

# *Scope and Sequence*

Structure, Scope & Sequence of Mathematics Content Addressed Within

## *Numbers Up! Volcanic Panic*

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**Mathematics**

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# Numeration

AGE	NUMBERS UP! LEVEL	CONTENT
4-6	1-2	<p><b>Number Range 1 - 5</b></p> <p>Counts the number of objects in a set</p> <p>Checks the count of the number of objects in a set</p> <p>Counts rearranged number arrays and get the same total</p> <p>Counts an irregular arrangement of objects – different in size, shape or colour</p> <p>Counts on by ones – give the number after any number</p> <p>Starts counting from a starting point other than 1</p> <p>Recognises when an error has been made in counting</p> <p>Selects the correct word to represent a collection of objects</p> <p>Selects the correct numeral to represent a collection of objects</p> <p>Compares equivalent and non-equivalent sets by matching – <i>there are more bees than hives</i></p> <p>Orders sets of objects in ascending order</p> <p>Uses ordinal language <i>first to fifth</i></p> <p>Classifies other sets as <i>less, more, the same as</i> another set</p>
	3-4	<p><b>Number Range 1 - 10</b></p> <p>Counts the number of objects in a set</p> <p>Checks the count of the number of objects in a set</p> <p>Counts rearranged number arrays and get the same total</p> <p>Counts an irregular arrangement of objects – different in size, shape or colour</p> <p>Counts on by ones – give the number after any number</p> <p>Starts counting from a starting point other than 1</p> <p>Recognises when an error has been made in counting</p> <p>Selects the correct word to represent a collection of objects</p> <p>Selects the correct numeral to represent a collection of objects</p> <p>Compares equivalent and non-equivalent sets by matching</p> <p>Orders sets of objects in ascending order</p> <p>Uses ordinal language <i>first to ninth</i></p> <p>Classifies other sets as <i>less, more, the same as</i> another set</p>
	5	<p><b>Number Range 0 - 10</b></p> <p>Counts the number of objects in a set</p> <p>Counts down to zero</p> <p>Recognises the numeral zero as symbolising the empty set</p> <p>Checks the count of the number of objects in a set</p> <p>Counts rearranged number arrays and get the same total</p> <p>Counts an irregular arrangement of objects – different in size, shape or colour</p> <p>Counts on by ones – give the number after any number</p>

		<p>Starts counting from a starting point other than 1</p> <p>Recognises when an error has been made in counting</p> <p>Selects the correct word to represent a collection of objects</p> <p>Selects the correct numeral to represent a collection of objects</p> <p>Compares equivalent and non-equivalent sets by matching</p> <p>Orders sets of objects in ascending order</p> <p>Uses ordinal language <i>first to tenth</i></p> <p>Classifies other sets as <i>less, more, the same as</i> another set</p> <p>Identifies the inequality – <i>there are 2 more bears than beds</i></p>
6-7	6	<p><b>Number Range 0 - 10</b></p> <p>Counts the number of objects in a set</p> <p>Counts down to zero</p> <p>Recognises the numeral zero as symbolising the empty set</p> <p>Checks the count of the number of objects in a set</p> <p>Counts rearranged number arrays and get the same total</p> <p>Counts an irregular arrangement of objects – different in size, shape or colour</p> <p>Counts on by ones – give the number after any number</p> <p>Starts counting from a starting point other than 1</p> <p>Recognises when an error has been made in counting</p> <p>Selects the correct word to represent a collection of objects</p> <p>Selects the correct numeral to represent a collection of objects</p> <p>Compares equivalent and non-equivalent sets by matching</p> <p>Orders sets of objects in ascending order</p> <p>Uses ordinal language</p> <p>Classifies other sets as <i>less, more, the same as</i> another set</p> <p>Identifies the inequality – <i>there are 2 more bears than beds</i></p> <p>Recognises and copies simple patterns</p> <p>Detects an inconsistency in a repeating pattern</p> <p>Recognises number patterns and predicts subsequent numbers (1 gap)</p>
7	7	<p><b>Number Range 0 - 20</b></p> <p>Counts the number of objects in a set</p> <p>Counts down to zero</p> <p>Recognises the numeral zero as symbolising the empty set</p> <p>Checks the count of the number of objects in a set</p> <p>Counts rearranged number arrays and get the same total</p> <p>Counts an irregular arrangement of objects – different in size, shape or colour</p> <p>Counts on by ones – give the number after any number</p> <p>Starts counting from a starting point other than 1</p> <p>Recognises when an error has been made in counting</p> <p>Selects the correct word to represent a collection of objects</p> <p>Selects the correct numeral to represent a collection of objects</p> <p>Compares equivalent and non-equivalent sets by matching</p> <p>Orders sets of objects in ascending order</p> <p>Uses ordinal language <i>first to twentieth</i></p>

		<p>Classifies other sets as <i>less, more, the same</i> as another set</p> <p>Identifies the inequality – <i>there are 2 more bears than beds</i></p> <p>Recognises and copy simple patterns</p> <p>Detects an inconsistency in a repeating pattern</p> <p>Recognises number patterns and predict subsequent numbers (1 gap)</p> <p>Counts by twos up to 20 and back from 20</p> <p>Recognises different patterns and arrays of the same number</p> <p>Identifies the number that lies between 2 given numbers</p>
7-8	8	<p><b>Number Range 0 - 30</b></p> <p>Identifies the number 1 more or less than any given number</p> <p>Identifies the number 10 more or less than any given number</p> <p>Identifies how numbers are grouped in tens and units</p> <p>Partitions a teens number into tens and units</p> <p>Uses zero as a place holder</p> <p>Counts by twos, fives and tens</p> <p>Recognises odd and even numbers to 30</p> <p>Reads and writes numerals and number words to 30</p> <p>Partitions teens numbers into tens and units</p> <p>Orders numbers up to 30</p> <p>Recognises number patterns and predicts subsequent numbers</p> <p>Detects inconsistencies in repeating patterns</p>
8	9-11	<p><b>Number Range 0 - 100</b></p> <p>Knows numbers in order forwards from 0 to 100</p> <p>Knows numbers in order backwards from 100 to 0</p> <p>Counts by twos, fives and tens forwards from 0 to 100</p> <p>Counts by twos, fives and tens backwards from 100 to 0</p> <p>Identifies and extends simple number sequences</p> <p>Counts on or back by 1 from any 2-digit number</p> <p>Counts on or back by 10 from any 2-digit number</p> <p>Recognises odd and even numbers to 30</p> <p>Reads and writes whole numbers to 100 in words and numerals</p> <p>Knows what each figure in a 2-digit number represents</p> <p>Can partition 2-digit numbers into tens and units</p> <p>Can rebuild 2-digit numbers from tens and units collections</p> <p>Uses and understands zero as a place holder</p> <p>Can compare and order 2-digit numbers</p> <p>Uses ordinal numbers to <i>one hundredth</i></p>
9	12-13	<p><b>Number Range 0 - 1000</b></p> <p>Reads and write whole numbers to 1 000 – figures and words</p> <p>Counts on or back in ones from any 2- or 3-digit number</p> <p>Counts on or back by twos from any 2- or 3-digit number</p> <p>Recognises odd and even numbers to 100</p> <p>Counts on or back in threes, fours and fives from any 2- or 3-digit number</p> <p>Counts on or back in tens from any 2- or 3-digit number</p>

