



Curriculum Design for Maths

Maths Intent

Mathematics is important in everyday life and, with this in mind, the purpose of Mathematics at Broomhill Infant School is to develop an ability to solve problems, to reason, to think logically and to work systematically and accurately.

New mathematical concepts are introduced using a 'Concrete, Pictorial and Abstract' approach; enabling all children to experience hands-on learning when discovering new mathematical topics, and allowing them to have clear models and images to aid their understanding.

Arithmetic and basic math skills are practised daily to ensure key mathematical concepts are embedded and children can recall this information to see the links between topics in Maths.

Maths Implementation

Key mental arithmetic skills are revisited daily. Teachers plan using the White Rose Maths scheme to ensure progression and depth of understanding. Lessons use a Concrete, Pictorial and Abstract approach to guide children through their understanding of mathematical processes. Children are taught through targeted differentiated small group and mixed ability whole class lessons. A range of reasoning resources are used to challenge all children and give them the opportunity to reason with their understanding. Children are supported within the Maths lesson (or within the same day) to ensure they are ready for their next Maths lesson.

Maths Impact

As a result of our Mathematics teaching at Broomhill Infant School you will see:

Engaged children who are all challenged.

Confident children who can all talk about their learning and can model and explain mathematical concepts.

Lessons that are active and use a variety of practical resources to support learning.

Different representations of mathematical concepts.

Learning that is tracked and monitored to ensure all children make good progress.

Progression of Knowledge

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value (within 20) VIEW			Number Addition and subtraction (within 20) VIEW			Number Place value (within 100) VIEW			Geometry Shape VIEW		
Spring term	Number Addition and subtraction (within 100) VIEW			Number Multiplication and division VIEW			Measurement Length and height VIEW			Statistics VIEW	Consolidation	
Summer term	Measurement Money VIEW	Number Fractions VIEW		Measurement Time VIEW		Measurement Mass, capacity and temperature VIEW		Geometry Position and d... VIEW	Consolidation			

Early Learning Goals

Mathematics

Number

- Have a deep understanding of number to 10, including the composition of each number.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Numerical Patterns

- Verbally count beyond 20, recognising the pattern of the counting system.
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

End of Key Stage 1

2NPV-1 Partition two digit numbers into different combinations of tens and ones explaining their thinking verbally, in pictures or using apparatus.		
2NPV-2 Reason about the location of any two- digit number in the linear number system, including identifying the previous and next multiple of 10.		
2AS-3 Add and subtract within 100 by applying related one- digit addition and subtraction facts. Add and subtract any two digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus (e.g. 48+35; 72-17)		
2NF-1 Secure fluency in addition and subtraction facts within 10, through continued practice.		
Recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships (e.g. If 7+3=10, then 17+3=20; if 7-3=4, then 17-3=14; leading to if 14+3=17, then 3+14=17, 17-14=3 and 17-3=14).		
2AS-1 Add and subtract across 10, for example: 8+5=13, 13-5=8		
2AS-2 Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?".		
Identify 1/2 and 1/4 of a number or shape, and know that all parts must be equal parts of the whole.		
Read scales in divisions of ones, twos, fives and tens.		
Identify and represent and estimate numbers using different representations including a number line.		
Calculate mathematical statements for multiplication and division within the multiplication tables and write them using x, ÷ and =.		
Solve problems with addition and subtraction applying their increasing knowledge of mental and written		
Name and describe properties of 2D and 3D shapes, including number of sides, vertices, edge, faces and		
Know the number of minutes in an hour and the number of hours in a day.		
2MD-1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.		
2MD-2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).		
Recall and use multiplication and division facts for 2, 5 and 10 and use them to solve simple problems, demonstrating and understanding of commutativity as necessary.		
Identify 2/4 , 3/4 and 1/3 of a number or shape, and know that all parts must be equal parts of the whole.		
Use different coins to make the same amount.		
Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.		
Read the time on the clock to the nearest 15 minutes.		
Choose and use appropriate standard units to estimate and measure to the nearest unit, using rulers, scales, thermometers and measuring vessels; length/ height in any direction (m/cm); mass (kg/g); temperature (°c); capacity (l/ml)		

Disciplinary Knowledge

Place value: Count

Year 1	Year 2	Year 3
<ul style="list-style-type: none"> count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Count numbers to 100 in numerals; count in multiples of twos, fives and tens 	<ul style="list-style-type: none"> count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward 	<ul style="list-style-type: none"> count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number
Autumn 1 Spring 1 Spring 3 Summer 4	Autumn 1	Autumn 1 Autumn 3

Place value: Represent

Year 1	Year 2	Year 3
<ul style="list-style-type: none"> identify and represent numbers using objects and pictorial representations read and write numbers to 100 in numerals read and write numbers from 1 to 20 in numerals and words 	<ul style="list-style-type: none"> read and write numbers to at least 100 in numerals and in words identify, represent and estimate numbers using different representations, including the number line 	<ul style="list-style-type: none"> identify, represent and estimate numbers using different representations read and write numbers up to 1000 in numerals and in words
Autumn 1 Spring 1 Spring 3 Summer 4	Autumn 1	Autumn 1

Place value: Problems/Rounding

Year 1	Year 2	Year 3
	<ul style="list-style-type: none">use place value and number facts to solve problems	<ul style="list-style-type: none">solve number problems and practical problems involving these ideas
	Autumn 1	Autumn 1

Place value: Use and compare

Year 1	Year 2	Year 3
<ul style="list-style-type: none">given a number, identify one more and one less	<ul style="list-style-type: none">recognise the place value of each digit in a two-digit number (tens, ones)compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs	<ul style="list-style-type: none">recognise the place value of each digit in a three-digit number (hundreds, tens, ones)compare and order numbers up to 1000

