**Intent**

At Healdswood Infant and Nursery School our ambition is that every child is a mathematician. Our Mathematics Curriculum:

* Enables children to **EXPLORE**mathematics following a mastery curriculum approach.
* Allows each pupil an opportunity to **BELIEVE** in themselves as mathematicians and develop the power of resilience and perseverance when challenged;
* Recognises that mathematics is everywhere in our lives;
* Engages all children and provides them with a range of quality teaching and learning opportunities in which children strive to **ACHIEVE** their potential, as part of our school community;
* Make connections across mathematical concepts so children can problem solve and reason; describe, explain, convince, justify and prove with an appreciation and excitement about the power of maths

**Implementation**

In the Foundation Stage, our children are provided with many exciting opportunities to be mathematicians through purposeful, adult-led and child-initiated learning. In EYFS, we teach early number sense (TENS) and follow White Rose small steps. We focus on key concepts such as subitising and a deep understanding of numbers to 10. In provision, children are immersed in a number rich environment and can independently apply their number skills therefore ensuring our children have early success of being a mathematician.

In KS1, we deliver maths through a mastery approach, following the White Rose small steps and focussing on key concepts and skills as the children progress from Year 1 to Year 2. This forms a strong foundation for both their procedural fluency and conceptual understanding.

We are committed to providing our children with the very best mathematical experiences and through our work with the Maths Hub we have developed a ‘Fluency Progression Document’ which ensures all children are explicitly taught all key fluency concepts that underpin a deep mathematical understanding of the KS1 curriculum objectives.



This document progresses from Nursery through to Year 2 and each half term KS1 classes have Fluency Objectives which are explicity taught, explored and assessed. This systematic assessment enables us to identify gaps and informs our interventions, enabling all children to achieve their full potential.

At our school, emphasis is on the development of conceptual understanding and a Concrete, Pictorial, Abstract (CPA) approach is used throughout our maths lessons, building on children’s existing knowledge and developing a deep and sustainable understanding of maths by introducing abstract concepts using concrete manipulatives. It involves moving from concrete manipulatives that bring the maths to life in real contexts, to pictorial representations that allow children to make mental connections, to abstract symbols and calculations.

Mathematical vocabulary is taught explicitly and children are provided regular opportunities to engage in ‘Maths Talk’, enabling them to articulate their reasoning with confidence. In Maths, teachers and support staff will ensure that concrete and visual manipulatives are available to support children that require more time on learning the fundamental concepts – ensuring that every child succeeds.

Children really enjoy our Daily 5 sessions in KS1 four times per week, which is 10 minutes dedicated to exploring fluency objectives, applying new skills or addressing misconceptions that may have arisen with groups of pupils that day. This allows the children sufficient opportunities to revisit previously taught concepts and procedures.

**Impact**

Children engage in Mathematics and enjoy the learning journey together, exploring, discovering, and deepening knowledge of key ideas needed to underpin future learning. Maths Talk has become an integral aspect of the teaching in mathematics and our curious mathematicians are empowered to explore and make links, inspiring their curiosity to be flexible and discover different ways to solve problems. We strive to ensure that the number of children achieving at the Expected Standard at the end of Key Stage One is in line with National Average.

**Mathematics Curriculum**





**FS2 long term plan**

|  |
| --- |
| **Autumn** |
| **Match, Sort & Compare**  **Talk about measure and patterns**  **It’s Me 1, 2, 3** | **It’s Me 1, 2, 3**  **circles and triangles**  **1,2,3,4,5**  **Shapes with 4 sides** |
| **Spring** |  | |
|
| **Alive in 5**  **Mass and Capacity**  **Growing 6, 7, 8**  **Length, Height and Time** | **Building 9 and 10**  **Explore 3D shapes** |
| **Summer** |  | |
|
| **To 20 and beyond**  **How many now?**  **Manipulate, compose and decompose** | **Sharing and grouping**  **Visualise, build and map**  **Make connections** |

