Victorian Curriculum vs AusVELS AC: Mathematics - Number & Algebra (SUB-STRANDS WITH ELABORATIONS)

PROGRESSION IS HIGHLIGHTED IN THE FOLLOWING DOCUMENT VIA **BOLDED TEXT**.

Based on Australian Curriculum, Assessment and Reporting Authority (ACARA) materials

Year Level Indicators	Level descriptions	Sub-strands							
		Number and place value		Fractions and decimals		Money and financial mathematics		Patterns and algebra	
		Content descriptions	Elaborations	Content descriptions	Elaborations	Content descriptions	Elaborations	Content descriptions	Elaborations
Foundation	'In Foundation level, students play with objects and draw pictures to develop links between their immediate environment, everyday language and mathematical activity. Students classify and sort objects into sets and form simple correspondences between them. They decide when two sets are of equal size, or one is smaller or bigger than another. They develop an understanding of the concepts of number and numeral, count, order, add and share using small sets of objects. They create and continue simple patterns...,'	Establish understanding of the language and processes of counting by naming numbers in sequences, initially to and from 20, moving from any starting point (ACMNA001) **(VCMNA069)**	* Reading stories from other cultures featuring counting in sequence to assist students to recognise ways of counting in local languages and across cultures * Identifying the number words in sequence, backwards and forwards, and reasoning with the number sequences, establishing the language on which subsequent counting experiences can be built * Developing fluency with forwards and backwards counting in meaningful contexts, including stories and rhymes * Understanding that numbers are said in a particular order and there are patterns in the way we say them	N/A	N/A	Represent simple, everyday financial situations involving money **(VCMNA075)** **New content description**	* Using toy money to pay for goods in play situations	Sort and classify familiar objects and explain the basis for these classifications and copy, continue and create patterns with objects and drawings (ACMNA005) **(VCMNA076)** **Elaborations modified**	* Observing natural patterns in the world around us * Creating and describing patterns using materials, sounds, movements or drawings * Extending patterns using materials and drawings to the right and to the left * Identifying which part of the pattern is being repeated (happening over and over again)
		Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond (ACMNA002) **(VCMNA070)**	* Understanding that each object must be counted only once, that the arrangement of objects does not affect how many there are, and that the last number counted answers the 'how many' question * Using scenarios to help students recognise that other cultures count in a variety of ways, such as by placing one pebble in a bag to represent one object (for example to count the number of cattle)					Follow a short sequence of instructions **(VCMNA077)** **New content description**	* Carrying out a specified sequence of actions to move an object from one location to another * Playing a simple rule-based game moving a specified number of places according to the result on a die in a chance-based game
		Subitise small collections of objects (ACMNA003) **(VCMNA071)**	* Using subitising as the basis for ordering and comparing collections of numbers						
		Compare, order and make correspondences between collections, initially to 20, and explain reasoning (ACMNA289) **(VCMNA072)**	* Comparing and ordering items of like and unlike characteristics using the words 'more', 'less', 'same as' and 'not the same as' and giving reasons for these answers * Understanding and using terms such as 'first' and 'second' to indicate ordinal position in a sequence. * Using objects which are personally and culturally relevant to students						
		Represent practical situations to model addition and subtraction (ACMNA004) **(VCMNA073)**	* Using a range of practical strategies for adding small groups of numbers, such as visual displays or concrete materials * Using Aboriginal and Torres Strait Islander methods of adding, including spatial patterns and reasoning						
		Represent practical situations to model sharing **(VCMNA074)** **New content description**	* Using a range of practical strategies for sharing small groups of numbers, such as visual displays or concrete materials * Using verbal action stories to model situations that involve sharing						
Foundation Level Achievement Standard	NOTE: The standards are not divided into sub-strands in the Victorian Curriculum documents. However, logic would dictate that the standards could be put into sub-strands, as demonstrated to the right.	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. **New achievement standard**	

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Level 1	'In Level 1, students **use mathematical symbols and language as well as materials** and drawings in their mathematical **explorations of daily life**. Students recognise, represent and order numbers to **at least 100** using materials, **diagrams**, words, numerals and **a number line**, and **apply this with respect to** the value of Australian coins. They **group and skip count by twos, fives and tens**, and count to **100** by **partitioning and using place value**. Students solve simple **addition** problems, and share **into two equal groups or parts to model one-half**...,'	**Develop confidence with** number sequences to and from **100** by ones from any starting point. **Skip count by twos, fives and tens starting from zero** (ACMNA012) **(VCMNA086)**	* Using the popular Korean counting game (sam-yuk-gu) for skip counting * Developing fluency with forwards and backwards counting in meaningful contexts such as circle games	**Recognise and describe one-half as one of two equal parts of a whole.** (ACMNA016) **(VCMNA091)**	* Sharing a collection of readily available materials into two equal portions * Splitting an object into two equal pieces and describing how the pieces are equal	**Recognise, describe and order Australian coins according to their value** (ACMNA017) **(VCMNA092)**	* Showing that coins are different in other countries by comparing Asian coins to Australian coins * Understanding that the value of Australian coins is not related to size * Describing the features of coins that make it possible to identify them	**Investigate and describe number patterns formed by skip counting and patterns with objects** (ACMNA018) **(VCMNA093)**	* Using place-value patterns beyond the teens to generalise the number sequence and predict the next number * Investigating patterns in the number system, such as the occurrence of a particular digit in the numbers to 100
