



Roundhill Primary School: RPS Specialist Formal framework Maths

Maths

Learning profile B1

Number and place value

- Count within 100, forwards and backwards, starting with any number
- Reason about the location of numbers to 20 within the linear number system, including comparing using $<$ $>$ and $=$

Number facts

- Develop fluency in addition and subtraction facts within 10
- Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple
- Count forwards and backwards through the odd numbers.

Addition and subtraction

- Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers
- Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts

Geometry

- Recognise common 2D and 3D shapes presented in different orientations
- Know that rectangles, triangles, cuboids and pyramids are not always similar to one another
- Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations

Learning profile B2

Number and place value

- Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning
- Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10

Number facts

- Secure fluency in addition and subtraction facts within 10, through continued practice

Addition and subtraction

- Add and subtract across 10
- Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?"
- Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number
- Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers

Multiplication and division

- Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables
- Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotative division).

Geometry

- Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties



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Learning profile B3

Number and place value

- Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10
- Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning
- Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10
- Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts

Number facts

- Secure fluency in addition and subtraction facts that bridge 10, through continued practice
- Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number
- Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10)

Addition and subtraction

- Calculate complements to 100
- Add and subtract up to three-digit numbers using columnar methods
- Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part-part-whole structure.
- Understand and use the commutative property of addition, and understand the related property for subtraction

Multiplication and division

- Apply known multiplication and division facts to solve contextual problems with different structures, including quotative and partitive division

Fractions

- Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts
- Find unit fractions of quantities using known division facts (multiplication tables fluency)
- Reason about the location of any fraction within 1 in the linear number system
- Add and subtract fractions with the same denominator, within 1

Geometry

- Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations
- Draw polygons by joining marked points, and identify parallel and perpendicular sides

Learning profile B4

Number and place value

- Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100.
- Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning



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- Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each
- Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts

Number facts

- Recall multiplication and division facts up to 12×12 , and recognise products in multiplication tables as multiples of the corresponding number
- Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context
- Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100)

Multiplication and division

- Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size
- Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication
- Understand and apply the distributive property of multiplication

Fractions

- Reason about the location of mixed numbers in the linear number system
- Convert mixed numbers to improper fractions and vice versa
- Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers

Geometry

- Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant
- Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal.
- Find the perimeter of regular and irregular polygons
- Identify line symmetry in 2D shapes presented in different orientations.
- Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.

Learning profile B5

Number and place value

- Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1.
- Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01.
- Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.
- Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning
- Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each
- Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts



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- Convert between units of measure, including using common decimals and fractions

Number facts

- Secure fluency in multiplication table facts, and corresponding division facts, through continued practice
- Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth)

Multiplication and division

- Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size
- Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors
- Multiply any whole number with up to 4 digits by any one-digit number using a formal written method
- Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context

Fractions

- Find non-unit fractions of quantities
- Find equivalent fractions and understand that they have the same value and the same position in the linear number system
- Recall decimal fraction equivalents for $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{5}$, and $\frac{1}{10}$ for multiples of these proper fractions

Geometry

- Compare angles, estimate and measure angles in degrees ($^{\circ}$) and draw angles of a given size
- Compare areas and calculate the area of rectangles (including squares) using standard units

Learning profile B6

Number and place value

- Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000)
- Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning
- Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts
- Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts

Addition and subtraction/Multiplication and division

- Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number)
- Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding
- Solve problems involving ratio relationships



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- Solve problems with 2 unknowns

Fractions

- Recognise when fractions can be simplified, and use common factors to simplify fractions
- Express fractions in a common denomination and use this to compare fractions that are similar in value
- Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy

Geometry

- Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems