

## AusVELS Mathematics Level 3

**Understanding** includes connecting number representations with number sequences, partitioning and combining numbers flexibly, representing unit fractions, using appropriate language to communicate times, and identifying environmental symmetry

**Fluency** includes recalling multiplication facts, using familiar metric units to order and compare objects, identifying and describing outcomes of chance experiments, interpreting maps and communicating positions

**Problem Solving** includes formulating and modelling authentic situations involving planning methods of data collection and representation, making models of three- dimension objects and using number properties to continue number patterns

**Reasoning** includes using generalising from number properties and results of calculations, comparing angles, creating and interpreting variations in the results of data collections and data display.

\*This document intends to assist teachers in their implementation of the Australian curriculum through AUSVELS– it combines description and elaboration statements. The blue elaborations are examples of how the learning can be achieved; not a list of tasks that have to be done. Teachers are advised to consult the online documentation to clarify further detail for themselves. The ‘AusVELS’ is the official documentation for Victorian schools.

Number & Algebra:	Measurement & Geometry:	Statistics & Probability:
<p><b>Number &amp; place value:</b> Investigate the conditions required for a number to be odd or even and identify odd and even numbers (ACMNA051)</p> <ul style="list-style-type: none"> <li>identifying even numbers using skip counting by twos or by grouping even collections of objects in twos</li> <li>explaining why all numbers that end in the digits 0, 2, 4, 6 and 8 are even and that numbers ending in 1, 3, 5, 7 and 9 are odd</li> </ul> <p>Recognise, model, represent and order numbers to at least 10 000 (ACMNA052)</p> <ul style="list-style-type: none"> <li>placing four-digit numbers on a number line using an appropriate scale</li> <li>reproducing numbers in words using their numerical representations and vice versa</li> </ul> <p>Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053)</p> <ul style="list-style-type: none"> <li>recognising that 10 000 equals 10 thousands, 100 hundreds, 1000 tens and 10 000 ones</li> <li>justifying choices about partitioning and regrouping numbers in terms of their usefulness for particular calculations</li> </ul> <p>Recognise and explain the connection between addition and subtraction (ACMNA054)</p> <ul style="list-style-type: none"> <li>demonstrating the connection between addition and subtraction using partitioning or by writing equivalent number sentences</li> </ul> <p>Recall addition facts for single-digit numbers and related subtraction facts to develop increasingly efficient mental strategies for computation (ACMNA055)</p> <ul style="list-style-type: none"> <li>recognising that certain single-digit number combinations always result in the same answer for addition and subtraction, and using this knowledge for addition and subtraction of larger numbers</li> <li>combining knowledge of addition and subtraction facts and partitioning to aid computation (for example <math>57 + 19 = 57 + 20 - 1</math>)</li> </ul> <p>Recall multiplication facts of two, three, five and ten and related division facts (ACMNA056)</p> <ul style="list-style-type: none"> <li>establishing multiplication facts using number sequences</li> </ul> <p>Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)</p> <ul style="list-style-type: none"> <li>writing simple word problems in numerical form and vice versa</li> <li>using a calculator to check the solution and reasonableness of the answer</li> </ul> <p><b>Fractions &amp; Decimals:</b> Model and represent unit fractions including <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{3}</math>, <math>\frac{1}{5}</math> and their multiples to a complete whole (ACMNA058)</p> <ul style="list-style-type: none"> <li>partitioning areas, lengths and collections to create halves, thirds, quarters and fifths, such as folding the same sized sheets of paper to illustrate different unit fractions and comparing the number of parts with their sizes</li> </ul>	<p><b>Using units of measurement:</b> Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061)</p> <ul style="list-style-type: none"> <li>recognising and using centimetres and metres, grams and kilograms, and millilitres and litres</li> <li>recognising the importance of using common units of measurement</li> <li>recognising that metric units are not the only units used throughout the world, for example measuring the area of floor space using tatami mats (Japan), using squares for room and house area (Australia) and miles for distance (Britain, USA)</li> </ul> <p>Tell time to the minute and investigate the relationship between units of time (ACMMG062)</p> <ul style="list-style-type: none"> <li>recognising there are 60 minutes in an hour and 60 seconds in a minute</li> </ul> <p><b>Shape:</b> Make models of three-dimensional objects and describe key features (ACMMG063)</p> <ul style="list-style-type: none"> <li>exploring the creation of three-dimensional objects using origami, including prisms and pyramids</li> </ul> <p><b>Location &amp; transformation:</b> Create and interpret simple grid maps to show position and pathways (ACMMG065)</p> <ul style="list-style-type: none"> <li>creating a map of the classroom or playground</li> </ul> <p>Identify symmetry in the environment (ACMMG066)</p> <ul style="list-style-type: none"> <li>identifying symmetry in Aboriginal rock carvings or art</li> <li>identifying symmetry in the natural and built environment</li> </ul> <p><b>Geometric reasoning:</b> Identify angles as measures of turn and compare angle sizes in everyday situations(ACMMG064)</p> <ul style="list-style-type: none"> <li>opening doors partially and fully and comparing the size of the angles created</li> <li>recognising that analogue clocks use the turning of arms to indicate time, and comparing the size of angles between the arms for familiar times</li> </ul>	<p><b>Chance:</b> Conduct chance experiments, identify and describe possible outcomes and recognise variation in results (ACMSP067)</p> <ul style="list-style-type: none"> <li>conducting repeated trials of chance experiments such as tossing a coin or drawing a ball from a bag and identifying the variations between trials</li> </ul> <p><b>Data representation &amp; interpretation:</b> Identify questions or issues for categorical variables. Identify data sources and plan methods of data collection and recording (ACMSP068)</p> <ul style="list-style-type: none"> <li>refining questions and planning investigations that involve collecting data, and carrying out the investigation (for example narrowing the focus of a question such as ‘which is the most popular breakfast cereal?’ to ‘which is the most popular breakfast cereal among Level 3 students in our class?’)</li> </ul> <p>Collect data, organise into categories and create displays using lists, tables, picture graphs and simple column graphs, with and without the use of digital technologies (ACMSP069)</p> <ul style="list-style-type: none"> <li>exploring meaningful and increasingly efficient ways to record data, and representing and reporting the results of investigations</li> </ul> <p>Interpret and compare data displays (ACMSP070)</p> <ul style="list-style-type: none"> <li>comparing various student-generated data representations and describing their similarities and differences</li> </ul>

