Mathematics Sample Program: Year 1



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Abbreviations

ABS Australian Bureau of Statistics

AMSI Australian Mathematical Sciences Institute

CIMT Centre for Innovation in Mathematical Teaching (Plymouth, United Kingdom)

DET Department of Education and Training

ESA Educational Services Australia

NCTM National Council Teachers of Mathematics

NLVM National Library of Virtual Manipulatives

MAV Mathematical Association of Victoria

Hyperlinks

At the time of publication the URLs (website addresses) cited were checked for accuracy and appropriateness of content. However, due to the transient nature of material placed on the web, their continuing accuracy cannot be verified. Teachers are strongly advised to prepare their own indexes of sites that are suitable and applicable to the courses they teach, and to check these addresses prior to allowing student access.

Overview

This Mathematics Sample Program: Year 1 is an example of how the Mathematics curriculum could be organised into a teaching and learning program.

This sample program provides comprehensive coverage of content descriptions from the three strands of the mathematics curriculum and is sequenced to develop knowledge and skills; however, there are many other ways that the curriculum content can be arranged to suit the learning needs of students.

Topics, suggested time allocations and sequencing

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| **Week\*** | **Semester 1** | **Semester 2** |
| **1** | *1.1.1 Patterns in the Number System*  Strand: Number and Algebra Sub-strand: Number and Place Value | *1.2.1 Number Sequences and Skip Counting* Strand: Number and Algebra Sub-strand: Number and Place Value |
| **2** |
| **3** |
| **4** | *1.1.2 Measuring and Comparing Length Informally* Strand: Measurement and Geometry Sub-strand: Using Units of Measurement | *1.2.2 Measuring and Comparing Mass and Capacity Informally*  Strand: Measurement and Geometry Sub-strand: Using Units of Measurement |
| **5** | *1.1.3 Represent Data and Using it to Predict Future Outcomes* Strand: Statistics and Probability Sub-strand: Data and Representation | *1.2.3 Represent Data and Developing Questions* Strand: Statistics and Probability Sub-strand: Data representation and Interpretation |
| **6** | *1.1.4 Number – One of These is Ten of Those*  Strand: Number and Algebra Sub-strand: Number and Place Value | *1.2.4 Fractions - What is Half?* Strand: Number and Algebra Sub-strand: Fractions and decimals |
| **7** | 1.2.5 Recognise and Classify 3D Shapes  Strand: Using Units of Measurement  Sub-strand: Shape |
| **8** | *1.1.5 What is Money?* Strand: Number and Algebra Sub-strand: Fractions and Decimals | *1.2.6 Number - Grouping and Sharing* Strand: Number and Algebra Sub-strand: Number and Place Value |
| **9** | *1.1.6 Time - Half Past and Duration (Days, Weeks)*  Strand: Measurement and Geometry Sub-strand: Using Units of Measurement |

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| **Week\*** | **Semester 1** | **Semester 2** |
| **10** | *1.1.7 Addition and Subtraction - Strategies* Strand: Number and Algebra  Sub-strand: Number and Place Value | *1.2.7 Time-Half Past and Duration (Days, Weeks, Minutes and Hours)* Strand: Measurement and Geometry  Sub-strand: Using Units of Measurement |
| **11** |
| **12** | *1.2.8 Number - Revisiting Place Value and Counting* Strand: Number and Algebra Sub-strand: Number and Place Value |
| **13** | *1.1.8 Commutative Law and Doubles and Near Doubles*  Strand: Number and Algebra Sub-strand: Number and Place Value |
| **14** | *1.1.9 Location - Giving and Following Directions* Strand: Measurement and Geometry Sub-strand: Location and Transformation | *1.2.9 Money* Strand: Number and Algebra Sub-strand: Money and Financial Mathematics |
| **15** | *1.1.10 Recognise and Classify 2D Shapes* Strand: Measurement and Geometry Sub-strand: Shape | *1.2.10 Number - Revisiting Addition and Subtraction* Strand: Number and Algebra Sub-strand: Number and Place Value |
| **16** | *1.1.11 Solving Simple Addition and Subtraction Problems*  Strand: Number and Algebra  Sub-strand: Number and Place Value |
| **17** | *1.2.11 Skip Counting and Simple Multiplication* Strand: Number and Algebra Sub-strand: Number and Place Value |
| **18** | *1.1.12 Will it Happen* Strand: Statistics and Probability Sub-strand: Data Representation and Interpretation |

\* Based on 3 hours teaching time per week

Content descriptions coverage within each topic

|  |  |
| --- | --- |
| **Level 1 content descriptions** | **Topic/s** |
| **Strand: Number and Algebra** | |
| **Sub-strand: 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 [(VCMNA086)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA086) | 1.1.1  1.2.1  1.2.11 |
| Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line [(VCMNA087)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA087) | 1.1.1  1.1.4  1.2.8 |
| Count collections to 100 by partitioning numbers using place value [(VCMNA088)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA088) | 1.1.1  1.1.4  1.2.8 |
| Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts [(VCMNA089)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA089) | 1.1.7  1.1.8  1.1.11  1.2.6  1.2.10 |
| Represent practical situations that model sharing [(VCMNA090)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA090) | 1.2.6 |
| **Sub-strand: Fractions and Decimals** | |
| Recognise and describe one-half as one of two equal parts of a whole [(VCMNA091)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA091) | 1.2.4 |
| **Sub-strand: Money and Financial Mathematics** | |
| Recognise, describe and order Australian coins according to their value [(VCMNA092)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA092) | 1.1.5  1.2.9 |
| **Sub-strand: Patterns and Algebra** | |
| Investigate and describe number patterns formed by skip counting and patterns with objects [(VCMNA093)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA093) | 1.2.1  1.2.6  1.2.11 |
| Recognise the importance of repetition of a process in solving problems [(VCMNA094)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA094) | 1.2.6 |

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| **Strand: Measurement and Geometry** | |
| **Sub-strand: Using Units of Measurement** | |
| Measure and compare the lengths, masses and capacities of pairs of objects using uniform informal units [(VCMMG095)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG095) | 1.1.2  1.2.2 |
| Tell time to the half-hour [(VCMMG096)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG096) | 1.1.6  1.2.7 |
| Describe duration using months, weeks, days and hours [(VCMMG097)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG097) | 1.1.6  1.2.7 |
| **Sub-strand: Shape** | |
| Recognise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features [(VCMMG098)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG098) | 1.1.10  1.2.5 |
| **Sub-strand: Location and Transformation** | |
| Give and follow directions to familiar locations [(VCMMG099)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG099) | 1.1.9 |
| **Strand: Statistics and Probability** |  |
| **Sub-strand: Chance** | |
| Identify outcomes of familiar events involving chance and describe them using everyday language such as ‘will happen’, ‘won’t happen’ or ‘might happen’ [(VCMSP100)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMSP100) | 1.1.3  1.1.12 |
| **Sub-strand: Data and Representation and Interpretation** | |
| Choose simple questions and gather responses [(VCMSP101)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMSP101) | 1.1.3 |
| Represent data with objects and drawings where one object or drawing represents one data value. Describe the displays [(VCMSP102)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMSP102) | 1.1.3  1.2.3 |

Achievement standards (for three levels to support planning for a continuum of learning)

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| Foundation Level | Level 1 | Level 2 |
| **Number and algebra**  Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | **Number and algebra**  Students count to and from 100 and locate these numbers on a number line. They partition numbers using place value and carry out simple additions and subtractions, using counting strategies. Students recognise Australian coins according to their value. They identify representations of one half. Students describe number sequences resulting from skip counting by 2s, 5s and 10s. They continue simple patterns involving numbers and objects with and without the use of digital technology. | **Number and algebra**  Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |
| **Measurement and geometry**  Students identify measurement attributes in practical situations and compare lengths, masses and capacities of familiar objects. They order events, explain their duration, and match days of the week to familiar events. Students identify simple shapes in their environment and sort shapes by their common and distinctive features. They use simple statements and gestures to describe location. | **Measurement and geometry**  Students use informal units of measurement to order objects based on length, mass and capacity. They tell time to the half-hour and explain time durations. Students describe two-dimensional shapes and three-dimensional objects. They use the language of distance and direction to move from place to place. | **Measurement and geometry**  Students order shapes and objects, using informal units for a range of measures. They tell time to the quarter hour and use a calendar to identify the date, days, weeks and months included in seasons and other events. Students draw two-dimensional shapes, specify their features and explain the effects of one-step transformations. They recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. |
| **Statistics and probability**  Students sort familiar categorical data into sets and use these to answer yes/no questions and make simple true/false statements about the data. | **Statistics and probability**  Students describe data displays. They ask questions to collect data and draw simple data displays. Students classify outcomes of simple familiar events. | **Statistics and probability**  Students collect data from relevant questions to create lists, tables and picture graphs with and without the use of digital technology. They interpret data in context. Students use everyday language to describe outcomes of familiar events. |

Learning in Mathematics

The proficiencies of Understanding, Fluency, Problem Solving and Reasoning are fundamental to learning mathematics and working mathematically, and are applied across all three strands Number and Algebra, Measurement and Geometry, and Statistics and Probability.