Addition & subtraction: Calculations

Addition & subtraction: Problems

Year 1	Year 2	Year 3	Year 4
<ul style="list-style-type: none"> solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$ 	<ul style="list-style-type: none"> solve problems with addition and subtraction: <ul style="list-style-type: none"> using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods 	<ul style="list-style-type: none"> solve problems involving addition and subtraction, including number facts, place value and mental calculations, and simple addition and subtraction 	<ul style="list-style-type: none"> solve addition and subtraction problems involving numbers with up to 4 digits using formal written methods of columnar addition and subtraction, including problems involving money and measures, and problems involving simple addition and subtraction
Autumn 2 Spring 2	Autumn 2	Autumn 2	Autumn 2

Multiplication & division: Recall/Use

Multiplication & division: Calculations

Year 4

Year 1	Year 2	Year 3
	<ul style="list-style-type: none"> calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs 	<ul style="list-style-type: none"> write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
	Spring 2	Autumn 3 Spring 1

recall multiplication and division facts for multiplication tables up to 12 \times 12
 use place value, known and derived facts to multiply and divide mentally, including:
 multiplying by 10 and 100 and dividing by 10 and 100; multiplying together three numbers
 recognise and use factor pairs and commutativity in mental calculations

Autumn 4
Spring 1

Multiplication & division: Problems

Year 1	Year 2	Year 3	Year 4
<ul style="list-style-type: none">• solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	<ul style="list-style-type: none">• solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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
Summer 1	Spring 2	Spring 1	Spring 1

Fractions: Recognise and write

Fractions: Compare

Year 1	Year 2	Year 3
	<ul style="list-style-type: none"> Recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ 	<ul style="list-style-type: none"> recognise and show, using diagrams, equivalent fractions with small denominators compare and order unit fractions, and fractions with the same denominators
	Summer 1	Spring 3

- cou
- dov
- hur
- rec
- hur
- whi
- obj
- hur
- divi
- ten

		unit fractions with small denominators
Summer 2	Summer 1	Spring 3

Fractions: Calculations

Year 1	Year 2	Year 3
	<ul style="list-style-type: none">write simple fractions for example, $\frac{1}{2}$ of 6 = 3	<ul style="list-style-type: none">add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$]
	Summer 1	Summer 1

Fractions: Solve problems

Year 1	Year 2	Year 3
		<ul style="list-style-type: none">solve problems that involve all of the above
		Spring 3 Summer 1

Using measures

Year 1	Year 2	Year 3
<ul style="list-style-type: none"> compare, describe and solve practical problems for: <ul style="list-style-type: none"> lengths and heights mass/weight capacity and volume time measure and begin to record the following: <ul style="list-style-type: none"> lengths and heights mass/weight capacity and volume time (hours, minutes, seconds) 	<ul style="list-style-type: none"> choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels compare and order lengths, mass, volume/capacity and record the results using >, < and = 	<ul style="list-style-type: none"> measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)
Spring 4 Spring 5 Summer 6	Spring 3 Spring 4	Spring 2 Spring 4

Money

Year 1	Year 2	Year 3
<ul style="list-style-type: none"> recognise and know the value of different denominations of coins and notes 	<ul style="list-style-type: none"> recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value find different combinations of coins that equal the same amounts of money solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change 	<ul style="list-style-type: none"> add and subtract amounts of money to give change, using both £ and p in practical contexts
Summer 5	Spring 1	Summer 2

Time

Year 1	Year 2	Year 3
<ul style="list-style-type: none">• sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]• recognise and use language relating to dates, including days of the week, weeks, months and years• tell the time to the hour and half past the hour and draw the hands on a clock face to show these times	<ul style="list-style-type: none">• compare and sequence intervals of time• tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times• know the number of minutes in an hour and the number of hours in a day	<ul style="list-style-type: none">• tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks• estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight• know the number of seconds in a minute and the number of days in each month, year and leap year• compare durations of events [for example to calculate the time taken by particular events or tasks]
Summer 6	Summer 2	Summer 3

2-D shapes

3-D shapes

Year 1	Year 2	Year 3
<ul style="list-style-type: none"> recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles] 	<ul style="list-style-type: none"> identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] compare and sort common 2-D shapes and everyday objects 	<ul style="list-style-type: none"> draw 2-D shapes
Autumn 3	Autumn 3	Summer 4

Year 1	Year 2	Year 3
<ul style="list-style-type: none"> recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] 	<ul style="list-style-type: none"> recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] compare and sort common 3-D shapes and everyday objects 	<ul style="list-style-type: none"> make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
Autumn 3	Autumn 3	Summer 4

Position and direction

Year 1	Year 2	Year 3
<ul style="list-style-type: none">• describe position, direction and movement, including whole, half, quarter and three-quarter turns	<ul style="list-style-type: none">• order and arrange combinations of mathematical objects in patterns and sequences• use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)	
Summer 3	Summer 4	

Present and interpret data

Solve statistical problems

Year 1	Year 2	Year 3
	<ul style="list-style-type: none">interpret and construct simple pictograms, tally charts, block diagrams and simple tables	<ul style="list-style-type: none">interpret and present data using bar charts, pictograms and tables
	Summer 3	Summer 5

Year 1	Year 2	Year 3
	<ul style="list-style-type: none">ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantityask and answer questions about totalling and comparing categorical data	<ul style="list-style-type: none">solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables
	Summer 3	Summer 5