 **Maths Stepping Stones**

**Number**

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|   | **Number** |
| **GSS 1** | * Not part of the Groveside Curriculum
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| **GSS 2** | * I can solve one-step problems that involve addition using concrete objects with the support of the teacher
* I can solve one-step problems that involve subtraction using concrete objects with the support of the teacher
* I can solve one-step problems that involve addition using pictorial representations with the support of the teacher
* I can solve one-step problems that involve subtraction using pictorial representations with the support of the teacher
* I can solve one-step problems that involve addition using arrays with the support of the teacher
* I can solve one-step problems that involve subtraction using arrays with the support of the teacher
* I can count to 100 beginning with 0 or 1
* I can count to 100 backwards beginning with 100
* I can count to 100 from any given number
* I can count to 100 backwards from any given number
* I represent and use number bonds and related subtraction facts within 20
* I can recognise a quarter as one of four equal parts of an object
* I can find a quarter as one of four equal parts of an object
* I can name a quarter as one of four equal parts of an object
* I can recognise a quarter as one of four equal parts of a shape
* I can find a quarter as one of four equal parts of a shape
* I can name a quarter as one of four equal parts of a shape
* I can recognise a quarter as one of four equal parts of a quantity
* I can find a quarter as one of four equal parts of a quantity
* I can name a quarter as one of four equal parts of a quantity
* I can count numbers to 100 in numerals; count in multiples of twos, fives and tens
* I can read numbers to 100 in numerals; count in multiples of twos, fives and tens
* I can write numbers to 100 in numerals; count in multiples of twos, fives and tens
* I can add one-digit and two-digit numbers to 20, including zero
* I can subtract one-digit and two-digit numbers to 20, including zero
* Given a number, I can identify one more and one less
* I can solve one-step problems that involve addition using concrete objects and missing number problems such as 7 = ? – 9.
* I can solve one-step problems that involve addition using pictorial representations, and missing number problems such as 7 = ? – 9.
* I can solve one-step problems that involve subtraction using concrete objects and missing number problems such as 7 = ? – 9.
* I can solve one-step problems that involve subtraction using pictorial representations, and missing number problems such as 7 = ? – 9.
* I can identify and represent numbers using objects including the number line, and use the language of: equal to, more than, less than (fewer), most, least
* I can identify and represent numbers using pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least
* I read and write numbers from 1 to 20 in numerals and words.
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| **GSS3** | * I solve problems with addition using concrete objects including those involving numbers, quantities and measures
* I can interpret and construct simple pictograms
* I solve problems with addition using pictorial representations, including those involving numbers, quantities and measures
* I can interpret and construct simple tally charts
* I solve problems with subtraction using concrete objects including those involving numbers, quantities and measures
* I can interpret and construct simple block diagrams
* I solve problems with subtraction using pictorial representations, including those involving numbers, quantities and measures
* I can interpret and construct simple tables
* I can recognise, find, name and write fractions ¼, ¾ of a length
* I ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
* I recall division facts for multiplication tables up to 12 × 13
* I can recognise, find, name and write fractions ¼, ¾ of a shape
* I can recognise, find, name and write fractions ¼, ¾ of a quantity
* I can recognise, find, name and write fractions ¼, ¾ of a l set of objects
* I recall and use multiplication facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
* I recall and use division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
* I can count in steps of 2 from 0
* I can count in steps of 3 from 0
* I can count in steps of 5 from 0
* I can count in steps in tens from any number forward
* I can count in steps in tens from any number backward
* I solve problems with addition applying my increasing knowledge of mental and written methods
* I solve problems with subtraction applying my increasing knowledge of mental and written methods
* I can write simple fractions for example ½ of 6 = 3
* I can recognise the equivalence 2/4 is ½
* I can calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs
* I can calculate mathematical statements for division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs
* I recognise the place value of each digit in a two-digit number (tens, ones)
* I recall and use addition facts to 20 fluently, and derive and use related facts up to 100
* I recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100
* I can show that multiplication of two numbers can be done in any order (commutative).
* I can show that division of one number by another cannot be done in any order (commutative)
* I can identify, represent and estimate numbers using different representations, including the number line
* I can add numbers using concrete objects, pictorial representations, and mentally, a two-digit number and ones
* I can subtract numbers using concrete objects, pictorial representations, and mentally, a two-digit number and ones
* I can add numbers using concrete objects, pictorial representations, and mentally, a two-digit number and tens
* I can subtract numbers using concrete objects, pictorial representations, and mentally, a two-digit number and tens
* I can add and subtract numbers using concrete objects, pictorial representations, and mentally, two two-digit numbers
* I can add numbers using concrete objects, pictorial representations, and mentally, adding three one-digit numbers
* I can subtract numbers using concrete objects, pictorial representations, and mentally, adding three one-digit numbers
* I solve problems involving multiplication using materials, arrays, repeated addition, mental methods, and multiplication facts, including problems in contexts.
* I solve problems involving division, using materials, arrays, repeated addition, mental methods, and division facts, including problems in contexts.
* I can compare and order numbers from 0 up to 100; use <, >
* I can compare and order numbers from 0 up to 100; use = signs
* I can show that addition of two numbers can be done in any order (commutative)
* I can show that subtraction of one number from another cannot be done in any order (commutative)
* I can read numbers to at least 100 in numerals and in words
* I can write numbers to at least 100 in numerals and in words
* I recognise and use the inverse relationship between addition and subtraction to check calculations
* I recognise and use the inverse relationship between addition and subtraction and use this to solve missing number problems.
* I use place value to solve problems.
* I use number facts to solve problems.
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| **GSS4** | * I can count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
* "I can add and subtract numbers mentally, including:
	+ - a three-digit number and ones
		- a three-digit number and tens
		- a three-digit number and hundreds"
* I recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
* I can count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number
* I can add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
* I can recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
* I can write and calculate mathematical statements for multiplication and division using the multiplication tables I know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
* I recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
* I can estimate the answer to a calculation and use inverse operations to check answers
* I recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
* I can solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.
* I can compare and order numbers up to 1000
* I can solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.
* I recognise and show, using diagrams, equivalent fractions with small denominators
* I can identify, represent and estimate numbers using different representations
* I can add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7 ]
* I can read and write numbers up to 1000 in numerals and in words
* I can compare and order unit fractions, and fractions with the same denominators
* I solve number problems and practical problems involving these ideas.
* I can use and solve problems containing factors of ten and fractions with common denominators
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| **GSS5** | * I can recognise and show, using diagrams, families of common equivalent fractions
* I can add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
* I recall multiplication and division facts for multiplication tables up to 12 × 12
* I can count in multiples of 6, 7, 9, 25 and 1000
* I can estimate and use inverse operations to check answers to a calculation
* I can count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
* I use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
* I can find 1000 more or less than a given number
* I can solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.
* I can solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
* I can recognise and use factor pairs and commutativity in mental calculations
* I count backwards through zero to include negative numbers
* I add and subtract fractions with the same denominator
* I can multiply two-digit and three-digit numbers by a one-digit number using formal written layout
* I recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
* I recognise and write decimal equivalents of any number of tenths or hundredths
* I can solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.
* I can order and compare numbers beyond 1000
* I recognise and write decimal equivalents to ¼, ½, ¾
* I can identify, represent and estimate numbers using different representations
* I can find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
* I can round any number to the nearest 10, 100 or 1000
* I can round decimals with one decimal place to the nearest whole number
* I can solve number and practical problems that involve all of the above and with increasingly large positive numbers
* I compare numbers with the same number of decimal places up to two decimal places
* I can read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.
* I can solve simple measure and money problems involving fractions and decimals to two decimal places.
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| **GSS6** |