Understanding refers to students building a robust knowledge of adaptable and transferable mathematical concepts and structures. Students make connections between related concepts and progressively apply the familiar to develop new ideas. They develop an understanding of the relationship between the ‘why’ and the ‘how’ of mathematics. Students build understanding when they:

* Connect related ideas
* Represent concepts in different ways
* Identify commonalities and differences between aspects of content
* Describe their thinking mathematically
* Interpret mathematical information.

Fluency describes students developing skills in choosing appropriate procedures, carrying out procedures flexibly, accurately, efficiently and appropriately, and recalling factual knowledge and concepts readily. Students are fluent when they:

* Make reasonable estimates
* Calculate answers efficiently
* Recognise robust ways of answering questions
* Choose appropriate methods and approximations
* Recall definitions and regularly use facts,
* Can manipulate expressions and equations to find solutions.

Problem solving is the ability of students to make choices, interpret, formulate, model and investigate problem situations, select and use technological functions and communicate solutions effectively. Students pose and solve problems when they:

* Use mathematics to represent unfamiliar or meaningful situations
* Design investigations and plan their approaches
* Apply their existing strategies to seek solutions
* Verify that their answers are reasonable.

Reasoning refers to students developing an increasingly sophisticated capacity for logical, statistical and probabilistic thinking and actions, such as conjecturing, hypothesising, analysing, proving, evaluating, explaining, inferring, justifying, refuting, abstracting and generalising. Students are reasoning mathematically when they:

* Explain their thinking
* Deduce and justify strategies used and conclusions reached
* Adapt the known to the unknown
* Transfer learning from one context to another
* Prove that something is true or false
* Make inferences about data or the likelihood of events
* Compare and contrast related ideas and explain their choices.

Year 1 Semester 1



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| Topic 1.1.1 Patterns in the Number System | | |
| Strand:  Number and Algebra | Sub-strand:  Number and Place Value | Recommended teaching time:  3 weeks |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| 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 [(VCMNA086)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA086)  Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line [(VCMNA087)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA087)  Count collections to 100 by partitioning numbers using place value [(VCMNA088)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA088) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | **Students count to and from 100 and locate these numbers on a number line. They partition numbers using place value** and carry out simple additions and subtractions, using counting strategies. Students recognise Australian coins according to their value. They identify representations of one half. **Students describe number sequences resulting from skip counting by 2s, 5s and 10s.** They continue simple patterns involving numbers and objects with and without the use of digital technology. | Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **Activities** | **Proficiencies** |
| * Make and name numbers then place on a blank number line * Use 120 number charts to find patterns when counting by 2s, 5s and 10s * Use 120 number charts to finds patterns in numbers that run vertically or horizontally * Use number lines and charts to 120 to find numbers before and after given number * Make numbers using popsticks and linking plastic cubes * Order numbers from smallest to largest and vice versa using concrete materials then write numbers * Partition numbers to 120 using bead strings, linking plastic cubes, pop sticks * Explore place value of numbers using ten frames * Make all/count all, count on, count on from larger numbers * Develop part/part/whole ideas using [tens frames](http://www.education.vic.gov.au/Documents/school/teachers/teachingresources/discipline/maths/assessment/tenframedbl.pdf) | * **Fluency** by readily [counting number](http://www.australiancurriculum.edu.au/Glossary?a=M&t=Counting%20number)s in sequences forward and backwards, locating numbers on a line and 120 chart * **Understanding** through connecting names, numerals and quantities, and [partitioning](http://www.australiancurriculum.edu.au/Glossary?a=M&t=Partitioning) numbers in various ways * **Problem solving** using materials to model authentic problems, using familiar counting sequences to solve unfamiliar problems and discussing the reasonableness of the answer * **Reasoning** through explaining patterns that have been created |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Make and name numbers between 0 and 20 then place on a blank number line   Level 2  Students who are working at this level could:   * Group, partition and rearrange collections up to 1000 in hundreds, tens and ones. |

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| **Assessment ideas** |
| Students:   * Use a Think Board to demonstrate understanding of ten partitioning and place value: students choose a number and place it in the middle of the board, with each quarter offers students a different way to represent numbers * Demonstrate skip counting on a blank number line * Create patterns using objects to continue a given pattern of a number sequence, and explain these patterns. |

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| **Resources** |
| **NLVM**  [Hundred Chart - Skip Counting](http://nlvm.usu.edu/en/nav/frames_asid_337_g_1_t_1.html)  **FUSE**  [Interactive 100 Number Chart (Splat Square)](http://fuse.education.vic.gov.au/?4ER6CP)  ***Other FUSE resources:*** *for* [VCMNA086](http://fuse.education.vic.gov.au/VCAA/VCMNA086http://fuse.education.vic.gov.au/VCAA/VCMNA086), [VCMNA087](http://fuse.education.vic.gov.au/VCAA/VCMNA087) and [VCMNA088](http://fuse.education.vic.gov.au/VCAA/VCMNA088)  **NZ Maths**  [Partitioning](http://nzmaths.co.nz/resource/partitions)  [Place Value Houses](https://nzmaths.co.nz/sites/default/files/Numeracy/2007matmas/Bk4/MM 4_11.pdf)  **nRich**  [100 Square Jigsaw](http://nrich.maths.org/5572) |

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| **Notes** |
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| Topic 1.1.2 Measuring and Comparing Length Informally | | |
| Strand:  Measurement and Geometry | Sub-strand:  Using Units of Measurement | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Measure and compare the lengths, masses and capacities of pairs of objects using uniform informal units [(VCMMG095)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG095) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students identify measurement attributes in practical situations and compare lengths, masses and capacities of familiar objects. They order events, explain their duration, and match days of the week to familiar events. Students identify simple shapes in their environment and sort shapes by their common and distinctive features. They use simple statements and gestures to describe location. | **Students use informal units of measurement to order objects based on length, mass and capacity.** They tell time to the half-hour and explain time durations. Students describe two-dimensional shapes and three-dimensional objects. They use the language of distance and direction to move from place to place. | Students order shapes and objects, using informal units for a range of measures. They tell time to the quarter hour and use a calendar to identify the date, days, weeks and months included in seasons and other events. Students draw two-dimensional shapes, specify their features and explain the effects of one-step transformations. They recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. |

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| **Activities** | **Proficiencies** |
| **Measuring Length**   * Review measuring length placing objects side-by-side to * Use informal units to measure length of a variety of objects, e.g. hand spans * Discover the need for zero point when measuring: in this case, beginning measuring at the beginning of objects * Explore the reasons for gaps and overlaps and how this may change measurements * Compare and order sizes of objects * Use standard units of measure to allow for comparisons * Estimate and check reasonableness of answers | * **Fluency** using materials accurately to measure and compare with other measures determining an order of length * **Understanding** using a standard measure allows for more accurate comparisons, and that there are variables that can affect accurate measuring * **Problem solving** using materials to model authentic problems and determining criteria for accurate measuring * **Reasoning** through explaining direct and indirect comparisons of length using uniform informal units |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Compare sets of two objects directly, by placing one object against another to determine which is longer.   Level 2  Students who are working at this level could:   * Compare and order several shapes and objects based on length and area, using informal means (e.g. finger, hand, stone) |

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| **Assessment ideas** |
| Students:   * Measure objects and explain why inaccuracies may occur * Identify the need for like units for comparisons to other objects. |

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| **Resources** |
| **NZ Maths**  [Teddy Bears and Friends](http://www.nzmaths.co.nz/resource/teddy-bears-and-friends)  [Length - Units of Work](https://nzmaths.co.nz/length-units-work)  **DET (Victoria)**  [Three Phases for Teaching Measurement](http://www.education.vic.gov.au/school/teachers/teachingresources/discipline/maths/continuum/Pages/measphese.aspx)  [Formal Units for Measuring](http://www.education.vic.gov.au/school/teachers/teachingresources/discipline/maths/continuum/Pages/formalunitteach225.aspx)  **FUSE**  [Measuring Familiar Things](http://fuse.education.vic.gov.au/?NN8TJH) |