		Recognise, model, read, write and order numbers to at least 100. **Locate these numbers on a number line** (ACMNA013) **(VCMNA087)**	* Modelling numbers with a range of material and images * Identifying numbers that are represented on a number line and placing numbers on a prepared number line					**Recognise the importance of repetition of a process in solving problems** **(VCMNA094)** **New content description**	* Using one-to-one correspondence to determine which of two sets is larger, or if they are of equal size * Dividing a set of blocks in a simple ratio such as '2 for me', '1 for you'
		Count collections to **100 by partitioning numbers using place value** (ACMNA014) **(VCMNA088)**	* Understanding partitioning of numbers and the importance of grouping in tens * Understanding two-digit numbers as comprised of tens and ones/units						
		Represent and **solve** simple addition and **subtraction** problems **using a range of strategies including counting on, partitioning and rearranging parts** (ACMNA015) **(VCMNA089)**	* Developing a range of mental strategies for addition and subtraction problems						
		Represent practical situations that model sharing **(VCMNA090)** **New content description**	* Sharing a set of objects, such as a packet of sweets, equally between a small group of people using one-to-one correspondence * Recognising whether there is a remainder or not after sharing equally						
Level 1 Achievement Standard	NOTE: The standards are not divided into sub-strands in the Victorian Curriculum documents. However, logic would dictate that the standards could be put into sub-strands, as demonstrated to the right.	Students **describe** number sequences resulting from skip counting by 2s, 5s and 10s. Students count to and from 100 and locate numbers on a number line. They partition numbers using place value… ...and carry out simple additions and subtractions, using counting strategies.		They identify **representations of one half.**		Students recognise **Australian coins according to their value.**		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**.	

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Level 2	'In Level 2, students use **grouping** partitioning and re-arrangement to apply place value and extend the range of numbers they use and apply to **thousands**. Students recognise, model and order numbers to at least **1000** and use a variety of strategies to count efficiently, including skip counting **forwards and backwards** by twos **threes**, fives and tens, **with and without the use of technology**. They explore **the relationship between** addition and subtraction, and use a variety of strategies to solve problems, including **missing number** problems. Students **use groups and arrays to represent multiplication and division** and solve simple problems, including finding halves, **quarters and eighths** of sets and shapes. They **count** and order by value, **small collections of** Australian coins and notes...,'	**investigate** number sequences, initially those increasing and decreasing by twos, **threes**, fives and ten from **any starting point, then moving to other sequences**. (ACMNA026) **(VCMNA103)** **Elaborations modified**	* Developing fluency and confidence with numbers and calculations by saying number sequences * Recognising that the natural numbers with zero form an ordered infinite set {0, 1, 2, 3 … } with a first element but no last element * Recognising patterns in number sequences, such as adding 10 always results in the same final digit	**Recognise and interpret common uses of halves, quarters and eighths of shapes and collections** (ACMNA033) **(VCMNA110)**	* Recognising that sets of objects can be partitioned in different ways to demonstrate fractions * Relating the number of parts to the size of a fraction	**Count** and order **small collections** of Australian coins and **notes according to their value** (ACMNA034) **(VCMNA111)**	* Identifying equivalent values in collections of coins or notes, such as two five-cent coins having the same value as one 10 cent coin * Counting collections of coins or notes to make up a particular value, such as that shown on a price tag	Describe patterns with numbers and **identify missing elements** (ACMNA035) **(VCMNA112)**	* Describing a pattern created by skip counting and representing the pattern on a number line * Investigating features of number patterns resulting from adding twos, fives or 10s
		Recognise, model, represent and order numbers to at least **1000** (ACMNA027) **(VCMNA104)**	* Recognising there are different ways of representing numbers and identifying patterns going beyond 100 * Developing fluency with writing numbers in meaningful contexts					**Solve problems by using number sentences** for addition or subtraction (ACMNA036) **(VCMNA113)**	* Representing a word problem as a number sentence * Writing a word problem to represent a number sentence
		Group, partition and **rearrange** collections up to **1000 in hundreds, tens and ones to facilitate more efficient** counting (ACMNA028) **(VCMNA105)**	* Using an abacus to model and represent numbers * Understanding three-digit numbers as comprised of hundreds, tens and ones/units * Demonstrating and using models such as linking blocks, sticks in bundles, place-value blocks and Aboriginal bead strings and explaining reasoning					**Apply repetition in arithmetic operations, including multiplication as repeated addition and division as repeated subtraction** **(VCMNA114)** **New content description**	* Using technology to construct a sequence of numbers based on constant addition or subtraction from a given starting value * Sharing a set of objects equally between a small number of groups
		Explore the connection between addition and subtraction (ACMNA029) **(VCMNA106)**	* Becoming fluent with partitioning numbers to understand the connection between addition and subtraction * Using counting on to identify the missing element in an additive problem						
		Solve simple addition and subtraction problems using **a range of efficient mental and written strategies** (ACMNA030) **(VCMNA107)**	* Becoming fluent with a range of mental strategies for addition and subtraction problems, such as commutativity for addition, building to 10, doubles, 10 facts and adding 10 * Modelling and representing simple additive situations using materials such as 10 frames, 20 frames and empty number lines						