**Year 1 Curriculum Coverage**



|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Autumn | Week 1 – 5 | | | | | Week 6-10 | | | | | | Week 11 | Week 12 |
| Place Value (within 10) | | | | | Addition and Subtraction  (within 10)  Shape | | | | | | Shape | Consolidation |
| Spring |  | | | | | | | | | | | | |
| Week 1 – 3 | Week 4 – 6 | | | | | Week 7– 8 | | Week 9 -10 | | | Week 11-12 | |
| Place Value (within 20) | Addition and Subtraction  (within 20) | | | | | Place Value (within 50) | | Length and Height | | | Mass and Volume | |
| Summer |  | | | | | | | | | | | | |
| Week 1 – 3 | | Week 4-5 | | Week 6 | | | Week 7 - 8 | | Week 9 | Week 10 -11 | | Week 12 |
| Multiplication and Division | | | Fractions | Position and Direction | | | Place Value (within 100) | | Money | Time | | Consolidation |





**Year 2 Curriculum Coverage**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Autumn | Week 1 – 4 | | | | Week 5 – 9 | | | | | | Week 10-12 | |
| Place Value | | | | Addition and Subtraction | | | | | | Shape | |
| Spring |  | | | | | | | | | | | |
| Week 1 – 2 | Week 3 – 7 | | | | | | Week 8 | | | Week 9 -12 | |
| Money | Multiplication and Division | | | | | | Length and Height | | | Fractions | |
| Summer |  | | | | | | | | | | | |
| Week 1 – 3 | | Week 4 – 6 | | | Week 7 – 8 | | | Week 9-10 | | | Week 11-12 |
| Mass, Capacity and Temperature | | | Time | | | Statistics | | | Position and Direction | | Consolidation |

**F1 – Y2 Fluency Progression Document**

The use of correct **mathematical vocabulary** is a key theme that underpins this Fluency Progression Document

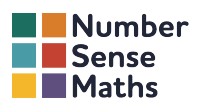
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | F1 | F2 | Year 1 | Year 2 |
| Subitising | **Fast recognition of up to 3** objects, without having to count them individually (‘subitising’). | Subitise (recognise quantities without counting) **up to 5 secure;**  Subitise (recognise quantities without counting) **up to 10** | Recognise quantities **up to 10** using Numicon and tens frames (without counting) |  |
| Counting | Know that the last number reached when counting a small set of objects tells you how many there are in total (‘cardinal principle’).  **Count to 10** | **Verbally count beyond 20,** recognising the pattern of the counting system; | **Count within 100** forwards and backwards from a given number.  Find numbers to 100 on a hundred square. |  |
| Composition of number | Composition of numbers to **5** | **Have a deep understanding of number to 10,** including the composition of each number  **Use 5 and more strategy** i.e 8 is 5 and 3 more. | Secure in understanding **odd and even** numbers to 10.  **Use 5 and more strategy** i.e 8 is 5 and 3 more.  **Use 10 and more strategy** i.e 10 and 4 more is 14. | **Recognise** the place value of digits in a 2 digit number (tens and ones)  **Represent** a 2 digit number using concrete resources/pictures  **Partition** 2 digit numbers in a standard way (tens and ones)  **Flexibly partition** numbers i.e. 42 = 30 + 12, 20 + 22 |
| Representing | Link numerals and amounts: for example, showing the right number of objects to match the numeral, **up to 5.** | 1. Link the number symbol (numeral) with its cardinal number value (**to 10).** | Place numbers on a **number line** that is labelled or blank. | Identify/place a **2 digit** number on a **number line**  Work forwards and backwards from multiples of 10 to place a number **knowing which multiples of 10 a number falls between** |
| Number bonds | Shows an interest in **mathematical problems with numbers 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.** | **Number bonds to 10** in and out of order to avoid reliance of pattern spotting/writing in order | **Secure** in number bonds to 10 |
| Comparing | Compare quantities using language: ‘**more than’, ‘fewer than’.** | **Compare quantities up to 10** in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; | Use symbols ≤, ≥, = when comparing numbers. | Understand the mathematical language of ‘**difference**’ and **‘How many more?’** |
| Addition and subtraction |  | Seeing +, - and = signs and knowing the meaning i.e. + means getting bigger. | Addition and subtraction **facts within 10** are secure.  When using counting on strategy, children start with the biggest number. | To become fluent in addition and subtraction **facts within 20** (fact families)  Add and subtract across 10  Add and subtract within 100 – only tens, only ones  Add and subtract any two **2 digit** numbers (crossing and not crossing 10)  Inverses |
| Multiplication and division |  | Explore how quantities up to 10 can be **shared equally.** | Count in 2s, 5s and 10s forwards and backwards from any multiple  Use arrays to represent lots of. | **Secure** in counting in 2s, 5s, 10s and 3s  Recognise the link between **multiplication and repeated addition** (bar model)  Solve missing number problems with multiplication and division using **grouping** as a method.  Count forwards and backwards through the odd numbers. |