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| **Notes** |
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| Topic 1.1.3 Represent Data and use it to Predict Future Outcomes | | |
| Strand:  Statistics and Probability | Sub-strand:  Data and Representation | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Identify outcomes of familiar events involving chance and describe them using everyday language such as ‘will happen’, ‘won’t happen’ or ‘might happen’ [(VCMSP100)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMSP100) * Represent data with objects and drawings where one object or drawing represents one data value. Describe the displays [(VCMSP102)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMSP102) * Choose simple questions and gather responses [(VCMSP101)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMSP101) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students sort familiar categorical data into sets and use these to answer yes/no questions and make simple true/false statements about the data. | **Students describe data displays. They ask questions to collect data and draw simple data displays. Students classify outcomes of simple familiar events**. | Students collect data from relevant questions to create lists, tables and picture graphs with and without the use of digital technology. They interpret data in context. Students use everyday language to describe outcomes of familiar events. |

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| **Activities** | **Proficiencies** |
| **Data representation and interpretation**   * Determine when it is appropriate to survey for information * Use real-life situation to decide on what to survey * Identify and formulate questions suitable for getting to know their peers * Clarify qualities of good questions * Collect data and record using suitable method such as a tally method * Collaboratively decide on ways data can be categorised * Use objects and drawings to represent data as well as pictographs * Identify trends and what that means * Construct questions that may arise from survey   **Chance**   * Identify ways to collect information about the weather such as rainfall, temperature, cloud cover * Discuss ways to record data and display * Use the language of chance to identify the possibilities of changes in the weather using terms such as ‘will happen’, ‘won’t happen’ or might happen * Use the conditions of the weather to determine whether an outcome will happen, such as going to the beach | * **Fluency** using the language of chance to describe outcomes of familiar chance events * **Understanding** that information can be represented in different ways, and that displays of data can be used to solve problems or identify trends * **Problem solving** through formulating problems from authentic situations and making models * **Reasoning** through creating and interpreting simple representations of [data](http://www.australiancurriculum.edu.au/Glossary?a=M&t=Data) |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Gather and interpret simple data displays about yes/no questions.   Level 2  Students who are working at this level could:   * Determine the variety of birdlife in the playground using a prepared table to record observations; repeat with another variable of choice. |

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| **Assessment ideas** |
| Students:   * Discuss what fruit they have brought to school; they look at different ways of showing all the fruit, and draw displays * Complete predictions about likely events that they are familiar with; this may involve importing objects and pictures to an app, and recording their findings visually, orally or via word processing. |

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| **Resources** |
| **DET (Victoria)**  [Fairness Relates to Having an Equal Chance of Winning](http://www.education.vic.gov.au/school/teachers/teachingresources/discipline/maths/continuum/Pages/equalchance30.aspx)  **FUSE**  [Using Data about Favourite Foods](http://fuse.education.vic.gov.au/?F2FKKF)  **NZ Math**  [Probability – Units of Work](http://nzmaths.co.nz/probability-units-work)  **nRich**  [Handling Data](http://nrich.maths.org/9032) |

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| Topic 1.1.4 Number and Algebra – One of These is Ten of Those | | |
| Strand:  Number and Algebra | Sub-strand:  Number and Place Value | Recommended teaching time:  2 weeks |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Count collections to 100 by partitioning numbers using place value [(VCMNA088)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA088) * Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line [(VCMNA087)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA087) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | **Students count to and from 100 and locate these numbers on a number line. They partition numbers using place value** and carry out simple additions and subtractions, using counting strategies. Students recognise Australian coins according to their value. They identify representations of one half. Students describe number sequences resulting from skip counting by 2s, 5s and 10s. They continue simple patterns involving numbers and objects with and without the use of digital technology. | Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **Activities** | **Proficiencies** |
| * Review 120 chart and patterning found * Explore 10 and multiples of 10 using ten frames and correlating names to value * Represent numbers as tens and ones using tens frames and pop sticks on place value boards / mates * Introduce number expanders when discussing numbers * Rename numbers in different ways such as 42 is 4 tens and 2 ones, or it could be 42 ones * Use arrow cards to make and break numbers to establish tens and ones components * Order written numbers from smallest to largest * Place numbers on a blank number line | * **Fluency** using 10 of these as one of those, e.g. 520 can be 5 hundreds, 2 tens and 0 ones or 52 tens and 0 ones or 520 ones * **Understanding** the value of each place in numbers to hundreds * **Problem solving** using knowledge of partitioning and tens * **Reasoning** that the 10 of a unit is the equivalent of one of a greater unit |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Connect number names, numerals and quantities, including zero up to 10, then to 20.   Level 2  Students who are working at this level could:   * Place numbers on a number line from 0-1000. |

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| **Assessment ideas** |
| Students:   * Place numbers on a number line from 0-100 recognising the positioning of each set of tens * Use ice cream sticks to demonstrate the value of a number demonstrating understanding of the tens as a bundle and ones as singles. |

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| **Resources** |
| **AMSI**  [Extending Place Value](http://www.amsi.org.au/teacher_modules/Counting_and_place_valueK-4.html#Extending_place_value)  **NZ Maths**  [Partitions](http://nzmaths.co.nz/resource/partitions)  **nRich**  [Place Value (Various Activities)](http://nrich.maths.org/8940)  **FUSE**  [Virtual Base Ten Blocks](http://fuse.education.vic.gov.au/?85WCN8)  [Place Value Pirates](http://fuse.education.vic.gov.au/?2V4KSF)  ***Other FUSE resources:*** *for* [VCMNA087](http://fuse.education.vic.gov.au/VCAA/VCMNA087) and [VCMNA088](http://fuse.education.vic.gov.au/VCAA/VCMNA088) |

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| Topic 1.1.5 What is Money? | | |
| Strand:  Number and Algebra | Sub-strand:  Fractions and Decimals | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Recognise, describe and order Australian coins according to their value [(VCMNA092)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA092) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | Students count to and from 100 and locate these numbers on a number line. They partition numbers using place value and carry out simple additions and subtractions, using counting strategies. **Students recognise Australian coins according to their value.** They identify representations of one half. Students describe number sequences resulting from skip counting by 2s, 5s and 10s. They continue simple patterns involving numbers and objects with and without the use of digital technology. | Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **Activities** | **Proficiencies** |
| * Identify coins according to their symbols and size * Identify value of coins through determining how many of one makes another * Introduce concept that coins have a value not related to their size * Order coins by value * Develop awareness of value by relating one coin to an equal set of others, e.g. 20c is the same as 10c, 5c, and 5c * Use money in everyday contexts to develop the concepts of value for money * Make a class shop with labels that match coins, e.g. pencil = 10c | * **Fluency** through ordering and comparing coins, and determining equivalency between sets of coins * **Understanding** that coins have a predetermined value and can be recognised by their symbols * **Problem solving** through using money in everyday situations, e.g. lunch orders * **Reasoning** through explaining the value of coins that represent equivalence to an item to be purchased |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Use toy money to pay for goods in play situations.   Level 2  Students who are working at this level could:   * Counting collections of coins or notes to make up a particular value, such as that shown on a price tag. |

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| **Assessment ideas** |
| Students:   * Name and orders coins according to their value * Demonstrate equivalency between two sets of coins. |

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| **Resources** |
| **ASIC**  [MoneySmart Teaching Resources](https://www.moneysmart.gov.au/teaching/teaching-resources)  **FUSE**  [Funny Money](http://fuse.education.vic.gov.au/?HLQFF9" \o "Ɛ廴翿)  [MoneySmart: Bertie's Socks – Unit of Work](http://fuse.education.vic.gov.au/?LW9SBC)  **nRich**  [Money Problems - Teacher Guide](http://nrich.maths.org/2586) |

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| Topic 1.1.6 Time – Half Past and Duration (Days, Weeks) | | |
| Strand:  Measurement and Geometry | Sub-strands:  Using Units of Measurement | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Tell time to the half-hour [(VCMMG096)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG096) * Describe duration using months, weeks, days and hours [(VCMMG097)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG097) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students identify measurement attributes in practical situations and compare lengths, masses and capacities of familiar objects. They order events, explain their duration, and match days of the week to familiar events. Students identify simple shapes in their environment and sort shapes by their common and distinctive features. They use simple statements and gestures to describe location. | Students use informal units of measurement to order objects based on length, mass and capacity. **They tell time to the half-hour and explain time durations.** Students describe two-dimensional shapes and three-dimensional objects. They use the language of distance and direction to move from place to place. | Students order shapes and objects, using informal units for a range of measures. They tell time to the quarter hour and use a calendar to identify the date, days, weeks and months included in seasons and other events. Students draw two-dimensional shapes, specify their features and explain the effects of one-step transformations. They recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. |

