

Level Expected at the End of EYFS

We have selected the Early Learning Goals that link to the Mathematics National Curriculum. For more detail about linked subject progression within the EYFS Framework, please refer to [these documents](#).

Number

Children at the expected level of development will:

- 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

Children at the expected level of development will:

- 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.

Key Stage 1 National Curriculum Expectations

- The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].
- At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.
- By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.
- Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower Key Stage 2 National Curriculum Expectations

- The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.
- At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.
- By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2 National Curriculum Expectations

- The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.
- At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.
- By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

For further information about the specific objectives for each phase from Key Stage 1 to Upper Key Stage 2, please click the following link:

[Mathematics programmes of study: key stages 1 and 2](#)

Intent

At Cookridge Primary School, we believe that every child can excel as a mathematician. Pupils are able to reason and problem solve successfully by developing a strong foundation in the basics (fluency). Through providing an environment in which it is safe to make mistakes, our children will use oracy, role-play and investigation to become inquisitive, resilient and articulate mathematicians who are ready to apply their skills in the real world.



Implementation

- From Year 1 to Year 6, math frameworks have been developed to ensure teaching is taught in order that allows children to build on their prior knowledge in a logical order. It is our belief that each step of the framework underpins the following objectives. These frameworks are clearly evident on the maths subject guidance page for each year group which allows all stakeholders of Cookridge Primary School access.
- Pupils will take part in daily Fluency session, including the use of Times Tables Rockstars and Numbots to ensure a strong foundation in the basics.
- At Cookridge Primary School, we use the White Rose Maths scheme of work to inform all of our planning. Teachers will look at the White Rose Maths objectives to ensure pitch and order of teaching is accurate. They will then build on these using other resources to ensure there is elements of oracy, role play and reasoning that provides pupils with real world application.
- As previously mentioned, WRM will inform all planning and ensure there is coverage of our mathematic frameworks. Teachers will develop tabletops that allows pupils to independently access all maths learning and teaching and support staff will then target children where additional support is needed. Improvement Challenges (ICs) will then be used to fill prior gaps that may have been identified and Mastery Challenges (MCs) will be used to give children additional challenge where they have successfully met an objective.
- In addition to this, we believe that Same Day Intervention (SDI) plays a vital part in ensuring that children make good progress. Evidence shows that where children have failed to meet an objective, SDI allows any prior gaps to be identified and filled quickly and therefore a child is less likely to fall behind.
- Through regular book scrutiny, observations and assessment, we are able to ensure that maths is being pitched and taught accurately across the primary phase and that all of the above is in place for all children. This ensures that there is a consistency in the approach to teaching maths and therefore provides pupils with the best opportunity to succeed.
- The maths lead works collaboratively with other members of the trust where we are able to moderate and share new strategies.



Impact

- 2019 KS1 results above national - Maths -77%
- 2019 KS2 results above national - M-84%,
- 2019 KS2 greater depth above national - M-34%
- What is the subject performance like? – Data and triangulation activities
- Do you know the performance of different groups? – Subject crib sheet
- Who are your children of focus and why? – Subject crib sheet
- Can you measure impact and clearly state the subject Intent as a truth? – Our intent for this subject is a reality because...

Cookridge Primary School: Year 1 Objectives - Mathematics

All planning will be informed through the use of [White Rose Maths](#) and supported using other resources. [Times Table Rockstars](#) will be used to ensure a strong understanding of Times Tables up to 12 x 12 by the end of Year 4 and through to the end of Year 6.

Basic Skills (Fluency) by the end of Year 1:	Always estimate before counting and calculating.	White Rose Maths planning area
1. That numbers represent a value (objects, representations and abstract).		Place Value (Autumn Year 1) Numbots
2. Knowing that there are only 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 numerals that follow a pattern . It resets and records after 9.		Place Value (Autumn Year 1) Numbots
3. Confidently counts within 100.		Place Value (Summer Year 1) Numbots
4. Identify one more and one less from given a number.		Addition and Subtraction (Autumn Year 1) Numbots
5. Number bonds to 10 – (Link number bonds to 20).		Place Value (Autumn Year 1) Numbots
6. Bridging through 10.		Place Value (Autumn Year 1) Numbots
7. Learning the sequence of place value columns of ones and tens.		Place Value (Autumn Year 1) Numbots
Key Learning for Secure		
Place Value		Place Value (Autumn, Spring, Summer Year 1)
1. Count to and across 100, forwards and backwards.		Place Value (Autumn, Spring, Summer Year 1)
2. Beginning with 0 or 1, or from any given number and count within 100.		Place Value (Autumn, Spring, Summer Year 1)
3. Read and write numbers to 100 (e.g. 15) in numerals and 1-20 in words (e.g. Fifteen).		
4. Use the language of: equal to, more than, less than (fewer), most, least.		Addition and Subtraction (Autumn Year 1)
Addition and Subtraction (Teach inverse e.g. $7+3=10/10-7=3$)		Addition and Subtraction (Autumn Year 1)
5. Know by heart number bonds and related subtraction facts within 20 and to 20 (make sure number bonds, within 10 and to 10, are secure).		
6. Using concrete objects, pictorial representations, and missing number problems, solve one-step problems that involve addition and subtraction, such as $7 = \square + 5$.		Multiplication and Division (Summer Year 1)
Multiplication and Division (Teach inverse e.g. $2 \times 5 = 10 / 10 \div 2 = 5$)		Multiplication and Division (Summer Year 1)
7. Count in multiples of 2s, 5s, 10s.		Fractions (Summer Y1)
8. Using concrete objects, pictorial representations and arrays, solve one-step problems involving multiplication and division (2s, 5s, 10s), with the support of the teacher.		Measurement and Geometry Units
Fractions	Measurement and Geometry Units	
9. Identify $\frac{1}{2}$ and $\frac{1}{4}$ within shapes, objects or quantities (e.g. $\frac{1}{2}$ £8, $\frac{1}{4}$ £10).		
Measurement (Every half term) M1 – Compare, describe and solve practical problems for: length, weight, capacity and time [for example, long/short, full capacity/empty, o'clock and half past, double/half, heavy/light].		
Geometry (Every half term) G1 - Recognise and name common 2-D and 3-D shapes [for example, rectangles (including squares), circles and triangles – Cuboid (Cube), cylinder, pyramid, prism].		

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Basic Skills (Fluency) by the end of Year 2:	Always estimate before counting and calculating.	White Rose Maths Planning Area
1. Counting from any number within 100, in 1s and 10s .		Place Value (Autumn YEAR 2) Numbots
2. Number bonds to 10 – (Link number bonds to 20).		Place Value (Autumn YEAR 2) Numbots
3. Consolidate Bridging through 10.		Place Value (Autumn YEAR 2) Numbots
4. The pupil can recall doubles and halves to 20.		
5. Read and write numbers to at least 100 in numerals and in words .		Place Value (Autumn YEAR 2) Numbots
6. The pupil can add and subtract mentally a two-digit number from another two-digit number when there is no regrouping required (e.g. 74 – 33).		Addition and Subtraction (Autumn Year 2)
7. Know Timetables 2, 5, 10 (Efficient recall).		TT Rockstars
Key Learning for Secure		White Rose Maths Planning Area
Place Value		Place Value (Autumn YEAR 2)
1. Recognise the place value of each digit in a 2 digit number.		Place Value (Autumn YEAR 2)
2. Compare and order numbers from 0 up to 100; use <, > and = signs.		Place Value (Autumn YEAR 2)
Addition and Subtraction (Teach inverse e.g. 7+3=10/10-7=3)		Addition and Subtraction (Autumn YEAR 2)
3. The pupil can add 2 two-digit numbers within 100 and can demonstrate their method using concrete apparatus or pictorial representations.		
4. The pupil can recognise the inverse relationships between addition and subtraction and use this to check calculations and work out missing number problems (e.g. $\Delta - 14 = 28$).		Addition and Subtraction (Autumn YEAR 2)
5. The pupil can use different coins to make the same amount (e.g. pupil uses coins to make 50p in different ways; pupil can work out how many £2 coins are needed to exchange for a £20 note).	Money (Autumn YEAR 2)	
Multiplication and Division (Teach inverse e.g. 2x5=10/10÷2=5)	Multiplication and Division (Spring YEAR 2)	
6. The pupil can recall and use multiplication and division facts for the 2, 3, 5 and 10 multiplication tables to solve simple problems, demonstrating an understanding of commutativity as necessary.		
Fractions	Fractions (Spring YEAR 2)	
7. Identify $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ within shapes, objects or quantities.		
Measurement (Every half term)	Geometry and Measurement Units	
M1 – The pupil can read scales in divisions of ones, twos, fives and tens in a practical situation where all numbers on the scale are given.		
M2 - The pupil can read the time on the clock to the nearest 15 minutes .	Geometry and Measurement Units	
Geometry (Every half term)	Geometry and Measurement Units	
G1 - The pupil can describe properties of 2-D and 3-D shapes.		