		Recognise and represent multiplication as repeated addition, groups and arrays (ACMNA031) **(VCMNA108)**	* Representing array problems with available materials and explaining reasoning * Visualising a group of objects as a unit and using this to calculate the number of objects in several identical groups						
		Recognise and represent division as grouping into equal sets and solve simple problems using these representations (ACMNA032) **(VCMNA109)** **Elaborations modified**	* Dividing the class or a collection of objects into equal-sized groups * Identifying the difference between dividing a set of objects into three equal groups (partition) and dividing the same set of objects into groups of three (quotition)						
Level 2 Achievement Standard	NOTE: The standards are not divided into sub-strands in the Victorian Curriculum documents. However, logic would dictate that the standards could be put into sub-strands, as demonstrated to the right.	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**.		...and they divide collections and shapes into halves, quarters and eighths.		They **find the total value of** simple collections of Australian notes and coins.		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**.	
		They perform simple addition and subtraction calculations, using a range of strategies.							
		Students count to and from, and order numbers up to 1000.							
		Students represent multiplication and division by grouping into sets…							

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Level 3	'In Level 3, students **increasingly** use mathematical terms and symbols to describe computations, measurements and characteristics of objects. Students recognise, model and order numbers to at least **10 000** and **place four digit numbers on** a number line **with regard for scale**. They partition and re-arrange to facilitate calculations involving addition and subtraction. Students **have facility with** single digit addition and related subtraction **facts**, and recall multiplication **and related** division **facts** for twos, threes, fives and tens. They **formulate and solve simple multiplication and division** problems, **estimate** answers **and use technology to check calculations**. Students group money **to a specified value** in **several ways**, and **calculate change required** in **simple transactions**. They model and represent **multiples of unit fractions up to a whole, using arrays** on a number line. They write **simple rules for number patterns and generate those patterns**...,'	Investigate the conditions required **for a number to be odd or even and identify odd and even numbers** (ACMNA051) **(VCMNA129)**	* Identifying even numbers using skip counting by twos or by grouping even collections of objects in twos * Explaining why all numbers that end in the digits 0, 2, 4, 6 and 8 are even and that numbers ending in 1, 3, 5, 7 and 9 are odd	**Model and represent unit** fractions including 1/2, 1/4, **1/3, 1/5 and their multiples to a complete whole** (ACMNA058) **(VCMNA136)** **Elaborations modified**	* Partitioning areas, lengths and collections to create halves, thirds, quarters and fifths, such as folding the same sized sheets of paper to illustrate different unit fractions and comparing the number of parts with their sizes * Locating unit fractions on a number line * Recognising that in English the term 'one third' is used (order: numerator, denominator) but that in other languages, such as for Japanese example, this concept may be expressed as 'three parts, one of them' (order: denominator, numerator)	**Represent** money values **in multiple ways** and **count the change required for simple transactions to the nearest five cents** (ACMNA059) **(VCMNA137)** **Elaboration modified**	* Recognising the relationship between dollars and cents, and that not all countries use these denominations and divisions. For example, the Japanese Yen	Describe, continue, and **create** number patterns **resulting from performing addition or subtraction** (ACMNA060) **(VCMNA138)**	* Identifying and writing the rules for number patterns * Describing a rule for a number pattern, then creating the pattern
		Recognise, model, represent and order numbers to at least **10 000** (ACMNA052) **(VCMNA130)**	* Placing four-digit numbers on a number line using an appropriate scale * Reproducing numbers in words using their numerical representations and vice versa					**Use a function machine and the inverse machine as a model to apply mathematical rules to numbers or shapes** **(VCMNA139)** **New content description**	* Finding and describing simple rules in words to solve problems *Using simple function machines to represent and apply a process or the inverse process, such as increase or decrease the value of a number by a specified amount
		Apply place value to partition, rearrange and regroup numbers to at least **10 000 to assist calculations and solve problems** (ACMNA053) **(VCMNA131)**	* Recognising that 10 000 equals 10 thousands, 100 hundreds, 1000 tens and 10 000 ones * Justifying choices about partitioning and regrouping numbers in terms of their usefulness for particular calculations						
		Recognise and explain the connection between addition and subtraction (ACMNA054) **(VCMNA132)** **Elaborations modified**	* Demonstrating the connection between addition and subtraction using partitioning or by writing equivalent number sentences * Solving simple word problems involving addition or subtraction						
		Recall addition facts for single-digit numbers and related subtraction facts to develop increasingly efficient mental strategies for computation (ACMNA055) **(VCMNA133)** **Elaborations modified**	* Recognising that certain single-digit number combinations always result in the same answer for addition and subtraction, and using this knowledge for addition and subtraction of larger numbers * Extending strategies for addition and subtraction such as 14 + 8 + 6 = 14 + 6 + 8 = 28 and 54 – 28 = 2 + 20 + 4 * Combining knowledge of addition and subtraction facts and partitioning to aid computation (for example 57 + 19 = 57 + 20 – 1)						
		Recall multiplication facts of two, three, five and ten **and related division facts** (ACMNA056) **(VCMNA134)** **Elaborations modified**	* Establishing multiplication facts using number sequences * Using strategies to recall the multiplication and related division facts for the twos, threes, fives and tens						
		Represent and solve problems involving multiplication **using efficient mental and written strategies and appropriate digital technologies** (ACMNA057) **(VCMNA135)**	* Writing simple word problems in numerical form and vice versa * Using a calculator to check the solution and reasonableness of the answer						
Level 3 Achievement Standard	NOTE: The standards are not divided into sub-strands in the Victorian Curriculum documents. However, logic would dictate that the standards could be put into sub-strands, as demonstrated to the right.	They recognise the connection between addition and subtraction, and solve problems using efficient strategies for multiplication with and without the use of digital technology. Students count to and from 10 000. Students recall addition and multiplication facts for single-digit numbers. They classify numbers as either odd or even, continue number patterns involving addition and subtraction, and explore simple number sequences b ased on multiples.		Students model and represent unit fractions for halves, thirds, quarters, fifths and eights, and multiples of these up to **one**.		They represent money values in various ways and correctly count out change from financial transactions.		They classify numbers as either odd or even, continue number patterns involving addition or subtraction, and explore simple number sequences based on multiples.	

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Level 4	'In Level 4, students extend the number system to simple **decimal** fractions…,' ',...Students model, represent and order numbers to tens of thousands, and **extend** place value to **tenths and hundredths**. They investigate odd and even numbers and explore number patterns **based on** multiples of 3, **4, 6, 7, 8 and 9**. Students develop facility with multiplication facts **up to 10 x 10** and related division facts. They investigate simple **equivalent** fractions and count **by** halves, thirds and quarters, and **locate** corresponding elements on a number line. Students use simple **decimals** to solve money problems including total **cost** and change. They solve simple **number sentences** and **word** problems involving **all four** operations...,'	Investigate and **use** the properties of odd and even numbers (ACMNA071) **(VCMNA151)**	* Using the four operations with pairs of odd or even numbers or one odd and one even number, then using the relationships established to check the accuracy of calculations	Investigate **equivalent** fractions used in contexts (ACMNA077) **(VCMNA157)**	* Exploring the relationship between families of fractions (halves, quarters and eighths or thirds and sixths) by folding a series of paper strips to construct a fraction wall	Solve problems involving **purchases** and the calculation of change to the nearest five cents **with and without digital technologies** (ACMNA080) **(VCMNA160)**	* Recognising that not all countries use dollars and cents, e.g. India uses rupees. * Carrying out calculations in another currency as well as in dollars and cents, and identifying both as decimal systems	Explore and describe number patterns resulting from performing **multiplication** (ACMNA081) **(VCMNA161)**	* Identifying examples of number patterns in everyday life
		Recognise, **represent and order** numbers to at least tens of thousands (ACMNA072) **(VCMNA152)**	* Reproducing five-digit numbers in words using their numerical representations, and vice versa	Count **by** quarters halves and thirds, including **with mixed numerals**. Locate and represent **these fractions** on a number line (ACMNA078) **(VCMNA158)**	* Converting mixed numbers to improper fractions and vice versa * Investigating the use of fractions and sharing as a way of managing Country: for example taking no more than half the eggs from a nest to protect future bird populations			Solve **word** problems by **using number sentences involving** multiplication or division **where there is no remainder** (ACMNA082) **(VCMNA162)**	* Representing a word problem as a number sentence * Writing a word problem using a given number sentence
		Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems (ACMNA073) **(VCMNA153)**	* Recognising and demonstrating that the place-value pattern is built on the operations of multiplication or division of tens	Recognise that the place value system can be **extended to tenths and hundredths**. Make connections between fractions and **decimal notation** (ACMNA079) **(VCMNA159)**	* Using division by 10 to extend the place-value system * Using knowledge of fractions to establish equivalences between fractions and decimal notation			Use **equivalent number sentences** involving addition and subtraction **to find unknown quantities** (ACMNA083) **(VCMNA163)**	* Writing number sentences to represent and answer questions such as: 'When a number is added to 23 the answer is the same as 57 minus 19. What is the number?' * Using partitioning to find unknown quantities in number sentences
		Investigate number sequences **involving multiples of 3, 4, 6, 7, 8, and 9** (ACMNA074) **(VCMNA154)**	* Recognising that number sequences can be extended indefinitely, and determining any patterns in the sequences					**Define a simple class of problems and solve them using an effective algorithm that involves a short sequence of steps and decisions** **(VCMNA164)** **New content description**	* Constructing and applying an algorithm for multiplication of two-digit numbers * Partitioning and ordering a set of Australian coins by denomination
		Recall multiplication facts **up to 10×10** and related division facts (ACMNA075) **(VCMNA155)** **Elaborations modified**	* Using known multiplication facts to calculate related division facts * Using strategies to recall the multiplication facts * Extending multiplication facts (for example 4 by 7 is 28 so 4 by 7 tens is 28 tens)						
		Develop efficient mental and written strategies **and use appropriate digital technologies** for multiplication and for division where there is no remainder (ACMNA076) **(VCMNA156)**	* Using known facts and strategies, such as commutativity, doubling and halving for multiplication, and connecting division to multiplication when there is no remainder						