		<p>Counts on or back by 100 from any 2- or 3-digit number</p> <p>Recognises 2- and 3-digit multiples of 2, 5 and 10</p> <p>Recognises 3-digit multiples of 50 and 100</p> <p>Knows what each figure in a 3-digit number represents</p> <p>Partitions 3-digit numbers into hundreds, tens and units</p> <p>Rebuilds 3-digit numbers from hundreds, tens and units collections</p> <p>Orders and compares 2- and 3-digit numbers</p> <p>Rounds any 2-digit number to the nearest ten multiple</p> <p>Rounds any 3-digit number to the nearest ten or one hundred multiple</p> <p>Uses ordinal numbers up to <i>one hundredth</i></p>
	14-15	<p><b>Number Range 0 - 1 000</b></p> <p>Reads and write whole numbers to 1 000 – figures and words</p> <p>Counts on or back in ones from any 2- or 3-digit number</p> <p>Counts on or back by twos from any 2- or 3-digit number</p> <p>Recognises odd and even numbers to 100</p> <p>Counts on or back in threes, fours and fives from any 2- or 3-digit number</p> <p>Counts on or back in tens from any 2- or 3-digit number</p> <p>Counts on or back by 100 from any 2- or 3-digit number</p> <p>Recognises 2- and 3-digit multiples of 2, 5 and 10</p> <p>Recognises 3-digit multiples of 50 and 100</p> <p>Knows what each figure in a 3-digit number represents</p> <p>Partitions 3-digit numbers into hundreds, tens and units</p> <p>Rebuilds 3-digit numbers from hundreds, tens and units collections</p> <p>Orders and compares 2- and 3-digit numbers</p> <p>Rounds any 2-digit number to the nearest ten multiple</p> <p>Rounds any 3-digit number to the nearest ten or one hundred multiple</p> <p>Uses ordinal numbers up to <i>one hundredth</i></p> <p>Understands the process of multiplying 2- and 3-digit numbers by 10 and by 100</p>
10	16-17	<p><b>Number Range 1 - 10 000</b></p> <p>Reads and write whole numbers to 10 000 – figures and words</p> <p>Knows what each digit represents in any 4-digit number</p> <p>Partitions 4-digit numbers into thousands, hundreds, tens and units</p> <p>Rebuilds 4-digit numbers from thousands, hundreds, tens and units collections</p> <p>Adds or subtracts 1 to or from any 1-, 2-, 3- or 4-digit number</p> <p>Adds or subtracts 10 to or from any 1-, 2-, 3- or 4-digit number</p> <p>Adds or subtracts 100 to or from any 1-, 2-, 3- or 4-digit number</p> <p>Adds or subtracts 1 000 to or from any 1-, 2-, 3- or 4-digit number</p> <p>Multiplies any 2-, 3- or 4-digit number by 10</p> <p>Divides any 2-, 3- or 4-digit ten multiple by 10</p> <p>Multiplies any 2-, 3- or 4-digit number by 100</p> <p>Divides any 3- or 4-digit one hundred multiple by 100</p> <p>Compares and orders numbers up to 10 000</p> <p>Estimates numbers and proportions of numbers e.g. <i>about half</i></p> <p>Recognises and extends number sequences</p>

		<p>Recognises odd and even numbers up to 1 000</p> <p>Recognises multiples of 2, 3, 4, 5 and 10</p>
	18	<p><b>Number Range – Any positive integer</b></p> <p>Reads and write any positive integer in figures or words</p> <p>Knows what each digit represents in any positive whole number</p> <p>Multiplies any positive integer up to 10 000 by 10</p> <p>Divides any positive integer up to 10 000 by 10</p> <p>Multiplies any positive integer up to 10 000 by 100</p> <p>Divides any positive integer up to 10 000 by 100</p> <p>Orders and compare any numbers up to 7 digits</p> <p>Recognises multiples of 2, 3, 4, 5, 6, 7, 8, 9, 10</p> <p>Finds simple common multiples</p> <p>Knows squares of numbers up to 10x10 and corresponding square roots</p> <p>Rounds any 2-, 3-, 4-, 5- or 6-digit number to the nearest 10, 100, 1000, 10 000</p> <p>Recognises and extends number sequences and patterns</p>
11	19-20	<p><b>Number Range – Any positive integer, decimal numbers to one decimal place</b></p> <p>Reads and write any positive integer in figures or words</p> <p>Knows what each digit represents in any positive whole number</p> <p>Multiplies any positive integer up to 10 000 by 10</p> <p>Divides any positive integer up to 10 000 by 10</p> <p>Multiplies any positive integer up to 10 000 by 100</p> <p>Divides any positive integer up to 10 000 by 100</p> <p>Orders and compare any numbers up to 7 digits</p> <p>Recognises multiples of 2, 3, 4, 5, 6, 7, 8, 9, 10</p> <p>Finds simple common multiples</p> <p>Knows squares of numbers up to 12 x 12 and corresponding square roots</p> <p>Rounds any 2-, 3-, 4-, 5- or 6-digit number to the nearest 10, 100, 1000, 10 000, 100 000</p> <p>Recognises and extends number sequences and patterns</p> <p>Recognises and understands place value for tenths</p> <p>Reads and understands decimal notation to one decimal place</p> <p>Rounds a number with one decimal place to the nearest integer</p> <p>Recognises prime numbers up to 100</p> <p>Compares and orders numbers with up to one decimal place</p>
12	21	<p><b>Number Range – Any positive integer, decimal numbers to two decimal places</b></p> <p>Reads and write any positive integer in figures or words</p> <p>Knows what each digit represents in any positive whole number</p> <p>Multiplies any positive integer up to 10 000 by 10</p> <p>Divides any positive integer up to 10 000 by 10</p> <p>Multiplies any positive integer up to 10 000 by 100</p> <p>Divides any positive integer up to 10 000 by 100</p> <p>Orders and compare any numbers up to 7 digits</p> <p>Recognises multiples of 2, 3, 4, 5, 6, 7, 8, 9, 10</p> <p>Finds simple common multiples</p> <p>Knows squares of numbers up to 12 x 12 and corresponding square roots</p>

		<p>Rounds any 2-, 3-, 4-, 5- or 6-digit number to the nearest 10, 100, 1000, 10 000, 100 000</p> <p>Recognises and extends number sequences and patterns</p> <p>Recognises and understands place value for tenths</p> <p>Reads and understands decimal notation to two decimal places</p> <p>Rounds a number with two decimal places to the nearest integer</p> <p>Recognises prime numbers up to 100</p> <p>Compares and orders numbers with up to two decimal places</p>
	22	<p><b>Number Range – Any positive integer, decimal numbers to three decimal places, negative integers in context</b></p> <p>Reads and write any number from 0.001 to 10 000 000 and knows what each digit represents</p> <p>Uses and understands zero as a place holder in any context e.g. 0.35, 3.05, 3.50, etc</p> <p>Can add/subtract 0.1 and 0.01 to/from any number</p> <p>Counts forwards or backwards from any number by increments of 0.01, 0.1, 1, 10, 100, 1 000, 10 000, 100 000</p> <p>Multiplies and divides by 0.1, 10, 100, 1 000</p> <p>Orders and compares decimal numbers to three decimal places</p> <p>Uses positive and negative integers in context e.g. temperature</p> <p>Recognises prime numbers up to 100</p> <p>Knows squares of numbers up to 12 x 12 and corresponding square roots</p> <p>Knows squares to 10 multiples up to 100 and corresponding square roots</p> <p>Knows squares of decimal numbers 0.1 to 0.9 and corresponding square roots</p> <p>Can solve number and place value problems</p>
13-15	23-26	<p><b>Number Range – Any positive integer, decimal numbers to three decimal places, negative integers, index notation, scientific notation (Standard Form)</b></p> <p>Reads and write any number from 0.001 to 10 000 000 and knows what each digit represents</p> <p>Uses and understands zero as a place holder in any context e.g. 0.35, 3.05, 3.50, etc</p> <p>Can add/subtract 0.1 and 0.01 to/from any number</p> <p>Counts forwards or backwards from any number by increments of 0.01, 0.1, 1, 10, 100, 1 000, 10 000, 100 000</p> <p>Multiplies and divides by 0.01, 0.1, 10, 100, 1 000</p> <p>Orders and compares decimal numbers to three decimal places</p> <p>Orders and compares numbers written using index notation</p> <p>Uses positive and negative integers in context e.g. temperature</p> <p>Recognises prime numbers up to 100</p> <p>Knows squares and cubes of numbers up to 12 x 12 and corresponding roots</p> <p>Knows squares and cubes of 10 multiples up to 100 and corresponding roots</p> <p>Knows squares and cubes of decimal numbers 0.1 to 0.9 and corresponding roots</p> <p>Recognises that a square number has both positive and negative roots</p> <p>Recognises that the cube root of a negative number is negative and the cube root of a positive number is positive</p> <p>Can solve number and place value problems</p> <p>Rounds numbers of any size</p> <p>Rounds numbers of any size to a given number of significant figures</p> <p>Compares and order numbers written using index notation</p> <p>Converts from ordinary numerals to Roman numerals and vice versa</p>

# Addition

AGE	NUMBERS UP! LEVEL	CONTENT
4-6	1-2	<p><b>Totals 1 - 5</b>            Explores number pairs that total 5            Compares sets of objects – <i>more, less, the same</i>            Compares 2 representations of the same set – <i>how many have been taken away?</i>            Partition sets of objects            Identifies <i>how many more</i> are needed to make a given total            Uses word forms <i>take</i> and <i>less than</i>            Solve simple word or picture problems related to subtraction 5 – 0</p>
	3-4	<p><b>Totals 0 - 5, 0 - 6</b>            Explores number pairs that total up to 6            Recognises the effect of subtracting zero            Uses word forms count back, take away            Recognises the signs - and =            Finds one less than numbers 1 to 6            Solves simple word or picture problems related to totals up to 6</p>
	5	<p><b>Totals 0 - 8</b>            Explores number pairs that total up to 8            Recognises the effect of zero in subtraction            Understands number statements involving – and =            Compares 2 different sets of objects, e.g. bears and shirts, and identifies the inequality between the two sets            Solves simple word and picture problems including money</p>
6-7	6	<p><b>Totals 0 - 10</b>            Explores pairs with totals up to 10            Uses + and = signs            Understands number sentences            Uses word form <i>what is the difference between...?</i>            Completes number chains with repeated subtraction            Identifies complementary addition and subtraction pairs            Counts on to find the first number            Solves simple word and picture problems including money</p>
7	7	<p><b>Totals up to 15</b>            Identifies addition pairs with totals up to 15            Joins 2 numbers across the 10 bridge – in 2 stages, and by a single operation using a number line            Adds a single digit to a teens number without crossing 20            Adds a single digit to a twenties number without crossing 30            Writes a teens number as the sum of 10 and a single digit            Writes a twenties number as the sum of 20 and a single digit            Can add 10 to any single digit number including 0</p>

		<p>Can respond to a symbol used to represent an unknown number in a number sentence</p> <p>Uses grids to identify <i>how many more</i> to make a given total</p> <p>Given a number total and a certain number of objects displayed – <i>how many are hidden?</i></p> <p>Solves simple word problems including money</p>
7-8	8-9	<p><b>Totals of all single digit number pairs</b></p> <p>Recognises addition facts for all single digit number pairs</p> <p>Identifies number pairs that total 10 and 20</p> <p>Adds 3 single digit numbers with totals up to 20</p> <p>Recognises that addition can be done in any order</p> <p>Understands that addition and subtraction are complementary operations</p> <p>Uses both horizontal and vertical addition forms</p> <p>Adds single digit numbers crossing ten</p> <p>Solves simple word problems including money</p>
8	10	<p><b>Totals to 30</b></p> <p>Knows addition facts for all single digit pairs</p> <p>Adds ten and ten multiples to any 2-digit number</p> <p>Adds 9 and 11 to 2-digit numbers</p> <p>Adds single digits to 20 numbers crossing 30</p> <p>Uses a number grid to add single digits to any 2-digit number (not crossing tens)</p> <p>Uses both vertical and horizontal algorithms</p> <p>Responds to a symbol representing an unknown number in a number sentence</p> <p>Recognises whether number statements are true or false</p> <p>Solves simple word problems including money</p>
9	11	<p><b>Totals involving 1- and 2-digit numbers</b></p> <p>Knows addition facts for all single digit pairs</p> <p>Adds ten and ten multiples to any 2-digit number</p> <p>Adds 9 and 11 to 2-digit numbers</p> <p>Adds single digits to 2-digit numbers crossing tens boundaries</p> <p>Uses a number grid to add single digits to any 2-digit number (not crossing tens)</p> <p>Adds a pair of ten multiples without crossing 100</p> <p>Adds 3 ten multiples without crossing 100</p> <p>Uses both vertical and horizontal algorithms</p> <p>Recognises whether number statements are true or false</p> <p>Responds to a symbol representing an unknown number in a number sentence</p> <p>Solves simple word problems including money and measurement</p>
	12-14	<p><b>Number pairs totalling 20</b></p> <p>Consolidates addition facts related to number pairs totalling 20</p> <p>Adds a single digit number to any 2-digit number including crossing 100</p> <p>Adds a single digit number to any 3-digit number without crossing ten</p> <p>Adds any 2-digit number to a multiple of 100</p> <p>Adds teen numbers including crossing tens boundary</p> <p>Solves simple word problems including money and measurement</p>
	15-18	<p><b>Number pairs totalling 20</b></p> <p>Knows number pairs totalling 20 and derives related number facts</p>

		<p>Recognises number pairs totalling 100, 1 000</p> <p>Adds up to three 2-digit ten multiples – totals up to 200</p> <p>Uses symbols to represent an unknown number on either side of an addition equation</p> <p>Extends known addition pairs e.g. <math>3 + 4</math>, <math>30 + 40</math>, <math>300 + 400</math></p> <p>Adds 2-digit ten multiples to a 3-digit number without crossing 100 boundary</p> <p>Adds 2-digit to 3-digit numbers</p> <p>Adds hundred multiples to 3- and 4-digit numbers, including crossing 1000</p> <p>Adds numbers using vertical algorithm, including “carrying”</p> <p>Recognises and can use the complementary properties of addition and subtraction</p> <p>Recognises what must be added to 3-digit number to make the next hundred</p> <p>Solves real life problems involving money and measurement</p>
	19-21	<p><b>All previous addition facts</b></p> <p><b>Decimal tenths, then decimal hundredths</b></p> <p>Recognises decimal complements in 1, then 2, then 10</p> <p>Knows doubles for all numbers up to 30 and derives doubles of related numbers</p> <p>Performs addition of 3-, 4- and 5-digit numbers</p> <p>Problem-solves to identify missing numbers in addition sums</p> <p>Adds 1 000 multiples to numbers of any size</p>
	22-23	<p><b>All previous addition facts</b></p> <p><b>Whole number complements in 50, 100</b></p> <p><b>Fifty-multiple complements in 1 000, 10 000</b></p> <p><b>Decimal number facts</b></p> <p><b>Decimal complements in 1, 10</b></p> <p>Processes mixed operations problems using the agreed order of operations</p> <p>Consolidates previously established addition processes</p>
13-15	24-26	<p>Addition of integers</p> <p>Addition of 4 numbers</p> <p>Addition of numbers of up to 7 digits</p> <p>Addition of decimals</p> <p>Mixed operations</p> <p>Addition of squares and cubes</p> <p>Roman numerals</p>

# Subtraction

AGE	NUMBERS UP! LEVEL	CONTENT
4-6	1-2	<p><b>Totals 1 - 5</b>            Explores number pairs that total 5            Compares sets of objects – <i>more, less, the same</i>            Compares 2 representations of the same set – <i>how many have been taken away?</i>            Partition sets of objects            Identifies <i>how many more</i> are needed to make a given total            Uses word forms <i>take</i> and <i>less than</i>            Solve simple word or picture problems related to subtraction 5 – 0</p>
	3-4	<p><b>Totals 0 - 5, 0 - 6</b>            Explores number pairs that total up to 6            Recognises the effect of subtracting zero            Uses word forms <i>count back, take away</i>            Recognises the signs – and =            Finds <i>one less</i> than numbers 1 to 6            Solves simple word or picture problems related to totals up to 6</p>
	5	<p><b>Totals 0 - 8</b>            Explores number pairs that total up to 8            Recognises the effect of zero in subtraction            Understands number statements involving – and =            Compares 2 different sets of objects – e.g. bears and shirts – and identifies the inequality between the two sets            Uses grids to identify <i>how many more</i> to make a given total            Solves simple word and picture problems including money</p>
6-7	6	<p><b>Totals 0 - 10</b>            Explores pairs with totals up to 10            Uses + and = signs            Understands number sentences            Uses word form <i>what is the difference between...?</i>            Completes number chains with repeated subtraction            Identifies complementary addition and subtraction pairs            Counts on to find the first number            Solves simple word and picture problems including money</p>
7	7	<p><b>Totals up to 15</b>            Explores pairs with totals up to 15            Subtracts a single digit from a teens number across the 10 bridge – in 2 stages, and by a single operation using a number line            Subtracts a single digit from a teens number without crossing 10            Subtracts a single digit from a twenties number without crossing 20            Uses grids to identify how many more to make a given total</p>

		<p>Recognises the word form subtract</p> <p>Given a number total and a certain number of objects displayed – <i>how many are hidden?</i></p> <p>Solves simple word problems including money</p>
7-8	8-9	<p><b>Totals of all single digit number pairs</b></p> <p>Recognises subtraction facts related to totals for all single digit number pairs</p> <p>Subtracts a single digit from a teens number in two stages crossing 10</p> <p>Finds the first number by counting on or back</p> <p>Uses addition and subtraction as complementary operations</p> <p>Can identify how many objects are hidden given a total and a set of revealed objects</p> <p>Recognises the use of a symbol to stand for an unknown number in a subtraction number statement</p> <p>Recognises the word form <i>take away</i></p> <p>Subtracts 10 from any 2-digit ten multiple</p> <p>Solves simple word problems including money</p>
8	10	<p><b>Totals to 20</b></p> <p>Knows subtraction facts for all single digit pairs</p> <p>Subtracts ten and ten multiples from any 2-digit ten multiple</p> <p>Identifies number pairs with the same difference</p> <p>Subtracts single digits from 20 numbers in 2 stages crossing 20</p> <p>Uses a 100 grid to subtract single digits from any 2-digit number</p> <p>Responds to a symbol representing an unknown number in a number sentence</p> <p>Recognises whether number statements are true or false</p> <p>Solves simple word problems including money</p>
9	11	<p><b>Totals to 20</b></p> <p>Knows subtraction facts for all single digit pairs</p> <p>Subtracts ten and ten multiples from any 2-digit ten multiple</p> <p>Identifies number pairs with the same difference</p> <p>Subtracts single digits from 20 numbers in 2 stages crossing 20</p> <p>Uses a 100 grid to subtract single digits from any 2-digit number</p> <p>Uses a vertical algorithm for subtracting numbers without crossing tens boundaries</p> <p>Responds to a symbol representing an unknown number in a number sentence</p> <p>Recognises whether number statements are true or false</p> <p>Solves simple word problems including money</p>
	12-13	<p><b>Number facts related to pairs totalling 20</b></p> <p>Consolidates subtraction facts related to number pairs totalling 20</p> <p>Identifies subtraction pairs in the 20-30, 30-40, and 40-50 range</p> <p>Solves number problems related to subtraction, given a total and two out of three subtrahends</p> <p>Subtracts single digits from 20 numbers in 2 stages crossing 20</p> <p>Recognises whether number statement involving subtractions are true or false</p> <p>Responds to a symbol representing an unknown number in any position in a number sentence</p> <p>Solves simple word problems including money and measurement</p>
	14	<p><b>Number facts related to pairs totalling 20</b></p> <p>Consolidates subtraction facts related to number pairs totalling 20</p> <p>Derives related subtraction facts</p> <p>Subtracts ten and ten multiples from any 2-digit number</p>

		<p>Solves number problems related to subtraction, given a total and two out of three subtrahends</p> <p>Subtracts single digits from any 2-digit number crossing tens boundaries</p> <p>Recognises whether number statement involving subtractions are true or false</p> <p>Uses both horizontal and vertical subtraction algorithms</p> <p>Uses a vertical algorithm involving decomposition and crossing of tens boundaries</p> <p>Responds to a symbol representing an unknown number in any position in a number sentence</p> <p>Solves simple word problems including money and measurement</p>
	15	<p><b>Number facts related to pairs totalling 20</b></p> <p>Consolidates subtraction facts related to number pairs totalling 20</p> <p>Derives related subtraction facts</p> <p>Subtracts ten and ten multiples from any 2-digit number</p> <p>Uses 100 grid to assist subtraction of “number families” – 1, 11, 9, 19, etc – from 2-digit numbers</p> <p>Solves number problems related to subtraction, given a total and two out of three subtrahends</p> <p>Subtracts single digits from any 3-digit number crossing tens boundaries</p> <p>Uses subtraction involving number pairs totalling 100</p> <p>Recognises whether number statement involving subtractions are true or false</p> <p>Uses both horizontal and vertical subtraction algorithms</p> <p>Uses a vertical algorithm involving decomposition and crossing of tens boundaries</p> <p>Finds the first number (before subtraction) across hundreds bounds</p> <p>Responds to a symbol representing an unknown number in any position in a number sentence</p> <p>Solves simple word problems including money and measurement</p>
	16	<p><b>Number facts related to pairs totalling 20</b></p> <p>Consolidates subtraction facts related to number pairs totalling 20</p> <p>Derives related subtraction facts</p> <p>Subtracts ten and ten multiples from any 2- or 3-digit number</p> <p>Uses 100 grid to assist subtraction of “number families” – 1, 11, 9, 19, etc – from 2-digit numbers</p> <p>Solves number problems related to subtraction, given a total and two out of three subtrahends</p> <p>Subtracts 2-digit numbers from 3-digit number without crossing tens boundaries</p> <p>Uses subtraction involving number pairs totalling 100</p> <p>Recognises whether number statement involving subtractions are true or false</p> <p>Uses both horizontal and vertical subtraction algorithms</p> <p>Uses a vertical algorithm involving decomposition and crossing of tens boundaries</p> <p>Subtracts single digits across hundreds bounds and thousands bounds</p> <p>Responds to a symbol representing an unknown number in any position in a number sentence</p> <p>Solves simple word problems including money and measurement</p>
	17	<p><b>Number facts related to pairs totalling 20</b></p> <p>Consolidates subtraction facts related to number pairs totalling 20</p> <p>Derives related subtraction facts</p> <p>Subtracts ten and ten multiples from any 2- or 3-digit number</p> <p>Solves number problems related to subtraction, given a total and two out of three subtrahends</p> <p>Subtracts 2-digit numbers from 3-digit number including crossing tens boundaries</p> <p>Uses complementarity of addition and subtraction to supply numbers missing from given number sentences</p> <p>Recognises whether number statement involving subtractions are true or false</p> <p>Uses both horizontal and vertical subtraction algorithms</p>