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| **Activities** | **Proficiencies** |
| *Note that time may be covered incidentally in the classroom throughout the year.*   * Use a calendar throughout the year, on a daily basis, to recognise the months of the year, days of the weeks and counting down days to birthdays and days since an event * Match days of the week to daily events and learn days of the weeks in sequence * Recognise that half past has the long hand pointing to the six and relate to significant time periods of the day, e.g. lunchtime begins and half past twelve * Match activities to days of the weeks in a timetable, e.g. library day is on Friday * Use everyday events to count down to a date * Make a clock and create short fat hand, long tall hand, labelled with hour and minutes; discuss places to put numbers and include second ring for minutes * Use a clock to order then match to digital times | * **Understanding:** the vertical patterns that link particular days of the week * **Fluency** in recognising the months of the year, and the days of the weeks * **Problem solving** by matching clock faces to key daily activities at school * **Reasoning** through distinguishing between the distinct actions and functions of each hand of a clock |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Match days of the week to routine events at school (e.g. sport, library).   Level 2  Students who are working at this level could:   * Tell time to the quarter-hour, using the language of 'past' and 'to’. |

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| **Assessment ideas** |
| Students:   * Draw a sequence of pictures to show what happens during their day * Match digital clocks to analogue clocks that show time to the half hour. |

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| **Resources** |
| **NZ Maths**  [Time - Units of Work](http://nzmaths.co.nz/time-units-work)  **nRich**  [KS1 Time Activities (Various)](http://nrich.maths.org/9026)  **FUSE**  [Time: Match Clocks](http://fuse.education.vic.gov.au/?NWW4CX)  [Measuring Time Informally and Reading Clocks](http://fuse.education.vic.gov.au/?J8G49K)  [Clockface](http://fuse.education.vic.gov.au/?2ZWQWJ) |

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| Topic 1.1.7 Addition and Subtraction – Strategies | | |
| Strand:  Number and Algebra | Sub-strand:  Number and Place Value | Recommended teaching time:  3 weeks |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts [(VCMNA089)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA089) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | Students count to and from 100 and locate these numbers on a number line. **They partition numbers using place value and carry out simple additions and subtractions, using counting strategies.** Students recognise Australian coins according to their value. They identify representations of one half. Students describe number sequences resulting from skip counting by 2s, 5s and 10s. They continue simple patterns involving numbers and objects with and without the use of digital technology. | Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **Activities** | **Proficiencies** |
| * Counting on from the larger collection * Counting to a number, counting down from a total to a given number * Exploring basic facts to 10, e.g. using Unifix cubes or Cuisenaire rods to make combinations * Exploring the pairs of numbers that add to ten and their turnarounds. Establish fluency using tens frames. * Establish partitioning of 10 to develop counting using numbers to 120, e.g. 12 and 10 is 10 and 10 and 2 (22) * Exploring patterning through adding ten first to ten, then later to any given number * Using 120 charts to establish visual patterns * Developing understanding that two numbers added together give the same answer if reversed, e.g. 6 and 7 is 13, and 7 and 6 is 13 | * **Fluency** through [counting number](http://www.australiancurriculum.edu.au/Glossary?a=M&t=Counting%20number) in sequences readily forward and backwards * **Understanding** there are many ways to solve a problem * **Problem solving** through choosing efficient strategies to solve problems * **Reasoning** why particular strategies are selected for that problem |

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| **Considering different levels of student ability** |
| Level F  Students who are working at this level could:   * Use a range of practical strategies (e.g. use of concrete materials) for adding and subtracting small groups of numbers.   Level 2  Students who are working at this level could:   * Use arrange of mental strategies for addition and subtraction problems, such as commutativity for addition, building to 10, doubles, 10 facts and adding 10. |

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| **Assessment ideas** |
| Students:   * Take a bundle of counters, then drop some, count the dropped ones and work out how many are still in their hand; they describe results numerically and in a picture form. |

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| **Resources** |
| **AAMT**  [Bridging Decades](http://topdrawer.aamt.edu.au/Mental-computation/Good-teaching/Addition-and-subtraction/Bridging-decades)  **FUSE**  [Exploring Addition and Subtraction](http://fuse.education.vic.gov.au/?9GMM2K)  **nRich**  [Number Sense Series](http://nrich.maths.org/2477) |

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| Topic 1.1.8 Commutative Law and Doubles and Near Doubles | | |
| Strand:  Number and Algebra | Sub-strand:  Number and Place Value | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts [(VCMNA089)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA089) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | Students count to and from 100 and locate these numbers on a number line. **They partition numbers using place value and carry out simple additions and subtractions, using counting strategies.** Students recognise Australian coins according to their value. **They identify representations of one half.** Students describe number sequences resulting from skip counting by 2s, 5s and 10s. They continue simple patterns involving numbers and objects with and without the use of digital technology. | Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **Activities** | **Proficiencies** |
| * Review previous strategies taught * Introduce commutative law, e.g. 5 and 7 is 12, 7 and 5 is 12 * Explore effects of doubling with concrete objects using symmetry * Define doubles and near doubles with numbers to 10 and 20 respectively * Halve numbers to 20 | * **Fluency** through readily doubling and halving numbers to 20 * **Understanding** that two numbers will add to the same total regardless of the order they are added * **Problem solving** using familiar addition and subtraction strategies to solve unfamiliar problems * **Reasoning** through explaining why the strategy is the correct one for the situation |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Use a range of practical strategies (e.g. use of concrete materials) for doubling numbers between 1 and 5.   Level 2  Students who are working at this level could:   * Define doubles and near doubles with numbers to 30 * Halve numbers to 30. |

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| **Assessment ideas** |
| Students:   * Play games that involve doubling such as pop sticks and dice labelled double and double plus one. |

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| **Resources** |
| **nRich**  [Doubling Fives](http://nrich.maths.org/10588)  [Different Sizes](http://nrich.maths.org/8117)  [Double or Halve?](http://nrich.maths.org/10654)  **NZ Maths**  [Doubles and Halves Froggo](http://www.nzmaths.co.nz/doubles-and-halves-froggo)  [Double Trouble](http://nzmaths.co.nz/resource/double-trouble-0)  [Smart Doubling](http://nzmaths.co.nz/resource/smart-doubling) |

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| Topic 1.1.9 Location – Giving and Following Directions | | |
| Strand:  Measurement and Geometry | Sub-strand:  Location and Transformation | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Give and follow directions to familiar locations [(VCMMG099)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG099) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students identify measurement attributes in practical situations and compare lengths, masses and capacities of familiar objects. They order events, explain their duration, and match days of the week to familiar events. Students identify simple shapes in their environment and sort shapes by their common and distinctive features. They use simple statements and gestures to describe location. | Students use informal units of measurement to order objects based on length, mass and capacity. They tell time to the half-hour and explain time durations. Students describe two-dimensional shapes and three-dimensional objects. **They use the language of distance and direction to move from place to place.** | Students order shapes and objects, using informal units for a range of measures. They tell time to the quarter hour and use a calendar to identify the date, days, weeks and months included in seasons and other events. Students draw two-dimensional shapes, specify their features and explain the effects of one-step transformations. They recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. |

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| **Activities** | **Proficiencies** |
| * Use barrier games to develop the language of location * Explain different views of a location including bird’s eye view * Create a simple map of the classroom, home or school and give directions orally or written from a starting point to an end-point * Go on a treasure hunt using directions to find treasure and/or students create their own * Use mapping tools to find your school within local community * Create a story map that also maps the directions a familiar story character may take such as in Little Red Riding Hood | * **Fluency** in giving and following simple accurate directions using correct language. * **Understanding** including linking the language of movement to its action * **Problem solving** through giving and receiving directions to unfamiliar places * **Reasoning** through explaining symbols involved in mapping to actual objects, e.g. 2D cupboard representing actual cupboard |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Give simple directions to guide a peer around an obstacle path and vice versa.   Level 2  Students who are working at this level could:   * Construct an arrangement of objects from a set of directions. |

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| **Assessment ideas** |
| Students:   * Create instructions for a partner that uses the language of clockwise, anti-clockwise, forward and under, as well as realistic measures of movement, e.g. 5 small steps * Students create their own map of a known story. |

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| **Resources** |
| **FUSE**  [From Here to There - Teacher Resource](http://fuse.education.vic.gov.au/?B9LJ8N)  [Treasure Hunt](http://fuse.education.vic.gov.au/?S9DF5N)  **nRich Maths**  [Position and Direction (Various Activities)](http://nrich.maths.org/9023)  **NZ Maths**  [Position and Orientation - Units of Work](http://www.nzmaths.co.nz/position-and-orientation-units-work) |

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| Topic 1.1.10 Recognise and Classify 2D Shapes | | |
| Strand:  Measurement and Geometry | Sub-strand:  Shape | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Recognise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features [(VCMMG098)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG098) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students identify measurement attributes in practical situations and compare lengths, masses and capacities of familiar objects. They order events, explain their duration, and match days of the week to familiar events. Students identify simple shapes in their environment and sort shapes by their common and distinctive features. They use simple statements and gestures to describe location. | Students use informal units of measurement to order objects based on length, mass and capacity. They tell time to the half-hour and explain time durations. **Students describe two-dimensional shapes and three-dimensional objects.** They use the language of distance and direction to move from place to place. | Students order shapes and objects, using informal units for a range of measures. They tell time to the quarter hour and use a calendar to identify the date, days, weeks and months included in seasons and other events. Students draw two-dimensional shapes, specify their features and explain the effects of one-step transformations. They recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. |

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| **Activities** | **Proficiencies** |
| * Develop linking between shapes and the everyday environment. What shapes do we have in our environment? Can we classify these shapes in different ways? For example, number of sides, corners, size, uses or colour * Develop correlations of shapes to their attributes, e.g. through tracing geometric shapes * Classify shapes according to geometric attributes, including regular and irregular examples * Use barrier games to describe shapes and placement in relation to each other * Explore concepts of shape such as regular and irregular shapes, open and closed shapes * Examine shapes with different attributes and how their names are determined, e.g. triangle-tri meaning 3, like a tricycle * Explore concepts of polygons and irregular polygons | * **Fluency** through recognising and naming 2D shapes according to their attributes * **Understanding** that 2D shapes have sides, angles but no depth * **Problem solving** through determining how to categorise shapes according to attributes or absence of attributes * **Reasoning** explaining why a shape fits or doesn’t fit into a category |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Sort and describe squares, circles, triangles and rectangles.   Level 2  Students who are working at this level could:   * Order 2D shapes according to a given or given attributes. |

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| **Assessment ideas** |
| Students:   * Classify 2D shapes according to a given or given attributes. |

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| **Resources** |
| **BBC Bitesize**  [2D and 3D Shapes (Various Activities)](http://www.bbc.co.uk/education/topics/zjv39j6)  **FUSE**  [Shape and Space](http://fuse.education.vic.gov.au/?X7SPFR)  **nRich**  [Exploring 2D Shapes](http://nrich.maths.org/content/id/8852/Exploring%202-d%20shape.pdf)  [The Development of Spatial and Geometric Thinking (Article)](http://nrich.maths.org/2487)  **NZ Maths**  [Shape – Units of Work](http://nzmaths.co.nz/shape-units-work)  [The Greedy Triangle](http://www.nzmaths.co.nz/resource/greedy-triangle) |

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| Topic 1.1.11 Solving Simple Addition and Subtraction Problems | | |
| Strand:  Number and Algebra | Sub-strand:  Number and Place Value | Recommended teaching time:  2 weeks |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts [(VCMNA089)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA089) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | **Students count to and from 100 and locate these numbers on a number line. They partition numbers using place value and carry out simple additions and subtractions, using counting strategies.** Students recognise Australian coins according to their value. They identify representations of one half. Students describe number sequences resulting from skip counting by 2s, 5s and 10s. They continue simple patterns involving numbers and objects with and without the use of digital technology. | Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **Activities** | **Proficiencies** |
| * Review strategies for working out addition and subtraction problems * Introduce concept of adding one group to another: instead of the word plus or addition, use ‘and’; instead of the word minus or subtraction use the term ‘take away’; instead of the equals sign, begin by using the term “is” * Use double sided counters to create stories, e.g. ten counters randomly thrown into a paper circle may create sums such as 4 and 6 is 10, 6 and 4 is 10, 10 take away 6 is 4, 10 take 4 is 6, or 10 is 4 and 6 * Create algorithms ensuring the addend or subtrahend is missing at times instead of the answer. e.g. 5 and \_ is 8 * Use tens frames to make and create algorithms without symbols * Use number lines to support representation of number stories | * **Fluency** through recall of addition and subtraction facts and estimations * **Understanding** that addition and subtraction are inverse operations * **Problem solving** using materials to model authentic problems and using familiar counting sequences to solve unfamiliar problems * **Reasoning** through understanding the operations and inverse relationship |

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| **Activities** | **Proficiencies** |
| * Use everyday situations to create opportunities for adding and subtraction, e.g. I had 8 cars but my brother took some, so now I only have 4. How many did he take? Or I had 8 cars and some are gone, what are the possible number stories? * Use books and nursery rhymes, songs etc. to create number stories e.g. One is a Snail, Ten is a Crab by April Sayre, 10 Green Bottles and Dinosaurs. * Develop understanding of equations being *equal*, *unequal*, *less than*, *greater than* with simple equations to develop understanding of those concepts. |  |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Describe practical examples of adding and subtracting in everyday life that show understanding of addition and subtraction as inverse operations.   Level 2  Students who are working at this level could:   * Model and represent simple additive situations using 10 frames, 20 frames and empty number lines. |

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| **Assessment ideas** |
| Students:   * Use symbols for equal, unequal, less than and greater than to demonstrate understanding of addition and subtraction equations |

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| **Resources** |
| **FUSE**  [Exploring Addition and Subtraction](http://fuse.education.vic.gov.au/?9GMM2K)  **nRich Maths**  [Addition and Subtraction Stage 1 (Various Activities)](http://nrich.maths.org/8937)  [Addition and Subtraction Stage 2 (Various Activities)](http://nrich.maths.org/8955)  **NZ Maths**  [Number Families and Relationships](http://www.nzmaths.co.nz/resource/number-families-and-relationships)  [Inequality Symbols and Relationships](http://www.nzmaths.co.nz/resource/inequality-symbols-and-relationships) |

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| Topic 1.1.12 Will it Happen? | | |
| Strand:  Statistics and Probability | Sub-strand:  Data Representation and Interpretation | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Identify outcomes of familiar events involving chance and describe them using everyday language such as ‘will happen’, ‘won’t happen’ or ‘might happen’ [(VCMSP100)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMSP100) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students sort familiar categorical data into sets and use these to answer yes/no questions and make simple true/false statements about the data. | Students describe data displays. They ask questions to collect data and draw simple data displays. **Students classify outcomes of simple familiar events.** | Students collect data from relevant questions to create lists, tables and picture graphs with and without the use of digital technology. They interpret data in context. Students use everyday language to describe outcomes of familiar events. |

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| **Activities** | **Proficiencies** |
| * Develop understanding of ‘will happen’, ‘won’t happen’ or ‘might happen’ * Relate terms to everyday events * Sequence events from won’t happen to will happen * Predict outcomes for everyday events such as chances of rain today * Use different experiences to show how events are likely or unlikely to occur based on \_\_\_\_\_\_, such as a spinner with two halves is like to be equally likely outcomes over several spins but with 4 sections of very different proportions should lead to other outcomes | * **Fluency** through application of terms, ‘will happen’,’ won’t happen’, and ‘might happen’ in appropriate contexts. * **Understanding** that different events may have different chances of occurring * **Problem Solving** using given information to solve problems * **Reasoning** using the understanding of chance solve everyday problems, e.g. it looks like rain at recess, I will need to wear my jacket |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Identify practical activities and everyday events that will happen today or by the end of the week   Level 2  Students who are working at this level could:   * Identify practical activities and everyday events that involve chance that have the outcomes ‘likely’ or ‘unlikely’ and ‘certain’ or ‘impossible’ |

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| **Assessment ideas** |
| Students:   * Classify familiar events as ‘will happen’, ‘won’t happen’ or ‘might happen’ |

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| **Resources** |
| **AMSI**  [Chance](http://www.amsi.org.au/teacher_modules/Chance_years_1-3.html#Year_1_Will_wont_might_happen)  **nRich**  [Red or Black Spinner](http://nrich.maths.org/8426)  [Progression in Primary Probability (Article)](http://nrich.maths.org/7312)  [Scissors, Paper, Rock](http://nrich.maths.org/1233)  **NZ Maths**  [Probability – Units of Work](http://nzmaths.co.nz/probability-units-work)  [Who Plays What](http://nzmaths.co.nz/resource/who-plays-what) |