Level 4 Achievement Standard	NOTE: The standards are not divided into sub-strands in the Victorian Curriculum documents. However, logic would dictate that the standards could be put into sub-strands, as demonstrated to the right.	They choose appropriate strategies for calculations involving multiplication and division, with and without the use of digital technology, **and estimate answers accurately enough for the context**.		They locate **familiar** fractions on a number line, recognise common equivalent fractions in familiar contexts and make connections between fraction and decimal notations **up to two decimal places**.		Students solve simple purchasing problems with and without the use of digital technology.		Students use **the properties** of odd and even numbers, and describe number patterns resulting from multiplication.	
		Students use **the properties** of odd and even numbers, and describe number patterns resulting from multiplication.						Students **continue** number sequences involving multiples of single-digit numbers and **unit** fractions, and locate them on a number line.	
		Students recall multiplication facts to 10 x 10 and related division facts.						Students identify unknown quantities in number sentences.	

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Level 5	'In Level 5, students extend decimal fractions to **thousandths**, and explore the ideas of **factors**, multiples and divisibility. Students use **estimation and rounding** for all four operations, with and without the use of technology for calculation. They solve **multiple digit** problems involving addition, subtraction, multiplication and division **by single digit divisors with remainders**. Students represent, compare and order **unit** fractions, and decimal fractions, and represent them on a number line. They construct simple **budgets for familiar events and activities**. They solve numbers sentences involving **division**, and create number patterns involving **fractions and decimals**...,'	Identify and describe **factors** and multiples of **whole numbers** and **use them to solve problems** (ACMNA098) **(VCMNA181)**	* Exploring factors and multiples using number sequences * Using simple divisibility tests	Compare and order **common unit fractions** and locate and represent **them** on a number line (ACMNA102) **(VCMNA187)**	* Recognising the connection between the order of unit fractions and their denominators	**Create simple** financial **plans** (ACMNA106) **(VCMNA191)**	* Creating a simple budget for a class fundraising event * Identifying the GST component of invoices and receipts	**Describe, continue and create patterns with fractions, decimals** and whole numbers **resulting from addition and subtraction** (ACMNA107) **(VCMNA192)**	* Using the number line or diagrams to create patterns involving fractions or decimals
		Use **estimation and rounding** to **check the reasonableness of answers to calculations** (ACMNA099) **(VCMNA182)**	* Recognising the usefulness of estimation to check calculations * Applying mental strategies to estimate the result of calculations, such as estimating the cost of a supermarket trolley load	Investigate strategies to solve problems involving addition and subtraction **of fractions with the same denominator** (ACMNA103) **(VCMNA188)**	* Modelling and solving addition and subtraction problems involving fractions by using jumps on a number line, or making diagrams of fractions as parts of shapes				
		Solve problems involving multiplication of **large** numbers by one-or **two-digit** numbers using efficient mental, written strategies and appropriate digital technologies (ACMNA100) **(VCMNA183)** **Elaborations modified**	* Using rounding and making estimates for computations * Exploring techniques for multiplication such as the area model, the Italian lattice method or the partitioning of numbers * Applying the distributive law and using arrays to model multiplication and explain calculation strategies	Recognise that the place value system can be extended **beyond hundredths** (ACMNA104) **(VCMNA189)**	* Using knowledge of place value and division by 10 to extend the number system to thousandths and beyond * Recognising the equivalence of one thousandths and 0.001			Use equivalent number sentences **involving multiplication and division** to find unknown quantities (ACMNA121) **(VCMNA193)**	* Using relevant problems to develop number sentences
		Solve problems involving division **by a one digit number**, including those that result **in a remainder** (ACMNA101) **(VCMNA184)** **Elaborations modified**	* Using the fact that equivalent division calculations result if both numbers are divided by the same factor * Using rounding and making estimates for computations * Interpreting and representing the remainder in division calculations sensibly for the context	**Compare, order and represent decimals** (ACMNA105) **(VCMNA190)**	* Locating decimals on a number line			**Follow a** mathematical algorithm **involving branching and repetition (iteration)** **(VCMNA194)** **Content description modified**	* Simulating a simple random walk * Manipulating sets of numbers using a given rule, for example, if a number is even halve it; if a number is odd, subtract 1 then halve it
		Use efficient mental and written strategies and **apply** appropriate digital technologies to solve problems (ACMNA291) **(VCMNA185)** **Elaborations modified**	* Choosing between mental, written and a technology-based computation depending on the nature of the problems and the purpose for computation * Using technology to solve problems and check the reasonableness of answers						
		Recognise, represent and order numbers to at least **hundreds** of thousands **(VCMNA186)** **New content description**	* Reproducing six-digit numbers in words using their numerical representations, and vice versa						
Level 5 Achievement Standard	NOTE: The standards are not divided into sub-strands in the Victorian Curriculum documents. However, logic would dictate that the standards could be put into sub-strands, as demonstrated to the right.	Students solve simple problems involving the four operations using a range of strategies including digital technology. They estimate to check the reasonableness of answers and **approximate** answers by rounding. Students identify and describe factors and multiples.		Students order decimals and unit fractions and locate them on number lines. They add and subtract fractions with the same denominator.		They explain **plans for simple budgets**.		They find unknown quantities in number sentences, and continue patterns by adding and subtracting fractions and **decimals**.	