		<p>Uses a vertical algorithm involving decomposition and crossing of tens boundaries</p> <p>Uses both addition and subtraction facts to identify number statements which have the same answer</p> <p>Responds to a symbol representing an unknown number in any position in a number sentence</p> <p>Solves simple word problems including money and measurement</p>
	18	<p><b>Number facts related to pairs totalling 20</b></p> <p>Subtracts 3-digit numbers from 3-digit numbers, not crossing tens or hundreds boundaries</p> <p>Subtracts ten and ten multiples from any 2- or 3-digit number</p> <p>Solves number problems related to subtraction, given a total and two out of three subtrahends</p> <p>Recognises whether number statement involving subtractions are true or false</p> <p>Uses both horizontal and vertical subtraction algorithms</p> <p>Uses a vertical algorithm involving decomposition and crossing of tens boundaries</p> <p>Subtracts single digits across hundreds bounds and thousands bounds</p> <p>Responds to a symbol representing an unknown number in any position in a number sentence</p> <p>Uses subtraction involving number pairs totalling 100</p> <p>Subtracts using single digit numbers to cross 1 000 bounds</p> <p>Solves simple word problems including money and measurement</p>
	19	<p><b>All previous subtraction facts</b></p> <p>Decimal tenths</p> <p>Subtracts 3- and 4-digit numbers</p> <p>Subtracts single digits and teens numbers across hundreds and thousands bounds</p> <p>Recognises decimal complements in 1</p> <p>Solves number problems related to subtraction, given a total and two out of three subtrahends</p> <p>Subtracts 10, 100 and 1 000 multiples from numbers of any size</p> <p>Consolidates complementary number pairs in 50, 60 and 70</p> <p>Identifies differences between decimal numbers (one decimal place)</p> <p>Recognises whether double-sided number statements are true or false</p>
	20	<p><b>All previous subtraction facts</b></p> <p>Decimal tenths</p> <p>Subtracts 3- and 4-digit numbers</p> <p>Subtracts single digits and teens numbers across hundreds and thousands bounds</p> <p>Recognises decimal complements in 1, 10 and 20</p> <p>Subtracts decimal numbers with 1 decimal place including crossing ones using both vertical and horizontal algorithms</p> <p>Solves number problems related to subtraction, given a total and two out of three subtrahends</p> <p>Subtracts 10, 100 and 1 000 multiples from numbers of any size</p> <p>Recognises whether double-sided number statements are true or false</p>
	21	<p><b>All previous subtraction facts</b></p> <p>Decimal tenths</p> <p>Subtracts 3- and 4-digit numbers</p> <p>Subtracts single digits and teens numbers across hundreds and thousands bounds</p> <p>Recognises decimal complements in 1, 10 and 20</p> <p>Subtracts decimal numbers with 1 decimal place including crossing ones using both vertical and horizontal algorithms</p> <p>Solves number problems related to subtraction, given a total and two out of three subtrahends</p>

		<p>Subtracts 10, 100 and 1 000 multiples from numbers of any size</p> <p>Uses subtraction facts related to 50-multiple number pairs within one thousand</p> <p>Completes multiple subtractions (subtraction chains) using decimal numbers with 1 decimal place</p> <p>Recognises whether double-sided number statements are true or false</p>
	22-23	<p><b>All previous subtraction facts</b></p> <p><b>Decimal tenths</b></p> <p><b>Decimal hundredths</b></p> <p>Subtracts 3-, 4- and 5-digit numbers</p> <p>Subtracts single digits and teens numbers across hundreds and thousands bounds</p> <p>Recognises decimal complements in 1, 10 and 20</p> <p>Subtracts decimal numbers with 1 and 2 decimal places including crossing ones using both vertical and horizontal algorithms</p> <p>Solves number problems related to subtraction, given a total and two out of three subtrahends</p> <p>Subtracts 10, 100 and 1 000 multiples from numbers of any size</p> <p>Uses subtraction facts related to 50-multiple number pairs within one thousand</p> <p>Completes multiple subtractions (subtraction chains) using decimal numbers with 1 and 2 decimal places</p> <p>Recognises whether double-sided number statements are true or false</p>
	24-25	<p><b>All previous subtraction facts</b></p> <p><b>Decimal tenths</b></p> <p><b>Decimal hundredths</b></p> <p><b>Negative integers</b></p> <p>Subtracts 4-, 5- and 6-digit numbers</p> <p>Subtracts single digits and teens numbers across hundreds and thousands bounds</p> <p>Subtracts decimal numbers with 1 and 2 decimal places including crossing ones using both vertical and horizontal algorithms</p> <p>Solves number problems related to subtraction, given a total and two out of three subtrahends</p> <p>Subtracts 10, 100 and 1 000 multiples from numbers of any size</p> <p>Completes multiple subtractions (subtraction chains) using decimal numbers with 1 and 2 decimal places</p> <p>Subtracts 2-digit positive and negative integers</p> <p>Recognises whether double-sided number statements are true or false</p>
13-15	26	<p><b>All previous subtraction facts</b></p> <p><b>Decimal tenths</b></p> <p><b>Decimal hundredths</b></p> <p><b>Negative integers</b></p> <p><b>Indices</b></p> <p><b>Roman numerals</b></p> <p>Subtracts 4-, 5- and 6-digit numbers</p> <p>Subtracts single digits and teens numbers across hundreds and thousands bounds</p> <p>Subtracts decimal numbers with 1 and 2 decimal places including crossing ones using both vertical and horizontal algorithms</p> <p>Solves number problems related to subtraction, given a total and two out of three subtrahends</p> <p>Subtracts 10, 100 and 1 000 multiples from numbers of any size</p> <p>Completes multiple subtractions (subtraction chains) using decimal numbers with 1 and 2 decimal places</p> <p>Subtracts 2- and 3-digit positive and negative integers</p>

		Recognises whether double-sided number statements are true or false Subtracts numbers written using index notation Subtracts numbers written in Roman numerals and converts answers to ordinary numerals
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# Multiplication

AGE	NUMBERS UP! LEVEL	CONTENT
7-8	8-10	<p><b>Multiplication facts 2x, 5x, 10x</b>            Recognises multiplication as repeated addition e.g. <math>2 + 2 + 2 + 2</math>            Recognises multiplication as an array – e.g. 4 rows of 2            Recognises multiplication as commutative – e.g. <math>2 \times 4</math> is the same as <math>4 \times 2</math>            Uses word forms <i>a groups of b</i>, <i>a b's</i>, <i>a times b</i>, and <i>a multiplied by b</i>            Recognises multiples of 2, 5 and 10            Interprets real life situations as multiplication and identifies the mathematical processes needed to solve a given problem            Interprets <i>double</i> as the same as <i>2 groups of...</i> e.g. <i>double 2x</i> is <i>4x</i>            Solves everyday problems involving money and measurement</p>
8-9	11-12	<p><b>Multiplication facts 2x, 3x, 4x, 5x, 10x</b>            Performs a series of multiplications (multiplication chains)            Recognises multiplication as commutative – e.g. <math>2 \times 4</math> is the same as <math>4 \times 2</math>            Uses word forms <i>a groups of b</i>, <i>a b's</i>, <i>a times b</i>, and <i>a multiplied by b</i>            Recognises multiples of 2, 3, 4, 5 and 10            Interprets real life situations as multiplication and identifies the mathematical processes needed to solve a given problem            Knows all 2-digit number doubles            Recognises a symbol as representing an unknown number in a multiplication equation            Recognises whether multiplication number statements are true or false            Solve everyday problems involving money and measurement</p>
9	13-14	<p><b>Multiplication facts 2x, 3x, 4x, 5x, 10x</b>            Performs a series of multiplications (multiplication chains)            Recognises multiples of 2, 3, 4, 5 and 10            Uses word form <i>product</i>            Interprets real life situations as multiplication and identifies the mathematical processes needed to solve a given problem            Knows doubles for all 2-digit numbers            Recognises a symbol as representing an unknown number in a multiplication equation            Recognises whether multiplication number statements are true or false            Uses vertical algorithm for multiplication calculations            Solve everyday problems involving money and measurement</p>
9-10	15-16	<p><b>Multiplication facts 2x, 3x, 4x, 5x, 6x, 7x, 8x, 10x</b>            Performs a series of multiplications (multiplication chains)            Recognises multiples of 2, 3, 4, 5, 6, 7, 8 and 10            Interprets real life situations as multiplication and identifies the mathematical processes needed to solve a given problem            Knows doubles for all 2-digit numbers</p>

