Mapping Australian Curriculum (AC) Mathematics and VELS Mathematics

In the following document, the left hand column shows AC content that matches VELS content at the corresponding levels.
Teaching programs based on the VELS content and structure will generally be consistent with AC Mathematics.

The right hand column shows:
- where the same content is covered but at different levels
- content that is included in the VELS only or the AC only
- differences in emphasis, scope and treatment

Australian Curriculum (AC) Foundation (F) – Year 2	Comments on differences in content/emphasis/sequence with respect to the VELS Mathematics Levels 1 and 2
Foundation Year: Number and Algebra ***Number and place value*** • *Establish understanding of the language and processes of counting by naming numbers in sequences, initially to and from 20, moving from any starting point (ACMNA001)** • *Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond (ACMNA002)** • *Subitise small collections of objects (ACMNA003)** • *Compare, order and make correspondences between collections, initially to 20, and explain reasoning (ACMNA289)** • *Represent practical situations to model addition and sharing (ACMNA004)** ***Patterns and algebra*** • *Sort and classify familiar objects and explain the basis for these classifications. Copy, continue and create patterns with objects and drawings (ACMNA005)**	In the AC the terms collection or collections are used, in the VELS the terms set or sets are used. Both expressions can and should be used interchangeably, including related terminology such as 'member' and 'element'. In Foundation Year of the AC students *order* elements in sets (collections and events). In this context, teachers can continue to introduce the names of *ordinal* numbers, *first* to *tenth* as included in the VELS Level 1.

* Please note this is a reference to the Australian Curriculum Mathematics (ACM) and the relevant strand - Number Algebra (ACMNA) / Measure Geometry (ACMMG) / Statistics Probability (ACMSP)

Foundation Year: Measurement and Geometry *Shape* • *Sort, describe and name familiar two-dimensional shapes and three dimensional objects in the environment (ACMMGOO9)** *Location and transformation* • *Describe position and movement (ACMMGOO10)**	Teachers can continue activities where students carry out various visual and spatial actions such as *copy* and *draw*, *place* and *move* as included in the VELS Level 1.
Using units of measurement • *Use direct and indirect comparisons to decide which is longer, heavier or holds more, and explain reasoning in everyday language (ACMMG006)** • *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)**	Teachers can continue activities where students measure using informal units such as paces for lengths, handprints for area, claps or heartbeats for the passage of time and the like as included in the VELS Level 1.
Foundation Year: Statistics and Probability *Data representation and interpretation* • *Answer yes/no questions to collect information (ACMSP011)**	Students recognise and respond to unpredictability and variability in events in Year 1 of the VELS which is included at Year 3 in the AC.
The proficiency strands: Understanding, Fluency, Problem Solving and Reasoning are an integral part of mathematics content across the three content strands: Number and Algebra, Measurement and Geometry, and Statistics and Probability. *The proficiencies reinforce the significance of working mathematically within the content and describe how the content is explored or developed. They provide the language to build in the developmental*	The *Working mathematically* dimension of the VELS can be used to highlight the application of the proficiencies in the strands and sub-strands of the AC across the corresponding year levels. For example, in Foundation Year of the AC this could include: • Use of diagrams and materials to investigate mathematical and real life

* Please note this is a reference to the Australian Curriculum Mathematics (ACM) and the relevant strand - Number Algebra (ACMNA) / Measure Geometry (ACMMG) / Statistics Probability (ACMSP)

aspects of the learning of mathematics.

At this year level:

Understanding *includes connecting names, numerals and quantities.*
Fluency *includes counting numbers in sequences readily, continuing patterns, and comparing the lengths of objects directly.*

Problem Solving *includes using materials to model authentic problems, sorting objects, using familiar counting sequences to solve unfamiliar problems, and discussing the reasonableness of the answer.*

Reasoning *includes explaining comparisons of quantities, creating patterns, and explaining processes for indirect comparison of length.*

situations such as exploration of patterns in number and space by manipulating objects according to simple rules (for example, turning letters to make patterns like bqbqbq, or flipping to make bdbdbdbd)

- Testing simple conjectures such as 'nine is four more than five'

- Making rough estimates and check their work with respect to computations and constructions in number, space, and measurement, chance and data.

