	**Chance** • Investigate reports of surveys in digital media and elsewhere for information on how data were obtained to estimate population means and medians (ACMSP227) **Data representation and interpretation** • Identify everyday questions and issues involving at least one numerical and at least one categorical variable and collect data directly from secondary sources (ACMSP228)	**Data representation and interpretation** • Determine quartiles and interquartile range (ACMSP248)	

Every chance to learn		Australian Curriculum		
18. The student recognises and represents patterns and relationships		Number and algebra Space and geometry		
		Year 9	Year 10	Year 10A
18.LA.1	a broad range of 2D shapes (e.g. quadrilaterals, polygons, ellipses), composite shapes and 3D objects, including those with curved surfaces (e.g. cylinders, cones, packages and containers), with respect to properties involving line, length, angle and surface	**Using units of measurement** • Solve problems involving the surface area and volume of right prisms (ACMMG218) • Calculate the area of composite shapes (ACMMG216) • Calculate the surface area and volume of cylinders and solve related problems (ACMMG217)	**Using units of measurement** • Solve problems involving surface area and volume for a range of prisms, cylinders and composite solids (ACMMG242)	
18.LA.2	geometric properties of shapes and objects (e.g. when two straight lines intersect, opposite angles are equal) and simple geometric proofs, including those related to angle properties associated with parallel, perpendicular and transversal lines and	**Pythagoras and trigonometry** • Investigate Pythagoras' Theorem and its application to solving simple problems involving right angled triangles (ACMMG222)	**Geometric reasoning** • Formulate proofs involving congruent triangles and angle properties (ACMMG243) • Apply logical reasoning, including the use of congruence and similarity, to proofs and numerical exercises involving plane shapes (ACMMG244) **Linear and non-linear**	

	polygons (e.g. sum of angles of a triangle is 180 degrees, Pythagoras' theorem)		**relationships** • Solve problems involving parallel and perpendicular lines (ACMNA238)
18.LA.3	the relationship of symmetry to transformations and tessellations of regular shapes and composite shapes, in the plane and on surfaces	Not addressed at this year level in Australian Curriculum	
18.LA.4	algebraic expressions, relations and functions, including linear functions, involving arithmetic and other mathematical operations	**Real numbers** • Solve problems involving direct proportion. Explore the relationship between the graphs and equations corresponding to simple rate problems (ACMNA208) **Patterns and algebra** • Extend and apply the index laws to variables, using positive integral indices and the zero index (ACMNA212) • Apply the distributive law to the expansion of algebraic expressions, including binomials, and collect like terms where appropriate (ACMNA213)	**Patterns and algebra** • Factorise algebraic expressions by taking out a common algebraic factor (ACMNA230) • Simplify algebraic products and quotients using index laws (ACMNA231) • Apply the four operations to simple algebraic fractions with numerical denominators (ACMNA232) **Linear and non-linear relationships** • Solve problems involving linear equations, including those derived from formulas (ACMNA235) • Solve linear equations involving simple algebraic fractions (ACMNA240)

18.LA.5	tables of values and graphs of linear and simple non-linear functions using integer, decimal and fraction values of variables	**Real numbers** • Solve problems involving direct proportion. Explore the relationship between the graphs and equations corresponding to simple rate problems (ACMNA208) **Patterns and algebra** • Extend and apply the index laws to variables, using positive integral indices and the zero index (ACMNA212) **Linear and non-linear relationships** • Sketch linear graphs using the coordinates of two points (ACMNA215) • Sketch simple non-linear relations with and without the use of digital technologies (ACMNA296)	**Linear and non-linear relationships** • Solve linear equations involving simple algebraic fractions (ACMNA240) • Solve simple quadratic equations using a range of strategies (ACMNA241)	
18.LA.6	simultaneous linear equations and non-linear equations	**Patterns and algebra** • Apply the distributive law to the expansion of algebraic expressions, including binomials, and collect like terms where appropriate (ACMNA213)	**Linear and non-linear relationships** • Solve linear simultaneous equations, using algebraic and graphical techniques including using graphing software (ACMNA237)	
18.LA.7	purposes, features and conventions of a range of representations (e.g.		**Data representation and interpretation** • Use scatter plots to investigate and comment on relationships	