**Progression**



|  |  |  |  |
| --- | --- | --- | --- |
|  | **EYFS** | **Year 1** | **Year 2** |
| **PV (counting)** | * Select the correct numeral to represent 1 to 5, then 1 to 10 objects. * Count objects to 10 and begin to count beyond 10. * Count reliably with numbers from 1 to 20 | * 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 2, 5 and 10. | * Count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward. |
| **PV (Represent)** | * Select the correct numeral to represent 1 to 5, then 1 to 10 objects. * Count an irregular arrangement of up to ten objects. | * Identify and represent numbers using Pictorial representations, including a number line. * Read and write numbers to 100 in numerals. * Read and write numbers from 0 – 20 in words. | * Read and write numbers 100 in numerals and words. * Identify, represent and estimate numbers using different representations including a number line. |
| **PV**  **(Use PV & Compare)** | * Represent numbers up to 10 using fingers. * order numbers 1 – 10 and count one more or one less than a given number. * Recognise, create and describe patterns. | * Given a number, identify one more and one less. * Use the language of: equal to, more than, less than (fewer), most, least | * Recognise the PV of each digit in a two-digit number (tens, ones). * Compare and order from 0 – 100; use , less than, more than and = signs. * Use place value and number facts to solve problems. |
| **Addition & Subtraction** | * Count an irregular number of objects to ten. * Count reliably with numbers 1 – 20. | * Read, write and interpret mathematical statements involving addition, subtraction and equals. * Represent and use number bonds and related subtraction facts within 20. | * Recall and use additions and subtractions facts to 20 fluently and derive and use related facts to 100. * Show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot. * Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems |
| **Addition & Subtraction**  **Calculations** | * Combine 2 groups * Number bonds to 5 * Number bonds to 10 | * Add and subtract one-digit and two-digit numbers to 20, including 0. | * Add and subtract numbers using concrete manipulatives and pictorial representations. * Add and subtract, including: * A two-digit number and ones; * A two-digit numbers and tens; * Two two-digit numbers * Adding three-one-digit numbers. |
| **Addition & subtraction Solve Por Problems** | * Double to 8 (find a double) * Double to 8 (make a double)   • Doubles to 10 (find a double)  • Doubles to 10 (make a double) | * Solve-one step problems that involve addition and subtraction using concrete manipulatives and pictorial representations and missing number problems. | * Solve problems with addition and subtraction. * Using concreate manipulatives and pictorial representations, including those involving numbers, quantities and measures. |
| **Multiplication & Division: Recall and Re present** | * Explore sharing * Sharing * Explore grouping * Grouping * Even and odd sharing * Play with and build doubles | * Use concrete objecs and arrays. * Make and add equal groups (grouping and sharing) | * Recall and use multiplication and division facts for the 2, 5 and 10 multiplication, including recognising odd and even numbers. * Show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 numbers by another cannot. |
| **Multiplication & Division**  **Calculations** |  |  | * Calculate mathematical statements for multiplication and division within the multiplication tables and write them using multiplication (x), division (÷) and equals signs (=). |
| **Multiplication & Division:**  **Solve Problems** |  | * 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 | * Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. |
| **Fractions**  **(Recognise and Write)** |  | * Recognise and identify a half as one of two equal parts of a shape or quantity. * Recognise and identify a quarter as one of four equal parts of a shape or quantity. | * Recognise, find, name and write fractions 1/3, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity. * Write simple fractions i.e ½ of 6 = 3. |
| **Fractions**  **(Compare)** |  |  | * Recognise the equivalences of two-quarters and a half. |
| **Measurement**  **(Using Measures)** | * Use everyday language to talk about size, weight and capacity. * Compare size * Compare mass * Compare capacity * Explore length * Compare length * Explore height * Compare height | Compare, describe and solve practical problems for;   * Lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half) * Mass and weight (heavy/light, heavier than, lighter than..) * Capacity and volume (full, empty, more than, less than, half full, quarter full, full) * Time (quicker, slower, earlier, later)   Measure and begin to record the following:   * Length and height * Capacity/volume * Mass/weight * Time (hours, minutes, seconds) | * Choose and use appropriate standard units to estimate and measure length/height in any direction (mm/cm), mass (kg, g), temperature (degress C), capacity (l, ml) to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels. * Compare and order lengths, mass, volume/capacity and record results using less than, more than and = symbols. |
| **Measurement**  **(Money)** |  | * Recognise and identify the value of different denominations of coins and notes. | * Recognise and use £ 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. |
| **Measurement**  **Time** | * Use everyday language to talk about time.   •Order and sequence time. | * Sequence events using appropriate vocabulary [*e.g. before, today, tomorrow, yesterday, afternoon, evening etc*.] * Recognise and use vocabulary related to days of the week, weeks, months and years. * Identify the time to the hour and half past the hour and represent these times on a clock. | * Compare and sequence intervals of time. * Tell and write the time to the nearest 5 minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. * Identify the number of minutes in an hour and the number of hours in a day. |
| **Geometry**  **(2-D Shapes)** | * Recognise the name for ‘2D’ shapes and mathematical terms to describe shapes. | * Recognise the names- and common 2-D shapes [ e.g. rectangle (including squares), circles and triangles]. | * Identify and describe the properties of 2-D shapes, including the number of sides, and lines of symmetry in a vertical line. * Identify 2-D shapes on the surface of 3D shapes. * Compare and sort 2-D shapes. |
| **Geometry**  **(3-D Shapes)** | * Recognise the name for ‘3D’ shapes and mathematical terms to describe shapes. | * Recognise and identify 3-D shapes, including: cuboids, pyramids and spheres. | * Recognise and identify 3-D shapes, including: cuboids, pyramids and spheres. * Compare and sort 3-D shapes. |
| **Geometry**  **(Position and Direction)** | * Recognise, create and describe patterns. * Identify more complex patterns * Copy and continue patterns * Patterns in the environment | * Describe position and direction, including whole, half, quarter and three-quarter turns. | * 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. * Understand rotation as a turn and recognise right angles to describe quarter, half and three quarter turns (clockwise and anti-clockwise). |
| **Statistics** |  |  | * Interpret and construct pictograms, tally charts, block diagrams and tables. |
| **Statistics**  **(Solve Problems)** |  |  | * Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. * Ask and answer questions about totalling and comparing categorical data. |