		<p>Recognises a symbol as representing an unknown number in a multiplication equation</p> <p>Recognises whether multiplication number statements are true or false</p> <p>Identify complementary multiplication and division pairs</p> <p>Identifies a given number as the product of a pair of other numbers</p> <p>Uses vertical algorithm for multiplication calculations</p> <p>Solves everyday problems involving money and measurement</p>
10-11	17-18	<p><b>Multiplication facts 2x, 3x, 4x, 5x, 6x, 7x, 8x, 9x, 10x</b></p> <p>Performs a series of multiplications (multiplication chains)</p> <p>Recognises multiples of 2, 3, 4, 5, 6, 7, 8 and 10</p> <p>Interprets real life situations as multiplication and identifies the mathematical processes needed to solve a given problem</p> <p>Knows doubles for all 2-digit numbers</p> <p>Derives other related doubles</p> <p>Knows square numbers up to 10x10</p> <p>Derives related squares</p> <p>Recognises a symbol as representing an unknown number in a multiplication equation</p> <p>Recognises whether multiplication number statements are true or false</p> <p>Identifies complementary multiplication and division pairs</p> <p>Identifies a given number as the product of a pair of other numbers</p> <p>Uses vertical algorithm for multiplication calculations</p> <p>Solves everyday problems involving money and measurement</p>
11	19-20	<p><b>Multiplication facts 2x, 3x, 4x, 5x, 6x, 7x, 8x, 9x, 10x</b></p> <p>Uses known multiplication facts to derive facts for decimal numbers (1 decimal place)</p> <p>Performs a series of multiplications (multiplication chains) including calculations using decimal numbers (1 decimal place)</p> <p>Recognises multiples of 2, 3, 4, 5, 6, 7, 8 and 10</p> <p>Knows doubles for all 2-digit numbers</p> <p>Derives other related doubles</p> <p>Know square numbers up to 10 x 10</p> <p>Derives related squares, including squares of decimal numbers</p> <p>Recognises a symbol as representing an unknown number in a multiplication equation</p> <p>Recognises whether multiplication number statements are true or false</p> <p>Identifies complementary multiplication and division pairs</p> <p>Identifies a given number as the product of a pair of other numbers</p> <p>Uses vertical algorithm for multiplication calculations</p> <p>Uses a process of multiplication and equivalent division to simplify more complex multiplication calculations</p> <p>Interprets real life situations as multiplication and identifies the mathematical processes needed to solve a given problem</p> <p>Solves everyday problems involving money and measurement</p>
	21-23	<p><b>Multiplication facts 2x, 3x, 4x, 5x, 6x, 7x, 8x, 9x, 10x</b></p> <p>Uses known multiplication facts to derive facts for decimal numbers (2 decimal places)</p> <p>Performs a series of multiplications (multiplication chains)</p> <p>Recognises multiples of 2, 3, 4, 5, 6, 7, 8 and 10</p> <p>Interprets real life situations as multiplication and identifies the mathematical processes needed to solve a given</p>

		<p>problem</p> <p>Knows doubles for all 2-digit numbers</p> <p>Derives other related doubles</p> <p>Know square numbers up to 10 x 10</p> <p>Derives related squares, including squares of decimal numbers</p> <p>Recognises a symbol as representing an unknown number in a multiplication equation</p> <p>Recognises whether multiplication number statements are true or false</p> <p>Identifies complementary multiplication and division pairs</p> <p>Identifies a given number as the product of a pair of other numbers</p> <p>Uses vertical algorithm for multiplication calculations</p> <p>Uses a process of multiplication and equivalent division to simplify more complex multiplication calculations</p> <p>Solves everyday problems involving money and measurement</p>
	24-26	<p><b>All previous multiplication facts</b></p> <p>Uses known multiplication facts to derive facts for decimal numbers (2 decimal places)</p> <p>Derives facts for multiplication of positive and negative integers</p> <p>Performs mixed calculations using the agreed order of operations</p> <p>Performs a series of multiplications (multiplication chains)</p> <p>Recognises multiples of 2, 3, 4, 5, 6, 7, 8 and 10</p> <p>Interprets real life situations as multiplication and identifies the mathematical processes needed to solve a given problem</p> <p>Knows doubles for all 2-digit numbers</p> <p>Derives other related doubles</p> <p>Know square numbers up to 10 x 10</p> <p>Derives related squares, including squares of decimal numbers</p> <p>Recognises a symbol as representing an unknown number in a multiplication equation</p> <p>Recognises whether multiplication number statements are true or false</p> <p>Identifies complementary multiplication and division pairs</p> <p>Identifies a given number as the product of a pair of other numbers</p> <p>Uses vertical algorithm for multiplication calculations</p> <p>Uses a process of multiplication and equivalent division to simplify more complex multiplication calculations</p> <p>Solves everyday problems involving money and measurement</p>

# Division

AGE	NUMBERS UP! LEVEL	CONTENT
7-8	9-10	<p><b>Division facts 2x, 5x, 10x</b>                      Recognises division as repeated subtraction                      Recognises division as grouping                      Recognises division as sharing equally                      Recognises numbers that are divisible by 2, 5 and 10                      Begins to recognise the language of division – <i>share, equal shares, divide by, how many fives make 20? divisible by...</i>                      Interprets real life situations as division and identifies the mathematical processes needed to solve a given problem                      Understands halving – knows <i>half</i> of even numbers up to 20 and of even 10 multiples to 100                      Solves everyday problems involving money and measurement</p>
8-9	11-12	<p><b>Division facts 2x, 3x, 4x, 5x, 10x</b>                      Recognises division as repeated subtraction                      Recognises division as grouping                      Recognises division as sharing equally                      Interprets <i>in every</i> situations as division calculations – <i>24 cakes, 6 cakes in every box, how many boxes?</i>                      Recognises numbers that are divisible by 2, 3, 4, 5 and 10                      Recognises the language of division – <i>share, equal shares, divide by, how many fives make 20? divisible by..., multiples</i>                      Interprets real life situations as division and identifies the mathematical processes needed to solve a given problem                      Understands halving – knows <i>half</i> of even numbers up to 20 and of even 10 multiples to 100                      Solves everyday problems involving money and measurement</p>
9	13-14	<p><b>Division facts 2x, 3x, 4x, 5x, 10x</b>                      Recognises numbers that are divisible by 2, 3, 4, 5 and 10                      Recognises the language of division – <i>share, equal shares, divide by, divide into, how many fives make 20? divisible by..., multiples</i>                      Interprets real life situations as division and identifies the mathematical processes needed to solve a given problem                      Understands halving – knows <i>half</i> of even numbers up to 20 and of even 10 multiples to 100                      Recognises and responds to symbols used to stand for unknown numbers in number sentences                      Begins to recognise that division is the inverse of multiplication                      Solves everyday problems involving money and measurement</p>
9-10	15-16	<p><b>Division facts 2x, 3x, 4x, 5x, 6x, 10x</b>                      Recognises numbers that are divisible by 2, 3, 4, 5, 6 and 10                      Recognises the language of division – <i>share, equal shares, divide by, divide into, how many fives make 20? divisible by..., multiples, remainder</i>                      Interprets real life situations as division and identifies the mathematical processes needed to solve a given</p>

		<p>problem</p> <p>Understands halving – knows <i>half</i> of even numbers up to 20 and of 10 multiples to 100</p> <p>Understands that quarters are obtained by halving twice</p> <p>Recognises that any number divided by itself is 1 and any number divided by 1 remains the same</p> <p>Recognises that numbers cannot be divided by zero</p> <p>Recognises and responds to symbols used to stand for unknown numbers in number sentences</p> <p>Recognises that division is the inverse of multiplication</p> <p>Recognises that division is non-commutative (is not the same when done in reverse)</p> <p>Gives a whole number remainder when one number is divided by another</p> <p>Uses reasoning to determine whether to round a division answer up or down depending on the context of the answer required</p> <p>Solves everyday problems involving money and measurement</p>
10-11	17-18	<p><b>Division facts 2x, 3x, 4x, 5x, 6x, 7x, 8x, 9x, 10x</b></p> <p>Recognises numbers that are divisible by 2, 3, 4, 5, 6, 7, 8, 9 and 10</p> <p>Recognises the language of division – <i>share, equal shares, divide by, divide into, how many fives make 20? divisible by..., multiples, remainder, factor, quotient</i></p> <p>Recognises whether or not given numbers are factors of another number</p> <p>Interprets real life situations as division and identifies the mathematical processes needed to solve a given problem</p> <p>Understands halving – knows <i>half</i> of even numbers up to 20 and of 10 multiples to 100</p> <p>Understands that quarters are obtained by halving twice</p> <p>Recognises that any number divided by itself is 1 and any number divided by 1 remains the same</p> <p>Recognises that numbers cannot be divided by zero</p> <p>Recognises and responds to symbols used to stand for unknown numbers in number sentences</p> <p>Recognises that division is the inverse of multiplication</p> <p>Recognises that division is non-commutative (is not the same when done in reverse)</p> <p>Begins to recognise that the quotient remains the same if both dividend and divisor are divided by the same number e.g. <math>60 \div 12</math> is the same as <math>30 \div 6</math> and <math>15 \div 3</math></p> <p>Gives a whole number remainder when one number is divided by another</p> <p>Uses reasoning to determine whether to round a division answer up or down depending on the context of the answer required</p> <p>Performs mixed calculations using the agreed order of operations</p> <p>Can determine which pair of numbers are the dividend and divisor for a given quotient</p> <p>Solves everyday problems involving money and measurement</p> <p>Calculates using mixed measurement units – e.g. metres and centimetres, litres and millilitres</p>
11	19-20	<p><b>Division facts 2x, 3x, 4x, 5x, 6x, 7x, 8x, 9x, 10x</b></p> <p>Uses known division facts to derive facts for decimal numbers (1 decimal place)</p> <p>Performs a series of divisions (division chains) including calculations using decimal numbers (1 decimal place)</p> <p>Recognises numbers that are divisible by 2, 3, 4, 5, 6, 7, 8, 9 and 10</p> <p>Understands halving – knows <i>half</i> of even numbers up to 20 and of 10 multiples to 100 and derived 1 000 multiples and decimal tenths</p> <p>Understands finding related quarters by halving again</p> <p>Derives other related halves and quarters</p> <p>Know square roots of square numbers up to 10x10</p>

		<p>Derives related square roots, including square roots of decimal numbers</p> <p>Recognises a symbol as representing an unknown number in a division equation</p> <p>Recognises whether division number statements are true or false</p> <p>Identifies complementary multiplication and division pairs</p> <p>Identifies a given number as the quotient of a pair of other numbers</p> <p>Divides 4- and 5-digit 1 000 multiples by single digit numbers</p> <p>Uses a process of repeated equivalent division to simplify more complex division calculations</p> <p>Interprets real life situations as division and identifies the mathematical processes needed to solve a given problem</p> <p>Uses reasoning to determine whether to round a division answer up or down depending on the context of the answer required</p> <p>Solves everyday problems involving money and measurement</p>
12-13	21-23	<p><b>Division facts 2x, 3x, 4x, 5x, 6x, 7x, 8x, 9x, 10x</b></p> <p>Uses known division facts to derive facts for decimal numbers (2 decimal places)</p> <p>Performs a series of divisions (division chains) including calculations using decimal numbers (1 decimal place)</p> <p>Recognises numbers that are divisible by 2, 3, 4, 5, 6, 7, 8, 9 and 10</p> <p>Understands halving – knows <i>half</i> of even numbers up to 20 and of 10 multiples to 100 and derived 1 000 multiples and decimal tenths</p> <p>Understands finding related quarters by halving again</p> <p>Derives other related halves and quarters</p> <p>Know square roots of square numbers up to 10 x 10</p> <p>Derives related square roots, including square roots of decimal numbers</p> <p>Recognises a symbol as representing an unknown number in a division equation</p> <p>Recognises whether division number statements are true or false</p> <p>Identifies complementary multiplication and division pairs</p> <p>Identifies a given number as the quotient of a pair of other numbers</p> <p>Divides 4- and 5-digit 1 000 multiples by single digit numbers</p> <p>Uses a process of repeated equivalent division to simplify more complex division calculations</p> <p>Recognises that division by a decimal fraction results in a quotient larger than the dividend</p> <p>Uses estimation skills to determine the approximate range of the answer to a division sum</p> <p>Interprets real life situations as division and identifies the mathematical processes needed to solve a given problem</p> <p>Uses reasoning to determine whether to round a division answer up or down depending on the context of the answer required</p> <p>Solves everyday problems involving money and measurement</p>
13-15	24-26	<p><b>All previous multiplication facts</b></p> <p>Uses known division facts to derive facts for decimal numbers (2 decimal places)</p> <p>Derives facts for division of positive and negative integers</p> <p>Performs a series of divisions (division chains)</p> <p>Recognises numbers that are divisible by 2, 3, 4, 5, 6, 7, 8, 9 and 10</p> <p>Interprets real life situations as division and identifies the mathematical processes needed to solve a given problem</p> <p>Understands halving – knows <i>half</i> of even numbers up to 20 and of 10 multiples to 100 and derived 1 000 multiples and decimal tenths</p>

		<p>Derives other related halves and quarters</p> <p>Know square roots of square numbers up to 12x12</p> <p>Derives related square roots, including square roots of decimal numbers</p> <p>Derives related cube roots, including cube roots of decimal numbers</p> <p>Recognises a symbol as representing an unknown number in a division equation</p> <p>Recognises whether division number statements are true or false</p> <p>Identifies complementary multiplication and division pairs</p> <p>Identifies a given number as the quotient of a pair of other numbers</p> <p>Uses a process of repeated equivalent division to simplify more complex division calculations</p> <p>Understands and uses relationships between different operators in division operations e.g. division by 10 produces a quotient twice as large as division by 20 and division by 0.2 produces a quotient 10 times larger again</p> <p>Uses estimation skills to determine the approximate range of the answer to a division sum</p> <p>Recognises that division by a decimal fraction results in a quotient larger than the dividend</p> <p>Uses reasoning to determine whether to round a division answer up or down depending on the context of the answer required</p> <p>Solves everyday problems involving money and measurement</p>
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## Fractions, Decimals & Percentage

AGE	NUMBERS UP! LEVEL	CONTENT
7-8	8-9	Identifies <i>half</i> and a <i>quarter</i> of sets of objects Identifies a half, a quarter and a third of whole shapes
8-9	10	Recognises and uses common unit fractions to determine a portion of a given number collection – one-half, one-third, one-quarter, one-fifth Recognises and uses common unit fractions to find fractions of a given whole – e.g. what is one-half, one-third, one-quarter, one-fifth of a given length or mass Recognises and identifies common unit fractions of a whole shape and that a fraction represents e.g. <i>one part out of three or one-third</i> Estimates what fraction of a regular or irregular shape has been shaded
9	11-12	Recognises and uses common unit fractions to determine a portion of a given number collection – one-half, one-third, one-quarter, one-fifth Recognises and uses common unit fractions to find fractions of a given whole – e.g. what is one-half, one-third, one-quarter, one-fifth of a given length or mass Recognises and identifies common unit fractions of a whole shape and that a fraction represents e.g. one part out of three or one-third Estimates what fraction of a regular or irregular shape has been shaded Begins to recognise and write common equivalent fractions Begins to use common fraction notation, understanding that the vinculum means <i>to divide</i> and also stands for <i>part out of</i> e.g. <i>1/3 means one part out of 3</i> Begins to recognise that <i>the whole is the same as all the parts</i> i.e. there are <i>3 thirds, 2 halves, 4 quarters</i> etc in one whole Begins to understand the relative size of fractions and their relative positions on a number line i.e. one-half is larger than one-third but smaller than three-quarters
9-10	13-14	Consolidation of understandings of: Relative size of common unit fractions Deriving equivalent fractions Using unit fractions as division operators Estimating fractions of shapes Begins to understand and use the concept of one whole expressed as a fraction of another whole
10	15-16	Consolidation of understandings of: Relative size of common unit fractions Deriving equivalent fractions Using unit fractions as division operators Estimating fractions of shapes Begins to understand and use the concept of one whole expressed as a fraction of another whole
10-11	17-18	Orders and compares common fractions Writes common fractions and mixed numbers Begins to recognise and write fractions of one hundred