	maps, plans, diagrams, graphs, models, flow charts, networks and timelines), including representations used to depict relationships and change in complex systems		between two continuous variables (ACMSP251)	
18.LA.8	mapping conventions (e.g. grids, coordinate systems, bearings, scale, distance, angle, keys, references and annotations)	Not addressed at this year level in Australian Curriculum		
18.LA.9	explore pattern and structure (e.g. using ICT) and develop generalisations for further consideration	Not addressed in Australian Curriculum		
18.LA.10	draw by hand representations of common 2D shapes and 3D objects (and their cross-sections), with attention to their geometric properties and scale	**Geometric reasoning** • Use the enlargement transformation to explain similarity and develop the conditions for triangles to be similar (ACMMG220)		
18.LA.11	construct accurate representations of 2D shapes and 3D objects according to	Not addressed at this year level in Australian Curriculum		

	specification using drawing instruments and software (e.g. 2D shapes with specified boundary, angle and scale; front, side and top plan views; and cross-sections of shapes)		
18.LA.12	construct 3D objects from plans, cross-sections, nets and diagrams (e.g. stitching pattern for a soccer ball)	Not addressed at this year level in Australian Curriculum	
18.LA.13	solve problems using geometric knowledge of 2D shapes and 3D objects and analysis of geometric properties of shapes and patterns involving congruence, similarity and sequences of transformations	**Geometric reasoning** • Use the enlargement transformation to explain similarity and develop the conditions for triangles to be similar (ACMMG220)	**Geometric reasoning** • Formulate proofs involving congruent triangles and angle properties (ACMMG243) • Apply logical reasoning, including the use of congruence and similarity, to proofs and numerical exercises involving plane shapes (ACMMG244)
18.LA.14	use words and symbols to represent variables and constants when writing expressions for algebraic relations and functions, including linear	Not addressed specifically in Australian Curriculum	

	functions involving arithmetic and other mathematical operations		
18.LA.15	evaluate expressions for algebraic relations and functions, including simple inequalities, using integer, decimal and fraction values of variables		**Patterns and algebra** • Substitute values into formulas to determine an unknown (ACMNA234) **Linear and non-linear relationships** • Solve linear inequalities and graph their solutions on a number line (ACMNA236)
18.LA.16	model and interpret the expressions and relationships in context and use known relationships (e.g. formulas) to develop new relationships	Not addressed specifically in Australian Curriculum	
18.LA.17	draw graphs of simple non-linear functions, interpret and apply variables and functions in context and make related predictions	**Linear and non-linear relationships** • Sketch simple non-linear relations with and without the use of digital technologies (ACMNA296)	**Linear and non-linear relationships** • Solve simple quadratic equations using a range of strategies (ACMNA241)
18.LA.18	select and apply inverse, associative, commutative and distributive properties to manipulate and	**Patterns and algebra** • Extend and apply the index laws to variables, using positive integral indices and the zero	**Patterns and algebra** • Factorise algebraic expressions by taking out a common algebraic factor (ACMNA230)

	rearrange algebraic expressions that involve the four arithmetic operations, reciprocals, whole number powers and square roots	index (ACMNA212) • Apply the distributive law to the expansion of algebraic expressions, including binomials, and collect like terms where appropriate (ACMNA213)	• Simplify algebraic products and quotients using index laws (ACMNA231) • Apply the four operations to simple algebraic fractions with numerical denominators (ACMNA232) • Expand binomial products and factorise monic quadratic expressions using a variety of strategies (ACMNA233)	
18.LA.19	use a variety of approaches (e.g. concrete materials, ICT, algebra, diagrams, flowcharts and backtracking) to identify and establish equivalences between linear expressions and between simple non-linear expressions		**Linear and non-linear relationships** • Solve linear simultaneous equations, using algebraic and graphical techniques including using graphing software (ACMNA237)	
18.LA.20	determine when equations and inequalities are satisfied or not for a given set of values and construct and solve linear equations, including simple simultaneous linear equations and some non-linear equations, using	**Linear and non-linear relationships** • Sketch linear graphs using the coordinates of two points (ACMNA215) • Sketch simple non-linear relations with and without the use of digital technologies (ACMNA296)	**Linear and non-linear relationships** • Solve linear inequalities and graph their solutions on a number line (ACMNA236) • Solve linear simultaneous equations, using algebraic and graphical techniques including using graphing software (ACMNA237) • Solve simple quadratic	