- locating unit fractions on a number line
- recognising that in English the term 'one third' is used (order: numerator, denominator) but that in other languages this concept may be expressed as 'three parts, one of them' (order: denominator, numerator) for example Japanese

### Money & Financial mathematics:

Represent money values in multiple ways and count the change required for simple transactions to the nearest five cents (ACMNA059)

- recognising the relationship between dollars and cents, and that not all countries use these denominations and divisions (for example Japanese Yen)

### Patterns & algebra:

Describe, continue, and create number patterns resulting from performing addition or subtraction (ACMNA060)

- identifying and writing the rules for number patterns
- describing a rule for a number pattern, then creating the pattern

## Level 3 Achievement Standard

### Number and Algebra

Students count and order numbers to and from 10 000. They recognise the connection between addition and subtraction, and solve problems using efficient strategies for multiplication with and without the use of digital technology. Students recall addition and multiplication facts for single digit numbers. They represent money values in various ways and correctly count out change from financial transactions. Students model and represent unit fractions for halves, thirds, quarters, fifths and eighths, and multiples of these up to one. They classify numbers as either odd or even, continue number patterns involving addition or subtraction, and explore simple number sequences based on multiples.

### Measurement and Geometry

Students use metric units for length, mass and capacity. They tell time to the nearest minute. Students identify symmetry in natural and constructed environments. They use angle size as a measure of turn in real situations and make models of three dimensional objects. Students match positions on maps with given information and create simple maps.

### Statistics and Probability

Students carry out simple data investigations for categorical variables. They interpret and compare data displays. Students conduct chance experiments, list possible outcomes and recognise variations in results.

Cross-curriculum priorities to be included in all learning areas:  
 Aboriginal and Torres Strait Islander histories and cultures (👉);  
 Asia and Australia's engagement with Australia (🌏);  
 Sustainability (🌱)

Reference : <http://ausvels.vcaa.vic.edu.au/> This grid is an adaption of the information from the VCAA site to create a visual representation to assist teachers.