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| * I can compare and order fractions whose denominators are all multiples of the same number
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| * I can add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
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| * I can identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
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| * I can read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit
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| * I can add and subtract numbers mentally with increasingly large numbers
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| * I can identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
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| * I know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers
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| * I count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000
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| * I can use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
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| * I recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 11/5]
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| * I can establish whether a number up to 100 is prime and recall prime numbers up to 19
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| * I can interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero
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| * I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
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| * I can add and subtract fractions with the same denominator and denominators that are multiples of the same number
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| * I can multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers
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| * I can round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000
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| * I can multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
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| * I can multiply and divide numbers mentally drawing upon known facts
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| * I can solve number problems and practical problems that involve numbers from 10s to 1,000,000s
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| * I can read and write decimal numbers as fractions [for example, 0.71 = 71/100 ]
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| * I can divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
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| * I can read Roman numerals to 1000 (M) and recognise years written in Roman numerals.
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| * I can recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
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| * I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
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| * I can round decimals with two decimal places to the nearest whole number and to one decimal place
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| * I can recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)
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| * I can read, write, order and compare numbers with up to three decimal places
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| * I can solve problems involving multiplication and division including using my knowledge of factors and multiples, squares and cubes
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| * I can solve problems involving number up to three decimal places
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| * I can solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
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| * I recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per hundred’, and write percentages as a fraction with denominator 100, and as a decimal
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| * I can solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.
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| * I can solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.
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| **GSS7** |

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| * I use common factors to simplify fractions; use common multiples to express fractions in the same denomination
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| * I can multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
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| * I can read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
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| * I can divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
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| * I can compare and order fractions, including fractions > 1
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| * I can round any whole number to a required degree of accuracy
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| * I can divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context
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| * I can add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
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| * I can use negative numbers in context, and calculate intervals across zero
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| * I can perform mental calculations, including with mixed operations and large numbers
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| * I can multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 1/4 × 1/2 = 1/8]
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| * I can solve number and practical problems that involve large numbers, rounding numbers and negative numbers
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| * I can identify common factors, common multiples and prime numbers
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| * I can divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6 ]
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| * I can use my knowledge of the order of operations to carry out calculations involving the four operations
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| * I can associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example 3/8 ]
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| * I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
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| * I can identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places
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| * I can solve problems involving addition, subtraction, multiplication and division
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| * I can multiply one-digit numbers with up to two decimal places by whole numbers
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| * I can use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
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| * I can use written division methods in cases where the answer has up to two decimal places
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| * I can solve problems which require answers to be rounded to specified degrees of accuracy
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| * I recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
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