**Ready to Progress Criteria**

|  |  |  |  |
| --- | --- | --- | --- |
| **Number and Place Value** | **Year 1** | **Year 2** | **Year 3** |
| **1NPV–1** Count within 100, forwards and backwards, starting with any number. |  | **3NPV–1** 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. |
|  | **2NPV–1** Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and nonstandard partitioning. | **3NPV–2** Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning. |
| **1NPV–2** Reason about the location of numbers to 20 within the linear number system, including comparing using < > and = | **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. | **3NPV–3** 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. |
| **Number Fluency** | **1NF–1** Develop fluency in addition and subtraction. | **2NF–1** Secure fluency in addition and subtraction facts within 10, through continued practice. | **3NF–1** Secure fluency in addition and subtraction facts that bridge 10, through continued practice. |
| **1NF–2** Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers. |  | **3NF–2** 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. |
| **Addition and Subtraction** | **1AS–1** Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers. | **2AS–1** Add and subtract across 10. | **3AS–1** Calculate complements to 100. |
| **1AS–2** Read, write and interpret equations containing addition (+), subtraction (=0) and equals ( =) symbols, and relate additive expressions and equations to real-life contexts. | **2AS–2** Recognise the subtraction structure of ‘difference’ and answer questions of the form, “How many more…?” | **3AS–2** Add and subtract up to three-digit numbers using columnar methods. |
|  | **2AS–3** 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. | **3AS–3** 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. |
|  | **2AS–4** 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** |  | **2MD–1** Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables. | **3MD-1** Apply known multiplication and division facts to solve contextual problems with different structures including quotative and partitive division. |
|  | **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). |  |
| **Geometry** | **1G–1** Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another. | **2G–1** Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties. | **3G–1** 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. |
| **1G–2** Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations. |  | **3G–2** Draw polygons by joining marked points, and identify parallel and perpendicular sides. |