		<p>Begins to recognise and write percentages</p> <p>Orders, compares and begins to recognise equivalences between common fractions and percentages</p> <p>Relates fractions to division</p>
11	19-20	<p>Orders and compares common fractions</p> <p>Writes common fractions and mixed numbers</p> <p>Converts mixed numbers to improper fractions</p> <p>Begins to recognise and write fractions of one hundred</p> <p>Equates percentages with <i>parts out of every hundred</i></p> <p>Begins to recognise and write percentages and decimal fractions</p> <p>Orders, compares and recognises equivalences between common fractions, decimals and percentages</p> <p>Relates fractions to division</p> <p>Calculates common fractions of numbers and quantities including money and measurement in real life contexts</p>
11-12	21	<p>Orders and compares common fractions</p> <p>Writes common fractions and mixed numbers</p> <p>Converts mixed numbers to improper fractions</p> <p>Converts common fractions to decimal fractions and/or percentages</p> <p>Orders and compares common fractions, decimals and percentages</p> <p>Uses equivalences between common fractions, decimals and percentages</p> <p>Writes equivalent common fractions</p> <p>Writes common fractions in their simplest form and recognises the division process by which this form is obtained</p> <p>Relates fractions to division</p> <p>Calculates common fractions, decimals and percentages of numbers and quantities including money and measurement in real life contexts</p>
12-13	22-23	<p>Orders and compares common fractions</p> <p>Writes common fractions and mixed numbers</p> <p>Converts mixed numbers to improper fractions</p> <p>Converts improper fractions to mixed numbers with the fractional part of the answer given in its lowest terms</p> <p>Converts common fractions to decimal fractions and/or percentages</p> <p>Orders and compares common fractions, decimals and percentages</p> <p>Uses equivalences between common fractions, decimals and percentages</p> <p>Writes equivalent common fractions</p> <p>Adds fractions with the same denominator</p> <p>Writes common fractions in their simplest form and recognises the division process by which this form is obtained</p> <p>Relates fractions to division</p> <p>Calculates common fractions, decimals and percentages of numbers and quantities including money and measurement in real life contexts</p>
13-15	24-26	<p>Orders and compares common fractions</p> <p>Writes common fractions and mixed numbers</p> <p>Converts mixed numbers to improper fractions</p> <p>Converts improper fractions to mixed numbers with the fractional part of the answer given in its lowest terms</p> <p>Converts common fractions to decimal fractions and/or percentages (including numbers greater than 1 or 100%)</p> <p>Orders and compares common fractions, decimals and percentages</p> <p>Uses equivalences between common fractions, decimals and percentages</p> <p>Writes equivalent common fractions</p>

		<p>Adds fractions with the same denominator</p> <p>Multiplies and divides simple common fractions</p> <p>Writes common fractions in their simplest form and recognises the division process by which this form is obtained</p> <p>Relates fractions to division</p> <p>Calculates common fractions, decimals and percentages of numbers and quantities including money and measurement in real life contexts – discounts, commissions, profits, etc.</p> <p>E.g.     Calculates the original price of an item given the discounted price</p> <p>          Calculates the selling price of an item given the profit or commission</p>
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# Ratio

AGE	NUMBERS UP! LEVEL	CONTENT
10	15-16	<p>Solves simple problems involving ratio and proportion:  <i>in every...</i>  <i>out of every...</i>  <i>for every...</i></p> <p>Recognises which inference is true, given a ratio or proportional relationship  <i>If... then...</i></p>
10-11	17-18	<p>Solves simple problems involving ratio and proportion:  <i>in every...</i>  <i>out of every...</i>  <i>for every...</i></p> <p>Recognises which inference is true, given a ratio or proportional relationship  <i>If... then...</i></p> <p>Calculates quantities and numbers in real life situations given a ratio or proportional relationship</p> <p>Understands that the expression <i>2 to every 3</i> compares part to part and that <i>2 in every 5</i> or <i>2 out of 5</i> is the equivalent part-to-whole comparison</p>
11	19-20	<p>Recognises which inference is true, given a ratio or proportional relationship  <i>If... then...</i></p> <p>Understands that the expression <i>2 to every 3</i> compares part to part and that <i>2 in every 5</i> or <i>2 out of 5</i> is the equivalent part-to-whole comparison</p> <p>Begins to use the form <math>A:B</math> to compare part to part</p> <p>Begins to divide a quantity into two parts in a given ratio</p> <p>Recognises how to simplify a two-part ratio to an equivalent by cancelling</p> <p>Compare and order ratios</p> <p>Recognises the equivalence between proportions, fractions and percentages</p> <p>Begins to compare parts of a whole expressed as ratios, proportions, fractions and percentages</p> <p>Uses the principles of direct proportion to solve real life problems</p>
	21	<p>Recognises which inference is true, given a ratio or proportional relationship  <i>If... then...</i></p> <p>Understands that the expression <i>2 to every 3</i> compares part to part and that <i>2 in every 5</i> or <i>2 out of 5</i> is the equivalent part-to-whole comparison</p> <p>Begins to use the form <math>A:B</math> to compare part to part</p> <p>Begins to divide a quantity into two parts in a given ratio</p> <p>Recognises how to simplify a two-part ratio to an equivalent by cancelling</p> <p>Compare and order ratios</p> <p>Recognises the equivalence between proportions, fractions and percentages</p> <p>Begins to compare parts of a whole expressed as ratios, proportions, fractions and percentages</p> <p>Uses the principles of direct proportion to solve real life problems</p> <p>Simplify three-part ratios to an equivalent form</p>

		<p>Simplify ratios expressed in different units</p> <p>Consolidates understandings of the relationship between ratio and proportion</p>
12	22-23	<p>Recognises which inference is true, given a ratio or proportional relationship</p> <p><i>If... then...</i></p> <p>Understands that the expression 2 to every 3 compares part to part and that 2 in every 5 or 2 out of 5 is the equivalent part-to-whole comparison</p> <p>Begins to use the form <math>A:B</math> to compare part to part</p> <p>Begins to divide a quantity into two parts in a given ratio</p> <p>Recognises how to simplify a two-part ratio to an equivalent by cancelling</p> <p>Compare and order ratios</p> <p>Recognises the equivalence between proportions, fractions and percentages</p> <p>Begins to compare parts of a whole expressed as ratios, proportions, fractions and percentages</p> <p>Uses the principles of direct proportion to solve real life problems</p> <p>Simplify three-part ratios to an equivalent form</p> <p>Simplify ratios expressed in different units</p> <p>Consolidates understandings of the relationship between ratio and proportion</p> <p>Link ratio and proportion to scale on maps or models</p> <p>Solve problems using proportional reasoning e.g. increasing or decreasing quantities in recipes</p>
13-15	24-26	<p>Recognises which inference is true, given a ratio or proportional relationship</p> <p><i>If... then...</i></p> <p>Understands that the expression 2 to every 3 compares part to part and that 2 in every 5 or 2 out of 5 is the equivalent part-to-whole comparison</p> <p>Begins to use the form <math>A:B</math> to compare part to part</p> <p>Begins to divide a quantity into two parts in a given ratio</p> <p>Recognises how to simplify a two-part ratio to an equivalent by cancelling</p> <p>Compare and order ratios</p> <p>Recognises the equivalence between proportions, fractions and percentages</p> <p>Begins to compare parts of a whole expressed as ratios, proportions, fractions and percentages</p> <p>Uses the principles of direct proportion to solve real life problems</p> <p>Simplify three-part ratios to an equivalent form</p> <p>Simplify ratios expressed in different units</p> <p>Consolidates understandings of the relationship between ratio and proportion</p> <p>Link ratio and proportion to scale on maps or models</p> <p>Solve problems using proportional reasoning e.g. increasing or decreasing quantities in recipes</p> <p>Convert between different rates in order to compare and order ratios e.g. metres/sec compared with km/hour</p>