- Devising and following ways of recording computations using the digit keys and +, − and = keys on a four function calculator

- Use of drawing tools such as simple shape templates and geometry software to draw points, lines, shapes and simple patterns, including copying a picture of a simple composite shape such as a child's sketch of a house.

* Please note this is a reference to the Australian Curriculum Mathematics (ACM) and the relevant strand - Number Algebra (ACMNA) / Measure Geometry (ACMMG) / Statistics Probability (ACMSP)

3

Year 1: Number and algebra

Number and place value
- *Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens, starting from zero (ACMNA012)**
- *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)**
- *Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts (ACMNA015)**

Fractions and decimals
- *Recognise and describe one-half as one of two equal parts of a whole (ACMNA016)**

Money and financial mathematics
- *Recognise, describe and order Australian coins according to their value(ACMNA017)**

Patterns and algebra
- *Investigate and describe number patterns formed by skip counting and patterns with objects (ACMNA018)**

Skip counting in the AC makes specific reference to particular forms and then extend beyond these. In the VELS *Working mathematically* dimension there is also reference to the *constant addition function of a calculator* to assist in developing such *sequences*. In this context, technology can be used to assist students in developing the *proficiencies.*

The AC introduces the number-line model at *Year 1.* This requires student to be able to recognise *equal spacing* of objects, which is included in AC Year 1 Measurement and Geometry *Using units of measurement*.

The AC includes eighths (Year 2) and the VELS includes thirds. It should be noted that the names of the first four unit fractions are distinct from the name of the number they correspond to:

two   three   four   five   six   seven   eight ...

one- Half   one-third   one-quarter one- fif*th*   one-six*th*   one- seven*th*   one-eigh*th* ...

---

* Please note this is a reference to the Australian Curriculum Mathematics (ACM) and the relevant strand - Number Algebra (ACMNA) / Measure Geometry (ACMMG) / Statistics Probability (ACMSP)

4

Year 2: Number and algebra	
Number and place value	
• *Investigate number sequences, initially those increasing and decreasing by twos, threes, fives and 10s from any starting point, then moving to other sequences (ACMNA026)**	
• *Recognise, model, represent and order numbers to at least 1000 (ACMNA027)**	The ability to partition (group and re-arrange) a set into subsets is explicit in the VELS.
• *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)**	
• *Recognise and represent multiplication as repeated addition, groups and arrays (ACMNA031)**	Note the representation of division as partitioning a set into subsets of equal size.
• *Recognise and represent division as grouping into equal sets and solve simple problems using these representations (ACMNA032)**	
Fractions and decimals	
• *Recognise and interpret common uses of halves, quarters and **eighths o**f shapes and collections (ACMNA033)**	
Money and financial mathematics	The VELS includes students doing simple money calculations. This is included in Year 3 of the AC.
• ***Count and order** small collections of Australian coins and notes according to their value (ACMNA034)**	
Patterns and algebra	
• *Describe patterns with numbers and identify missing elements (ACMNA035)**	
• *Solve problems by using number sentences for addition or subtraction (ACMNA036)**	

* Please note this is a reference to the Australian Curriculum Mathematics (ACM) and the relevant strand - Number Algebra (ACMNA) / Measure Geometry (ACMMG) / Statistics Probability (ACMSP)

Year 1: Measurement and Geometry

Shape
- *Recognise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features (ACMMG022)**

Location and transformation
- *Give and follow directions to familiar locations (ACMMG023)**

Year 2: Measurement and Geometry

Shape
- *Describe and draw two-dimensional shapes, with and without digital technologies (ACMMGO42)**
- *Describe the features of three-dimensional objects (ACMMGO43)**

Location and transformation
- *Interpret simple maps of familiar locations and identify the relative positions of key features (ACMMGO44)**
- *Investigate the effect of one-step slides and flips, with and without digital technologies (ACMMGO45)**
- *Identify and describe half and quarter turns (ACMMGO46)**

Symmetry is introduced at Year 3 of the AC and in Level 2 in the VELS. The VELS also introduce simple networks, and continues this topic throughout the space dimension to Level 6 of the VELS. *Networks* are not included in the AC.

The VELS includes simple enlargements as transformations of a shape at Level 1, this is included in Year 5 of the AC.

* Please note this is a reference to the Australian Curriculum Mathematics (ACM) and the relevant strand - Number Algebra (ACMNA) / Measure Geometry (ACMMG) / Statistics Probability (ACMSP)

6

Year 1: Measurement and Geometry ***Using units of measurement*** • Measure and compare the lengths and capacities of pairs of objects using uniform informal units (ACMNG019)* • Tell time to the half-hour(ACMNG020)* • Describe duration using months, weeks, days and hours (ACMNG021)* **Year 2: Measurement and Geometry** ***Using units of measurement*** • Compare and order several shapes and objects based on length, area, volume and capacity using appropriate uniform informal units (ACMMGO37)* • Compare masses of objects using balance scales (ACMMGO38)* • Tell time to the quarter-hour, using the language of 'past' and 'to' (ACMMGO39)* • Name and order months and seasons (ACMMGO40)* • Use a calendar to identify the date and determine the number of days in each month(ACMMGO41)*	The AC introduces measure of temperature earlier than in the VELS at Year 4. The VELS introduces qualitative description of temperature at Level 2, and includes measure of temperature at Level 4.

* Please note this is a reference to the Australian Curriculum Mathematics (ACM) and the relevant strand - Number Algebra (ACMNA) / Measure Geometry (ACMMG) / Statistics Probability (ACMSP)

Year 1: Statistics and probability *Chance* • *Identify outcomes of familiar events involving chance and describe them using everyday language such as 'will happen', 'won't happen' or 'might happen' (ACMSP024)** *Data representation and interpretation* • *Choose simple questions and gather responses (ACMSP0262)** • *Represent data with objects and drawings where one object or drawing represents one data value. Describe the displays (ACMSP0263)** **Year 2: Statistics and probability** *Chance* • *Identify practical activities and everyday events that involve chance. Describe outcomes as 'likely' or 'unlikely' and identify some events as 'certain' or 'impossible' (ACMSP047)** *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)** • *Create displays of data using lists, table and picture graphs and interpret them (ACMSP050)**	At Year 2 the AC includes students interpreting as well as creating data displays. The use of simple bar graphs is included in Year 3 of the AC and Level 2 of the VELS.

The proficiency strands: Understanding, Fluency, Problem Solving and Reasoning are an integral part of mathematics content across the three content strands: Number and Algebra, Measurement and Geometry, and Statistics and Probability.

The proficiencies reinforce the significance of working mathematically within the content and describe how the content is explored or developed. They provide the language to build in the developmental aspects of the learning of mathematics.

At this level

Understanding *includes connecting number calculations with counting sequences, partitioning and combining numbers flexibly, identifying and describing the relationship between addition and subtraction and between multiplication and division.*

Fluency *includes counting numbers in sequences readily, using units iteratively to compare measurements, listing possible outcomes of chance events, and describing and comparing time durations.*

Problem Solving *includes formulating problems from authentic situations, making models and using number sentences that represent problem situations, planning routes on maps, and matching transformations with their original shape.*

Reasoning *includes using known facts to derive strategies for unfamiliar calculations, comparing and contrasting related models of operations, describing connections between 2-D and 3-D representations, and creating and interpreting simple representations of data.*

The *Working mathematically* dimension of the VELS can be used to highlight the application of the proficiencies in the strands and sub-strands of the AC across the corresponding year levels.

At Years 1 and 2 of the AC this could include:

- making and testing simple conjectures by finding examples, counter-examples and special cases and informally decide whether a conjecture is likely to be true.

- use of place value to enter and read displayed numbers on a calculator

- use of a four-function calculator, including use of the constant addition function and x key, to check the accuracy of mental and written estimations and approximations and solutions to simple number sentences and equations.

* Please note this is a reference to the Australian Curriculum Mathematics (ACM) and the relevant strand - Number Algebra (ACMNA) / Measure Geometry (ACMMG) / Statistics Probability (ACMSP)

9