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Level 6	'In Level 6, students work with **prime, composite, square and triangular** numbers and carry out mental, written and technology based computation to solve whole number problems involving all four operations. They explore everyday situations involving **integers**, and use a number line to represent them. They **scale decimals by powers of ten**, and add and subtract decimals with and without technology, and estimate their answers. Students calculate simple **percentage discounts**, **multiply** decimals by whole number, carry out divisions **with terminating decimal** remainders, and use simple **fraction, decimal and percentage equivalences** with and without technology. They create sequences involving whole numbers, fractions and decimals, describe their rules, **and use brackets and order of operations** to write numbers sentences **involving multiple operations**...,'	Identify and describe properties of **prime, composite, square and triangular** numbers (ACMNA122) **(VCMNA208)** **Elaborations modified**	* Understanding that some numbers have special properties and that these properties can be used to solve problems * Representing composite numbers as a product of their prime factors and using this form to simplify calculations by cancelling common primes * Understanding that if a number is divisible by a composite number then it is also divisible by the prime factors of that number	Compare fractions with **related** denominators and locate and represent them on a number line (ACMNA125) **(VCMNA211)**	* Demonstrating equivalence between fractions using drawings and models	Investigate and calculate **percentage discounts of 10%, 25% and 50% on sale items, with and without digital technologies** (ACMNA132) **(VCMNA218)**	* Using authentic information to calculate prices on sale goods	Continue and create sequences involving whole numbers, fractions and decimals. Describe **the rule used to create the sequence** (ACMNA133) **(VCMNA219)**	* Identifying and generalising number patterns * Investigating additive and multiplicative patterns such as the number of tiles in a geometric pattern, or the number of dots or other shapes in successive repeats of a strip or border pattern looking for patterns in the way the numbers increase/decrease
		Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving **all four** operations with whole numbers and make estimates **for these computations** (ACMNA123) **(VCMNA209)** **Content description and elaboration modified**	* Applying strategies already developed for solving problems involving small numbers to those involving large numbers * Applying a range of strategies to solve realistic problems and commenting on the efficiency of different strategies * Forming simple single digit estimates with consideration of order of magnitude of the result	Solve problems involving addition and subtraction of fractions with the same **or related** denominators (ACMNA126) **(VCMNA212)**	* Understanding the processes for adding and subtracting fractions with related denominators and fractions as an operator, in preparation for calculating with all fractions * Solving realistic additive (addition and subtraction) problems involving fractions to develop understanding of equivalent fractions and the use of fractions as operators * Modelling and solving additive problems involving fractions by using methods such as jumps on a number line, or by making diagrams of fractions as parts of shapes			Explore the use of **brackets and order of operations** to write number sentences (ACMNA134) **(VCMNA220)**	* Appreciating the need for rules to complete multiple operations within the same number sentence
		Investigate everyday situations that use integers. Locate and represent **these** numbers on a number line (ACMNA124) **(VCMNA210)** **Elaboration modified**	* Understanding that integers form an ordered infinite set {…-3, -2, -1, 0, 1, 2, 3…} with no first element or last element * Solving everyday additive problems using a number line * Investigating everyday situations that use integers, such as temperatures * Using number lines to position and order integers around zero	Find a simple fraction **of a quantity where the result is a whole number, with and without digital technologies** (ACMNA127) **(VCMNA213)**	* Recognising that finding one third of a quantity is the same as dividing by 3			**Design** algorithms involving branching and iteration **to solve specific classes of mathematical problems** **(VCMNA221)** **New content description**	* Implementing algorithms such as the Euclidean division algorithm * Devising flowcharts to represent algorithms for a common processes such as adding two fractions
				Add and subtract decimals, **with and without digital technologies**, and **use** estimation and rounding to check the reasonableness of answers (ACMNA128) **(VCMNA214)**	* Extending whole-number strategies to explore and develop meaningful written strategies for addition and subtraction of decimal numbers to thousandths * Exploring and practising efficient methods for solving problems requiring operations on decimals, to gain fluency with calculating with decimals and with recognising appropriate operations				
				Multiply **decimals by whole numbers** and **perform divisions by non-zero whole numbers where the results are terminating decimals, with and without digital technologies** (ACMNA129) **(VCMNA215)**	* Interpreting the results of calculations to provide an answer appropriate to the context				
				Multiply and divide decimals by powers of 10 (ACMNA130) **(VCMNA216)**	* Multiplying and dividing decimals by multiples of powers of 10				