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Basic Skills (Fluency) by the end of Year 3:	White Rose Planning Area
1. Recognise the place value of each digit in a three-digit number (hundreds, tens, ones and tenths).	Place Value (Autumn Y3)
2. Count in 1/10's through whole numbers e.g. 0.8 to 1.1.	Place Value (Autumn Y3)
3. The pupil can add and subtract mentally 1's 10's and 100's from a three-digit number.	Place Value (Autumn Y3)
4. Read and write numbers to at least 1000 in numerals and in words .	Addition and Subtraction (Autumn Y3)
5. Count in multiples of 4, 8, 50 and 100 and find 10 more or less from a given number.	Multiplication and Division (Autumn Y3)
6. Know Timetables 2, <u>3</u> , <u>4</u> , 5, <u>8</u> , 10 (Efficient recall/inverse division facts).	Multiplication and Division (Autumn Y3) TT Rockstars
7. Recall Mathematical facts and vocabulary related to mathematical understanding e.g. Mathematical facts e.g. 90° in a right angle.	Measurement and Geometry Units (White Rose Maths Y3)
Key Learning for Secure	
Place Value	Place Value (Autumn Y3)
1. Compare and order numbers up to 1000.	See relevant area
2. Solve number problems and practical problems involving the basic skills (Fluency).	Editable reasoning and problem solving
Addition and Subtraction (Teach inverse e.g. $7+3=10/10-7=3$)	Addition and Subtraction (Autumn Y3)
3. Add and subtract numbers mentally , including: a three-digit number and ones a three-digit number and tens a three-digit number and hundreds	
4. Add and subtract amounts of money to give change, using both £ and p in practical contexts.	Money (Spring Y3)
5. Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.	Addition and Subtraction (Spring Y3)
Multiplication and Division (Teach inverse e.g. $2 \times 5 = 10/10 \div 2 = 5$)	Multiplication and Division (Spring Y3)
6. Pupils develop efficient mental methods, for example, using commutativity and associativity (for example, $4 \times 12 \times 5 = 4 \times 5 \times 12 = 20 \times 12 = 240$).	
7. Multiplication and division of two-digit by a one-digit number using formal written layout .	Multiplication and Division (Spring Y3)
Fractions	Fractions (Spring and Summer Y3)
8. Recognise equivalent fractions e.g. $2/8 = 1/4$.	Fractions (Spring and Summer Y3)
9. Pupils can add and subtract fractions with same denominator e.g. $3/5 - 1/5 = 2/5$	Measurement and Geometry Units
Measurement	Time (Summer Y3)
M1 – Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).	Time (Summer Y3)
M2 - Know the number of seconds in a minute and the number of days in each month, year and leap year.	Measurement and Geometry Units
M3 - Estimate and read (Different contexts) time with increasing accuracy to the nearest minute; minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.	Measurement and Geometry Units
M4 – Can convert 120 cm to m; 5m into cm; 3000g into kg.	Measurement and Geometry Units
Geometry	Measurement and Geometry Units
G1 – Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them, being able to measure their perimeter.	Measurement and Geometry Units
G2 Can identify right angles and whether an angle is greater or less than 90 degrees.	Measurement and Geometry Units

Estimate the answer to a problem or calculation and use inverse operation to check

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<p>Basic Skills (Fluency) by the end of Year 4:</p> <ol style="list-style-type: none"> Count backwards through zero to include negative numbers to three digits. Recognise the place value of each digit in a four-digit number (Thousands, hundreds, tens, ones and tenths). Count in 1/100's through whole numbers e.g. 0.01 to 1.0. Count in multiples of 6, 7, 9, 25 and 1000 and find 1000 more or less from a given number. Know Timetables 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 (Efficient recall/Inverse division facts). Recall Mathematical facts and vocabulary related to mathematical understanding e.g. Mathematical facts e.g. 90° in a right angle. <p>Key Learning for Secure</p> <p>Place Value</p> <ol style="list-style-type: none"> Compare and order numbers beyond 1000. Round any number to the nearest 10, 100 or 1000. Read roman numerals to 100. Solve number problems and practical problems involving the basic skills (Fluency). <p>Addition and Subtraction (Teach inverse e.g. $7+3=10/10-7=3$)</p> <ol style="list-style-type: none"> Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. <p>Multiplication and Division (Teach inverse e.g. $2 \times 5=10/10 \div 2=5$)</p> <ol style="list-style-type: none"> Multiplication and division of two-digit and three-digit numbers by a one-digit number using formal written layout. Solve problems, including 2 step problems, involving multiplying and dividing, problems such as n objects are connected to m objects. <p>Fractions (Decimals)</p> <ol style="list-style-type: none"> Pupils can add and subtract fractions with same denominator e.g. $3/5 - 1/5 =$ Compare numbers with the same number of decimal places up to two decimal places. Round decimals with one decimal place to the nearest whole number. <p>Measurement</p> <p>M1 Consolidate converting between different units of measure e.g. 120 cm to m; 5m into cm; 3000g into kg.</p> <p>M2 – Measure perimeter in cm and m and work out the area by counting squares.</p> <p>M3 – Convert time between analogue and digital solving relating contextual problems.</p> <p>Geometry</p> <p>G1 Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</p> <p>G2 – Identify lines of symmetry in 2-D shapes presented in different orientations and create simple symmetrical figures.</p> <p>Statistics</p> <p>S1 - Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</p>	<p>White Rose Maths Planning Area:</p> <p>Place Value (Autumn Y4)</p> <p>Place Value (Autumn Y4)</p> <p>Place Value (Autumn Y4)</p> <p>Multiplication and Division (Autumn Y4)</p> <p>TT Rockstars Multiplication and Division (Autumn Y4)</p> <p>Geometry and Measurement units</p> <p>White Rose Maths Planning Area:</p> <p>Place Value (Autumn Y4)</p> <p>Place Value (Autumn Y4)</p> <p>Place Value (Autumn Y4)</p> <p>See relevant area</p> <p>Addition and Subtraction (Autumn Y4)</p> <p>Addition and Subtraction (Autumn Y4) – Editable reasoning and problem solving</p> <p>Multiplication and Division (Spring Y4)</p> <p>Multiplication and Division (Spring Y4) – Editable reasoning and problem solving</p> <p>Fractions (Spring Y4)</p> <p>Decimals (Spring Y4)</p> <p>Decimals (Spring Y4)</p> <p>Measurement Units</p> <p>Length and perimeter (Autumn Y4)</p> <p>Area (Spring Y4)</p> <p>Time (Summer Y4)</p> <p>Properties of Shape (Summer Y4)</p> <p>Properties of Shape (Summer Y4)</p> <p>Statistics (Summer Y4)</p>
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Estimate the answer to a problem or calculation and use inverse operation to check.

Cookridge Primary School: Year 6 Objectives - Mathematics

All planning will be informed through the use of [White Rose Maths](#) and supported using other resources. [Times Table Rockstars](#) will be used to ensure a strong understanding of Times Tables up to 12 x 12 by the end of Year 4 and through to the end of Year 6.

Basic Skills (Fluency) by the end of Year 6:	White Rose Planning Area:
1. Read, write, order and compare numbers to at least 10,000,000 and determine the value of each digit.	Place Value (Aut - Y6)
2. Read, write, order and compare numbers with up to three decimal places.	Place Value (Aut - Y6)
3. Recap on number bonds and bridging through given numbers.	
4. Recall multiplication and division facts for multiplication tables up to 12 x 12.	Times Table <u>Rockstars</u>
5. Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 and those numbers with decimals.	Place Value (Aut Y6)
6. Recall Mathematical facts and vocabulary related to mathematical understanding e.g. Measure - 1Km=1000m, Geometry - identify: angles at a point and one whole turn (total 360°), angles at a point on a straight line and 1/2 a turn (total 180°), other multiples of 90°.	Geometry and Measurement Units - Y6
Key Learning for Secure	White Rose Planning Area:
Place Value	Place Value (Aut - Y6)
1. The pupil can demonstrate an understanding of place value, including large numbers and decimals.	
2. Child to count in 1/3s, 1/5s, 1/8s.	Fractions (Aut - Y6)
Addition and Subtraction (Teach inverse e.g. 7+3=10/10-7=3)	Addition/Subtraction/Multiply/Divide (Aut - Y6)
3. The pupil can calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation (e.g. $53 - 82 + 47 = 53 + 47 - 82 = 100 - 82 = 18$; $20 \times 7 \times 5 = 20 \times 5 \times 7 = 100 \times 7 = 700$; $53 \div 7 + 3 \div 7 = (53 + 3) \div 7 = 56 \div 7 = 8$).	Addition/Subtraction/Multiply/Divide (Aut - Y6) Reasoning & Problem Solving Questions Y6
4. The pupil can use formal methods to solve multi-step problems.	Addition/Subtraction/Multiply/Divide (Aut - Y6)
Multiplication and Division (Teach inverse e.g. $2 \times 5 = 10 / 10 \div 2 = 5$)	
5. The pupil can use formal methods to solve multi-step problems (e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll?; a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?).	
Fractions (Decimals)	Fractions (Aut - Y6) Decimals (Spr - Y6) Percentages (Spr - Y6)
6. The pupil can recognise the relationship between fractions, decimals and percentages and can express them as equivalent quantities (e.g. one piece of cake that has been cut into 5 equal slices can be expressed as 1/5 or 0.2 or 20% of the whole cake).	
7. The pupil can calculate using fractions, decimals or percentages (e.g. knowing that 7 divided by 21 is the same as 7/21).	Fractions (Aut - Y6) Decimals (Spr) Percentages (Spr)
Measurement	Measurement Units
M1 - The pupil can calculate with measures (e.g. calculate length of a bus journey given start and end times; convert 0.05km into m and then into cm).	
Geometry	Geometry Units
G1 - The pupil can substitute values into a simple formula to solve problems (e.g. perimeter of a rectangle or area of a triangle).	
G2 - The pupil can use mathematical reasoning to find missing angles (e.g. the missing angle in an isosceles triangle when one of the angles is given; the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles).	Geometry and Measurement Units

Estimate the answer to a problem or calculation and use inverse operation to check