	tables, graphs, algebra and ICT		equations using a range of strategies (ACMNA241)	
18.LA.21	draw graphs for families of linear and some simple non-linear functions generated by changing constants used to define the rule of the function, and use ICT to explore and describe the effects of varying these constants and to interpret the shape of a graph and its key features in context	**Linear and non-linear relationships** • Sketch simple non-linear relations with and without the use of digital technologies (ACMNA296)	**Linear and non-linear relationships** • Explore the connection between algebraic and graphical representations of relations such as simple quadratics, circles and exponentials using graphing software as appropriate (ACMNA239) • Solve simple quadratic equations using a range of strategies (ACMNA241) Note: Other aspects of this ELA are not addressed specifically in Australian Curriculum	
18.LA.22	interpret, create and use a range of representations and evaluate their effectiveness for different purposes and contexts (e.g. a schematic diagram to construct an object or system, a draw for a knockout competition)	Not addressed specifically in Australian Curriculum		
18.LA.23	choose and use appropriate mathematical symbols and	**Patterns and algebra** • Extend and apply the index laws to variables, using positive	**Data representation and interpretation** • Use scatter plots to investigate	

	notations, diagrams, tables, graphs, variables, relations and equations to represent concepts and relationships, to apply skills and processes and to clarify, modify and refine statements	integral indices and the zero index (ACMNA212)	and comment on relationships between two continuous variables (ACMSP251)	
18.LA.24	use grids, coordinate systems, bearings, scale, distance, angle and various keys, references and annotations to interpret and construct maps, diagrams and plans (e.g. bushwalking, orienteering)	Not addressed at this year level in Australian Curriculum		
18.LA.25	interpret, construct and use maps, diagrams and plans to specify location, represent relationships spatially and move from one location to another (e.g. plan a holiday itinerary)	Not addressed at this year level in Australian Curriculum		

Year 9

Calculate the areas of composite shapes (also features in Early Adolescent band of development) (ACMMG216)

Find the distance between two points located on a Cartesian plane using a range of strategies, including graphing software (ACMNA214) (more specific than ECTL)

Find the midpoint and gradient of a line segment (interval) on the Cartesian plane using a range of strategies, including graphing software (ACMNA214) (more specific than ECTL)

Use similarity to investigate the constancy of the sine, cosine and tangent ratios for a given angle in right-angled triangles (ACMMG223)

Construct back-to-back stem-and-leaf plots and histograms and describe data, using terms including ‘skewed’, ‘symmetric’ and ‘bi modal’ (ACMSP282) (more specific than ECTL)

Year 10

Connect the compound interest formula to repeated applications of simple interest using appropriate digital technologies (also addressed in ELA 24 The student understands money and finance) (ACMNA229)

Expand binomial products and factorise monic quadratic expressions using a variety of strategies (more descriptive than in ECTL) (ACMNA233)

Use the language of ‘if…then’, ‘given’, ‘of’, ‘knowing that’ to investigate conditional statements and identify common mistakes in interpreting such language (statistical literacy has not been previously addressed in ECTL) (ACMSP247)

Construct and interpret box plots and use them to compare data sets (more specific than in ECTL) (ACMSP249)

Compare shapes of box plots to corresponding histograms and dotplots (as above) (ACMSP250)

Evaluate statistical reports in the media and other places by linking claims to displays, statistics and representative data (statistical literacy) (ACMSP253)

Year 10A

Almost all of the content in Year 10A is of a higher standard than that of *Every chance to learn* as it is considered extension for more capable students.