				Make connections between equivalent fractions, decimals and percentages (ACMNA131) **(VCMNA217)**	* Connecting fractions, decimals and percentages as different representations of the same number, moving fluently between representations and choosing the appropriate one for the problem being solved				

Year Level Indicators	Level descriptions	Sub-strands							
		Number and place value		Fractions and decimals		Money and financial mathematics		Patterns and algebra	
		Content descriptions	Elaboration	Content descriptions	Elaborations	Content descriptions	Elaborations	Content descriptions	Elaborations
Level 6 Achievement Standard	NOTE: The standards are not divided into sub-strands in the Victorian Curriculum documents. However, logic would dictate that the standards could be put into sub-strands, as demonstrated to the right.	Students recognise the properties of prime, composite, square and triangular numbers and **determine sets** of these numbers. They solve problems involving all four operations with whole numbers… ...and **describe the use of integers in everyday contexts**.		They solve problems involving the addition and subtraction of **related** fractions. They **use ordered pairs of integers to represent** coordinates of points and locate **a point in any one of the** four quadrants on the Cartesian plane. They **make connections between the powers of 10 and the multiplication and division of decimals.** Students locate fractions and integers on a number line… ...and connect fractions, decimals and percentages **as different representations of the same number.** FROM STATISTICS & PROBABILITY They specify, list and communicate probabilities of events using simple **ratios,** fractions, decimals and percentages. Students add, subtract and **multiply decimals and divide decimals where the result is rational.** Students calculate a simple fraction of a quantity…		...and calculate **common** percentage discounts on sale items, with and without the use of digital technology.		...and **specify** rules to generate sequences involving whole numbers, fractions and decimals. Students write number sentences using brackets and order of operations…	

Year Level Indicators	Level descriptions	Sub-strands							
		Number and place value		Fractions and decimals		Money and financial mathematics		Patterns and algebra	
		Content descriptions	Elaboration	Content descriptions	Elaborations	Content descriptions	Elaborations	Content descriptions	Elaborations
Level 7	',...In Level 7, students work with powers of whole numbers, use index notation, represent numbers as products of powers of prime numbers, and investigate square roots of perfect squares. They use number properties to assist with calculation and order, and to add and subtract integers. Students find equivalent fractions, represent positive and negative fractions and mixed numbers on a number line and add, subtract, multiply and divide fractions and decimals with and without the use of technology. They express one quantity as a fraction of another, round to a specified number of decimal places, and convert between fractions, decimals and percentages. They find percentages of quantities and one quantity as a percentage of another. They solve simple ratio problems and calculate best buys with and without the use of technology. Students use variables to express relationships in real life data, and interpret and analyse corresponding graphs. They use pro-numerals to construct simple algebraic expressions and substitute numerical values into these. They solve simple linear equations and plot points on the Cartesian plane....,'	Investigate index notation and represent whole numbers as products of powers of prime numbers (ACMNA149) **(VCMNA238)**	* Defining and comparing prime and composite numbers and explaining the difference between them * Applying knowledge of factors to strategies for expressing whole numbers as products of powers of prime factors, such as repeated division by prime factors or creating factor trees * Solving problems involving lowest common multiples and greatest common divisors (highest common factors) for pairs of whole numbers by comparing their prime factorisation	N/A - See Real Numbers		Investigate and calculate 'best buys', with and without digital technologies (ACMNA174) **(VCMNA250)**	* Applying the unitary method to identify 'best buys' situations, such as comparing the cost per 100g	Introduce the concept of variables as a way of representing numbers using letters (ACMNA175) **(VCMNA251)**	* Understanding that arithmetic laws are powerful ways of describing and simplifying calculations and that using these laws leads to the generality of algebra
		Investigate and use square roots of perfect square numbers (ACMNA150) **(VCMNA239)**	* Investigating square numbers such as 25 and 36 and developing square-root notation * Investigating between which two whole numbers a square root lies	**Real numbers**		**Linear and non-linear relationships**		Create algebraic expressions and evaluate them by substituting a given value for each variable (ACMNA176) **(VCMNA252)**	* Using authentic formulas to perform substitutions
				Content Descriptions	**Elaborations**	**Content Descriptions**	**Elaborations**		
				Compare fractions using equivalence. Locate and represent positive and negative fractions and mixed numbers on a number line (ACMNA152) **(VCMNA242)**	* Exploring equivalence among families of fractions by using a fraction wall or a number line (for example by using a fraction wall to show that 2/3 is the same as 4/6 and 6/9)	Given coordinates, plot points on the Cartesian plane, and find coordinates for a given point (ACMNA178) **(VCMNA255)**	* Plotting points from a table of integer values and recognising simple patterns, such as points that lie on a straight line		