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Year 1 Semester 2



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| Topic 1.2.1 Number Sequences and Skip Counting | | |
| Strand:  Number and Algebra | Sub-strand:  Number and Place Value | Recommended teaching time:  3 weeks |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * 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 [(VCMNA086)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA086) * Investigate and describe number patterns formed by skip counting and patterns with objects [(VCMNA093)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA093) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | Students count to and from 100 and locate these numbers on a number line. They partition numbers using place value and carry out simple additions and subtractions, using counting strategies. Students recognise Australian coins according to their value. They identify representations of one half. **Students describe number sequences resulting from skip counting by 2s, 5s and 10s.** **They continue simple patterns involving numbers and objects with and without the use of digital technology.** | Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **Activities** | **Proficiencies** |
| * Skip count by 2, 5 and 10 * Use the popular Korean counting game sam-yuk-gu for skip counting * Develop fluency with forwards and backwards counting using circle games * Use place-value patterns beyond the teens to generalise the number sequence and predict the next number * Investigate patterns in the number system, such as the occurrence of a particular digit in the numbers to 100 | * **Fluency** in skip counting by 2s, 5s and 10s * **Understanding** place-value patterns beyond the teens * **Problem solving** by investigating patterns in the number system * **Reasoning** through generalising number sequences and predicting the next numbers |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Count by naming numbers in sequences, initially to and from 20, moving from any starting point   Level 2  Students who are working at this level could:   * Investigate number sequences, initially those increasing and decreasing by twos, threes, fives and ten from any starting point, then moving to other sequences |

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| **Assessment ideas** |
| Students:   * Use an interactive counting machine to predict the next number of the sequence, or write the whole sequence first, then use the interactive to check their predictions |

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| **Resources** |
| **FUSE**  [Number Trains: Skip Counting](http://fuse.education.vic.gov.au/?5CQKQ2)  [Counting Machine](http://fuse.education.vic.gov.au/?KLHXN5) |

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| Topic 1.2.2 Measuring and Comparing Mass and Capacity Informally | | |
| Strand:  Measurement and Geometry | Sub-strands:  Using Units of Measurement | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Measure and compare the lengths, masses and capacities of pairs of objects using uniform informal units [(VCMMG095)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG095) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students identify measurement attributes in practical situations and compare lengths, masses and capacities of familiar objects. They order events, explain their duration, and match days of the week to familiar events. Students identify simple shapes in their environment and sort shapes by their common and distinctive features. They use simple statements and gestures to describe location. | **Students use informal units of measurement to order objects based on length, mass and capacity.** They tell time to the half-hour and explain time durations. Students describe two-dimensional shapes and three-dimensional objects. They use the language of distance and direction to move from place to place. | Students order shapes and objects, using informal units for a range of measures. They tell time to the quarter hour and use a calendar to identify the date, days, weeks and months included in seasons and other events. Students draw two-dimensional shapes, specify their features and explain the effects of one-step transformations. They recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. |

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| **Activities** | **Proficiencies** |
| * Link capacity to its importance in everyday life, e.g. ensuring leftovers fit in the container * Predict and prove capacity of containers * Compare and order containers according to size, including everyday objects such as food from the pantry * Use hefting to show weight does not always indicate capacity * Understand that capacity needs to be measured by the same unit to allow for comparison using arbitrary objects such as wooden cubes, Styrofoam packing peanuts as well as liquid measures, e.g. a cup of water or small jug * Develop understanding that different shaped containers may have similar / same capacity * Lift to compare the mass of objects using words, for example, heavier, lighter, same * Compare and describe the weight (mass) of two items: Which is lighter? Which is heavier? | * **Fluency** through accurately calculating capacity and order objects accordingly * **Understanding** that different shaped objects may have similar capacities * **Problem Solving** using concepts of capacity to solve everyday problems, e.g. will their bottle of juice fit on their glass? * **Reasoning** through explaining why two containers of different sizes have the same capacity |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Comparing objects directly, by pouring from one container into the other to see which one holds more.   Level 2  Students who are working at this level could:   * Compare capacities using a range of containers. |

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| **Assessment ideas** |
| Students:   * Make predictions of order of the capacity of a variety of simple containers, then measure using informal units and order according to capacity. |

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| **Resources** |
| **FUSE**  [What holds the most?](http://fuse.education.vic.gov.au/?MCBQB5)  [Heavier or Lighter?](http://fuse.education.vic.gov.au/?JG4NFB)  **nRich**  [Bottles 1](http://nrich.maths.org/10337)  [Bottles 2](http://nrich.maths.org/10382)  [Compare the Cups](http://nrich.maths.org/10656)  **NZ Maths**  [Capacity](http://www.nzmaths.co.nz/plan/elstow-junior-team/capacity) |

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| Topic 1.2.3 Represent Data and Developing Questions | | |
| Strand:  Statistics and Probability | Sub-strand:  Data Representation and Interpretation | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Represent data with objects and drawings where one object or drawing represents one data value. Describe the displays [(VCMSP102)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMSP102) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students sort familiar categorical data into sets and use these to answer yes/no questions and make simple true/false statements about the data. | **Students describe data displays. They ask questions to collect data and draw simple data displays.** Students classify outcomes of simple familiar events. | Students collect data from relevant questions to create lists, tables and picture graphs with and without the use of digital technology. They interpret data in context. Students use everyday language to describe outcomes of familiar events. |

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| **Activities** | **Proficiencies** |
| **Review**   * Use readily available data presented in tables to obtain information to determine good questions * Collect data from students such at types of pets, number of siblings in families * Construct simple pictorial tables * Identify ways to read tables * Determine and use information that is relevant from tables to identify trends * Develop questions based on information from tables | * **Fluency** through interpreting information from simple pictorial tables * **Understanding** that information can be represented in other ways * **Problem solving** through determining trends and developing relevant questions * **Reasoning** through interpreting simple representations of data, identifying trends to base questions on |

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| **Considering different levels of student ability** |
| Level F  Students who are working at this level could:   * Use data displays to answer simple yes / no questions   Students who are working at this level could:   * Create displays of data using lists, table and picture graphs and interpret them. |

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| **Assessment ideas** |
| Students:   * Create and use pictorial tables to ask and answer relevant questions, e.g. How many families in our class own a cat? Which is the most popular pet? |

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| **Resources** |
| **NCTM Illuminations**  [Number of Buttons we Wore Today](http://illuminations.nctm.org/Lesson.aspx?id=302)  **nRich**  [Handling Data (Various Activities)](http://nrich.maths.org/public/search.php?search=data&filters%5Bks1%5D=1)  **NZ Maths**  [Statistical Investigations - Units of Work](http://nzmaths.co.nz/statistical-investigations-units-work) |

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| Topic 1.2.4 What is Half? | | |
| Strand:  Number and Algebra | Sub-strand:  Fractions and Decimals | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Recognise and describe one-half as one of two equal parts of a whole [(VCMNA091)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA091) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | Students count to and from 100 and locate these numbers on a number line. They partition numbers using place value and carry out simple additions and subtractions, using counting strategies. Students recognise Australian coins according to their value. **They identify representations of one half.** Students describe number sequences resulting from skip counting by 2s, 5s and 10s. They continue simple patterns involving numbers and objects with and without the use of digital technology. | Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **Activities** | **Proficiencies** |
| * Explore concepts of a whole, including collections * Develop idea of equal sharing * Concept of halving as a part of everyday objects and collections using term not symbol * Classify those that are halves and those that aren’t * Link halves to symmetry linking to division, e.g. a butterfly is symmetrical and the two halves form a whole | * **Fluency** through classifying as a half or not a half as well as a part of a whole * **Understanding** that halves are a part of a whole and can be a variety of shapes and sizes * **Problem solving** through identifying the second half  of a picture or object through using symmetry * **Reasoning** through interpreting and explaining models |

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| **Considering different levels of student ability** |
| Level F  Students who are working at this level could:   * Identify objects in their environment that are ‘whole’ but can also be divided into parts, either equally or unequally.   Level 2  Students who are working at this level could:   * Recognise and interpret common uses of halves, quarters and eighths of shapes and collections. |

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| **Assessment ideas** |
| Students:   * Use a variety of paper shapes to find a half, and categorise them into those that resulted in a half and those that did not. |

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| **Resources** |
| **FUSE**  [Thirteen Ways of Looking at a Half](http://fuse.education.vic.gov.au/?84H9YL)  [Investigating Halves of Familiar Objects](http://fuse.education.vic.gov.au/?QGL8LG)  **nRich**  [Halving](http://nrich.maths.org/1788)  [Paper Halving](http://nrich.maths.org/13059) |

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| Topic 1.2.5 Recognise and Classify 3D Shapes | | |
| Strand:  Measurement and Geometry | Sub-strands:  Shape | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Recognise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features [(VCMMG098)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG098) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students identify measurement attributes in practical situations and compare lengths, masses and capacities of familiar objects. They order events, explain their duration, and match days of the week to familiar events. Students identify simple shapes in their environment and sort shapes by their common and distinctive features. They use simple statements and gestures to describe location. | Students use informal units of measurement to order objects based on length, mass and capacity. They tell time to the half-hour and explain time durations. **Students describe two-dimensional shapes and three-dimensional objects.** They use the language of distance and direction to move from place to place. | Students order shapes and objects, using informal units for a range of measures. They tell time to the quarter hour and use a calendar to identify the date, days, weeks and months included in seasons and other events. Students draw two-dimensional shapes, specify their features and explain the effects of one-step transformations. They recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. |

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| **Activities** | **Proficiencies** |
| * Explore the nets of 3D shapes by deconstructing everyday objects, e.g. cereal boxes * Develop linking between shapes and the everyday environment, e.g. What shapes do we have in our environment? Can we classify these shapes in different ways? For example, by number of sides, corners, faces, size, uses or colour * Develop correlations of three-dimensional shapes to their attributes, e.g. pyramids have four triangular sides. * Classify shapes according to geometric attributes, including regular and irregular examples * Name number of edges, faces and vertices | * **Fluency** through describing characteristics of 3D shapes * **Understanding** that 3D shapes consist of corners edges and faces * **Problem Solving** through categorising 3D shapes using their features * **Reasoning** by explaining differences and similarities between 3D shapes |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Sort and describe spheres and cubes.   Level 2  Students who are working at this level could:   * Order and classify 3D shapes. |

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| **Assessment ideas** |
| Students:   * Complete a table for 3D shapes that includes the name of the shape, and the number of edges, faces and corners. |

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| **Resources** |
| **BBC Bitesize**  [2D and 3D Shapes (Various Activities)](http://www.bbc.co.uk/education/topics/zjv39j6)  **FUSE**  [Courtenay Gardens 3D Shapes Clip](http://fuse.education.vic.gov.au/?LRDF8P)  **nRich**  [Building Blocks](http://nrich.maths.org/2343)  [Three Cubed](http://nrich.maths.org/1154)  **NZ Maths**  [Foil Fun](http://www.nzmaths.co.nz/resource/foil-fun) |

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| Topic 1.2.6 Number – Grouping and Sharing | | |
| Strand:  Number and Algebra | Sub-strand:  Number and Place Value | Recommended teaching time:  2 weeks |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Represent practical situations that model sharing [(VCMNA090)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA090) * Investigate and describe number patterns formed by skip counting and patterns with objects [(VCMNA093)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA093) * Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts [(VCMNA089)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA089) * Recognise the importance of repetition of a process in solving problems [(VCMNA094)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA094) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | Students count to and from 100 and locate these numbers on a number line. **They partition numbers using place value and carry out simple additions and subtractions, using counting strategies.** Students recognise Australian coins according to their value. **They identify representations of one half. Students describe number sequences resulting from skip counting by 2s, 5s and 10s. They continue simple patterns involving numbers and objects with and without the use of digital technology.** | Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **Activities** | **Proficiencies** |
| * Partition into equal groups * Develop concepts of equal sharing using situations such as in the home where four people require two eggs each… how many eggs will that be? * Use repeated addition to develop the concept of equal groups, e.g. three packs of tennis balls, four balls in each pack * Divide a set of blocks in a simple ratio such as ‘2 for me’, ‘1 for you’ * Link repeated addition to skip counting * Develop concept that groups make up a whole and vice-versa * Use arrays to demonstrate grouping and sharing equally | * **Fluency** through grouping items into equal groups * **Understanding** through partitioning numbers equally * **Problem solving** using materials to solve everyday problems * **Reasoning** through explaining grouping objects in particular ways |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Use a range of practical strategies for sharing small groups of numbers, such as visual displays or concrete materials.   Level 2  Students who are working at this level could:   * Use technology to construct a sequence of numbers based on constant addition from a given starting value. |

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| **Assessment ideas** |
| Students:   * Take materials and group into equal groups; they justify why it is equal or fair * Take materials and group into other groups according to a particular ratio, e.g. 1:2, 1:3 |

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| **Resources** |
| **nRich**  [Fingers and Hands](http://nrich.maths.org/6878)  **NZ Maths**  [Buttons and Bears](http://www.nzmaths.co.nz/resource/buttons-and-bears)  [Clap, Pat, Click](http://www.nzmaths.co.nz/resource/clap-pat-click)  [Tripods](http://www.nzmaths.co.nz/resource/tripods) |

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| Topic 1.2.7 Time – Half Past and Duration (Days, Weeks, Minutes and Hours) | | |
| Strand:  Measurement and Geometry | Sub-strand:  Using Units of Measurement | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Describe duration using months, weeks, days and hours [(VCMMG097)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG097) * Tell time to the half-hour [(VCMMG096)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG096) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students identify measurement attributes in practical situations and compare lengths, masses and capacities of familiar objects. They order events, explain their duration, and match days of the week to familiar events. Students identify simple shapes in their environment and sort shapes by their common and distinctive features. They use simple statements and gestures to describe location. | Students use informal units of measurement to order objects based on length, mass and capacity. **They tell time to the half-hour and explain time durations.** Students describe two-dimensional shapes and three-dimensional objects. They use the language of distance and direction to move from place to place. | Students order shapes and objects, using informal units for a range of measures. They tell time to the quarter hour and use a calendar to identify the date, days, weeks and months included in seasons and other events. Students draw two-dimensional shapes, specify their features and explain the effects of one-step transformations. They recognise the features of three-dimensional objects. They interpret simple maps of familiar locations. |

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| **Activities** | **Proficiencies** |
| * Revise areas in which time has been constantly taught incidentally throughout the year * Review the days of the week and the months of the year; relate months to the seasons * Continue use a calendar, on a daily basis, to support counting up to and back to significant days including those that go into a new month or a previous one * Ensure fluency when naming the days of the week, months of the year and the seasons as a way of naming a measure of time * Revise using activities that demonstrate hourly and half past times * Sequence unnamed periods of time according to estimates of time taken, e.g. does it take longer to brush your teeth or eat dinner? * Develop concepts of different minute times: this might include setting times until certain events, as 5 mins, 6 mins, 10 mins etc. * Develop concepts of hour by relating to everyday events as well as setting timers | * **Fluency** through recall of the days of the weeks, months of the year and seasons * **Understanding** that time is named in conventional units of measurement (except February) * **Problem solving** through knowledge of the standard units of measure for each time duration * **Reasoning** through realisation that different lengths of time have different names and that we can sequence time frames according to size, e.g. 5 mins, 1 hour, 1 day, 1 month |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Sequence familiar events in time order.   Level 2  Students who are working at this level could:   * Tell time to the quarter-hour, using the language of 'past' and 'to'. |

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| **Assessment ideas** |
| Students   * Sequence duration of event problems * Name and order days of the week months of the year. |

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| **Resources** |
| **FUSE**  [What's in a Year?](http://fuse.education.vic.gov.au/?H9WRYM)  **nRich**  [Time Activities](http://nrich.maths.org/9026)  [Times of Day](http://nrich.maths.org/6609)  [Stop the Clock](http://nrich.maths.org/6071)  [Time Snap](http://nrich.maths.org/6082/note)  **NZ Maths**  [Passing Time](http://nzmaths.co.nz/resource/passing-time)  [How Long Now](http://nzmaths.co.nz/resource/how-long-now)  [Clock Wise](http://nzmaths.co.nz/resource/clock-wise) |

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| Topic 1.2.8 Number – Revisiting Place Value and Counting | | |
| Strand:  Number and Algebra | Sub-strand:  Number and Place Value | Recommended teaching time:  2 weeks |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line [(VCMNA087)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA087) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | **Students count to and from 100 and locate these numbers on a number line.** **They partition numbers using place value and carry out simple additions and subtractions, using counting strategies.** Students recognise Australian coins according to their value. They identify representations of one half. Students describe number sequences resulting from skip counting by 2s, 5s and 10s. They continue simple patterns involving numbers and objects with and without the use of digital technology. | Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **Activities** | **Proficiencies** |
| * Revise skip counting forwards and backwards using the 120 chart to support link to patterning * Use blank number lines and establish mid, ¼ and ¾ points, e.g. 100, has 50, 25 and 75 * Use bead strings, unifix cubes, etc. to establish order of numbers, recognising the tens and ones columns * Revise numbers before and after a given number and extend to 10 before and 10 after; consolidate one of these is ten of those through games and activities * Read and order numbers to at least and from at least 100, e.g. 17, 54, 80, 91 * Order numbers and explain which may involve tens frames or pop sticks * Make all / count all, count on, count on from larger numbers * Consolidate part / whole ideas using tens frames | * **Fluency** through recognising the value of a number and ordering due to size, placing on blank number lines, or demonstrating via tens and ones * **Understanding** through recognising that numbers indicate the order of a number and that teen numbers are made up of 10 and a single digit number * **Problem solving** through using familiar stories that use understanding of place value and counting * **Reasoning** that the size of a number and its name can be determined by ‘reading’ its expanded form, e.g. 727 is 7 hundred and 2 tens (20) and 7 ones |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Read and order numbers to at least and from at least 20.   Level 2  Students who are working at this level could:   * Read and order numbers to 1000. |