		Apply the associative, commutative and distributive laws to aid mental and written computation and make estimates for these computations (ACMNA151) **(VCMNA240)** **Content description and elaboration modified**	* Simplifying calculations * Forming simple estimates for calculations involving multiple and/or combined operations	Solve problems involving addition and subtraction of fractions, including those with unrelated denominators (ACMNA153) **(VCMNA243)**	* Exploring and developing efficient strategies to solve additive problems involving fractions (for example by using fraction walls or rectangular arrays with dimensions equal to the denominators)	Solve simple linear equations (ACMNA179) **(VCMNA256)**	* Solving equations using concrete materials, such as the balance model, and explain the need to do the same thing to each side of the equation using substitution to check solutions * Investigating a range of strategies to solve equations	Extend and apply the laws and properties of arithmetic to algebraic terms and expressions (ACMNA177) **(VCMNA253)**	* Identifying order of operations in contextualised problems, preserving the order by inserting brackets in numerical expressions, then recognising how order is preserved by convention * Moving fluently between algebraic and word representations as descriptions of the same situation
		Compare, order, add and subtract integers (ACMNA280) **(VCMNA241)** **Elaboration added**	* Using a variety of models to represent, add and subtract integers	Multiply and divide fractions and decimals using efficient written strategies and digital technologies (ACMNA154) **(VCMNA244)**	* Investigating multiplication of fractions and decimals, using strategies including patterning and multiplication as repeated addition, with both concrete materials and digital technologies, and identifying the processes for division as the inverse of multiplication	Investigate, interpret and analyse graphs from real life data, including consideration of domain and range (ACMNA180) **(VCMNA257)** **Content description and elaboration modified**	* Using travel graphs to investigate and compare the distance travelled to and from school * Interpreting features of travel graphs such as the slope of lines and the meaning of horizontal lines * Using graphs of evaporation rates to explore water storage * Describing and comparing temperature during a day at different times of the year from the corresponding graphs		
				Express one quantity as a fraction of another, with and without the use of digital technologies (ACMNA155) **(VCMNA245)**	* Using authentic examples for the quantities to be expressed and understanding the reasons for the calculations			Design and implement mathematical algorithms using a simple general purpose programming language **(VCMNA254)** **New content description**	* Finding the sum of a set of consecutive numbers using a loop structure * Constructing geometric patterns such as a honeycomb, using dynamic geometry functionality
				Round decimals to a specified number of decimal places (ACMNA156) **(VCMNA246)**	* Using rounding to estimate the results of calculations with whole numbers and decimals, and understanding the conventions for rounding				
				Connect fractions, decimals and percentages and carry out simple conversions (ACMNA157) **(VCMNA247)**	* Justifying choices of written, mental or calculator strategies for solving specific problems including those involving large numbers * Understanding that quantities can be represented by different number types and calculated using various operations, and that choices need to be made about each * Calculating the percentage of the total local municipal area set aside for parkland, manufacturing, retail and residential dwellings to compare land use				
				Find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies. (ACMNA158) **(VCMNA248)**	* Using authentic problems to express quantities as percentages of other amounts				
				Recognise and solve problems involving simple ratios (ACMNA173) **(VCMNA249)**	* Understanding that rate and ratio problems can be solved using fractions or percentages and choosing the most efficient form to solve a particular problem				

Year Level Indicators	Level descriptions	Sub-strands							
		Number and place value		Real numbers		Money and financial mathematics	Linear and non-linear relationships	Patterns and algebra	
		Content descriptions	Elaboration	Content descriptions	Elaborations			Content descriptions	Elaborations
Level 7 Achievement Standard	NOTE: The standards are not divided into sub-strands in the Victorian Curriculum documents. However, logic would dictate that the standards could be put into sub-strands, as demonstrated to the right.	Students solve problems involving the order, addition and subtraction of integers. They make **the connections between** whole numbers and index notation **and the relationship between** perfect squares and square roots. They make **simple** estimates to **judge** the reasonableness of results.		They solve problems involving all four operations with fractions, decimals and percentages, and their equivalences, and express fractions **in their simplest form**.		Students compare the cost of items to make financial decisions, with and without the use of digital technology.	They assign ordered pairs to given points on the Cartesian plane and interpret and analyse graphs **of relations** from **real** data. Students **develop** simple linear **models for situations, make predictions on these models, solve related equations and check their solutions**.	Students use variables to represent arbitrary numbers using, and connect the laws and properties for numbers to algebra and substitute numbers into algebraic expressions.	