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| **Assessment ideas** |
| Students:   * Use ice cream sticks to bundle to 10 and identify that two bundles is 20 * Use games and activities that involving bundling into tens and counting bundles. |

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| **Resources** |
| **FUSE**  [Number Trains](http://fuse.education.vic.gov.au/?K5W9Q2)  [Number Trains: Numbers 90 to 120](http://fuse.education.vic.gov.au/?8E7JND)  **nRich**  [That Number Square](http://nrich.maths.org/8169/note)  [What Do You Need?](http://nrich.maths.org/5950/note)  **NZ Maths**  [Ones and Tens](http://nzmaths.co.nz/resource/ones-and-tens) |

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| Topic 1.2.9 Money | | |
| Strand:  Number and Algebra | Sub-strand:  Money and Financial Mathematics | Recommended teaching time:  1 week |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Recognise, describe and order Australian coins according to their value [(VCMNA092)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA092) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | Students count to and from 100 and locate these numbers on a number line. They partition numbers using place value and carry out simple additions and subtractions, using counting strategies. **Students recognise Australian coins according to their value. T**hey identify representations of one half. Students describe number sequences resulting from skip counting by 2s, 5s and 10s. They continue simple patterns involving numbers and objects with and without the use of digital technology. | Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **Activities** | **Proficiencies** |
| * Consolidate recall of the value of coins * Develop understandings of which coins added together are the same as either a single coin or another group, e.g. 20c can be 4 five-cent pieces or 2 ten-cent pieces; 20c, 20c and 10c and be the same as 5 ten cent pieces * Consolidate understanding that value is not related to size * Order coins according to value * Use money in everyday contexts to develop the concepts of value for money | * **Fluency** through ordering and comparing coins and determining equivalency between sets of coins. * **Understanding** that coins have a predetermined value and can be recognised by their symbols * **Problem solving** through using money in everyday situations, e.g. lunch orders. * **Reasoning** through explanation of the value of coins that represent equivalence to an item to be purchased |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Using toy money to pay for goods in play situations.   Level 2  Students who are working at this level could:   * Identify equivalent values in collections of coins and notes, such as two five-cent coins having the same value as one 10-cent coin. |

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| **Assessment ideas** |
| Students:   * Recognise, name and order coins * Recognise that a coin, e.g. 50c, can be represented in more than one way. |

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| **Resources** |
| **ASIC**  [MoneySmart Teaching Resources](http://teaching.moneysmart.gov.au/professional-learning/moneysmart-teaching-packages)  **FUSE**  [Money Match](http://fuse.education.vic.gov.au/?XLZLC4" \o "Ɛ廴翿)  [MoneySmart: Money Match](http://fuse.education.vic.gov.au/?H75BMH)  [MoneySmart: Bertie's Socks – Unit of Work](http://fuse.education.vic.gov.au/?LW9SBC)  **nRich**  [Money Problems - Teacher Guide](http://nrich.maths.org/2586) |

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| Topic 1.2.10 Number – Revisiting Addition and Subtraction | | |
| Strand:  Number and Algebra | Sub-strand:  Number and Place Value | Recommended teaching time:  2 weeks |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts [(VCMNA089)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA089) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | Students count to and from 100 and locate these numbers on a number line. **They partition numbers using place value and carry out simple additions and subtractions, using counting strategies.** Students recognise Australian coins according to their value. They identify representations of one half. Students describe number sequences resulting from skip counting by 2s, 5s and 10s. They continue simple patterns involving numbers and objects with and without the use of digital technology. | Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **Activities** | **Proficiencies** |
| * Revise counting on, counting down to and counting up to strategies * Revise commutative law * Revise bridging to and from tens with or without use of tens frames * Continue to use a vertical set out for algorithms * Use word problems to solve and investigate * Develop fluency of doubles and near doubles * Develop fluency of how many more to 10 * Develop fluency of number pairs that make to 10 as well as other combinations of more than two numbers to 1 * Use number lines to support addition and subtraction | * **Fluency** through recall of addition and subtraction facts and estimations * **Understanding** that addition and subtraction are inverse operations * **Problem solving** using materials to model authentic problems and using familiar counting sequences to solve unfamiliar problems * **Reasoning** through understanding the operations and inverse relationships |

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| **Considering different levels** |
| Level F  Students who are working at this level could:   * Use a range of practical strategies (e.g. use of concrete materials) for adding and subtracting small groups of numbers.   Level 2  Students who are working at this level could:   * Use arrange of mental strategies for addition and subtraction problems, such as commutativity for addition, building to 10, doubles, 10 facts and adding 10. |

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| **Assessment ideas** |
| Students:   * Use a variety of strategies to solve problems. * Demonstrate understanding of commutative law and inverse relationship between addition and subtraction. |

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| **Resources** |
| **AAMT**  [Bridging Decades](http://topdrawer.aamt.edu.au/Mental-computation/Good-teaching/Addition-and-subtraction/Bridging-decades)  **FUSE**  [Exploring Addition and Subtraction](http://fuse.education.vic.gov.au/?9GMM2K)  **nRich**  [Addition and Subtraction Stage 1](http://nrich.maths.org/8937)  [Addition and Subtraction Stage 2](http://nrich.maths.org/8955)  **NZ Maths**  [Number Families and Relationships](http://www.nzmaths.co.nz/resource/number-families-and-relationships)  [Inequality Symbols and Relationships](http://www.nzmaths.co.nz/resource/inequality-symbols-and-relationships) |

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| Topic 1.2.11 Skip Counting and Simple Multiplication | | |
| Strand:  Number and Algebra | Sub-strand:  Number and Place Value | Recommended teaching time:  2 weeks |

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| **Mapping to F–10 curriculum in Victoria** | | |
| **Content descriptions** | | |
| * Investigate and describe number patterns formed by skip counting and patterns with objects [(VCMNA093)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA093) * 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 [(VCMNA086)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA086) | | |
| **Achievement standard (excerpt in bold)** | | |
| Foundation Level | **Level 1** | Level 2 |
| Students connect number names and numerals with sets of up to 20 elements, estimate the size of these sets, and use counting strategies to solve problems that involve comparing, combining and separating these sets. They match individual objects with counting sequences up to and back from 20. Students order the first 10 elements of a set. They represent, continue and create simple patterns. | Students count to and from 100 and locate these numbers on a number line. **They partition numbers using place value and carry out simple additions and subtractions, using counting strategies.** Students recognise Australian coins according to their value. They identify representations of one half. **Students describe number sequences resulting from skip counting by 2s, 5s and 10s.** **They continue simple patterns involving numbers and objects with and without the use of digital technology.** | Students count to and from, and order numbers up to 1000. They perform simple addition and subtraction calculations, using a range of strategies. They find the total value of simple collections of Australian notes and coins. Students represent multiplication and division by grouping into sets and divide collections and shapes into halves, quarters and eighths. They recognise increasing and decreasing number sequences involving 2s, 3s, 5s and 10s, identify the missing element in a number sequence, and use digital technology to produce sequences by constant addition. |

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| **Activities** | **Proficiencies** |
| * See the patterns in the numbers that have factors of two, five and ten * Skip count by 2s, 5s and 10s to solve simple multiplication problems * Represent multiplication problems in context with diagrams * Solve simple multiplication problems in various ways and talk about how they found the answer | * **Fluency** of skip counting 2s, 5s, and 10s. * **Understanding** what multiplication is and how it can be represented * **Problem solving** by skip count to solve story problems, rather than counting all, e.g. John has 3 ponds and there are 2 fish in each pond. How many fish are there altogether? * **Reasoning** through representing multiplication problems with diagrams |

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| **Considering different levels of student ability** |
| Level F  Students who are working at this level could:   * Represent practical situations to model repeated addition.   Level 2  Students who are working at this level could:   * Recognise and represent multiplication as repeated addition, groups and arrays. |

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| **Assessment ideas** |
| Students:   * Apply knowledge and understandings of arrays and skip counting to solve problems using everyday contexts. |

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| **Resources** |
| **NZ Maths**  [Skip it to Multiply It](http://www.nzmaths.co.nz/resource/skip-it-multiply-it)  **FUSE**  [Multiplication.com: Interactive Games](http://fuse.education.vic.gov.au/?X27LLB) |

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