Progression of maths

- At HIS we have a **Maths Long term Plan** which is an overview of the maths taught across the year.
- Detailed **maths medium term plan** for each term. This is based on the National/EYFS Curriculum/Development Matters but also uses Power Maths and NCETM as a planning and resources aid. This indicates how objectives are taught across each term, and each term builds on previously taught concepts to show clear progression across the year and across year groups. Maths medium term plans include objectives taught in discrete maths lessons and in our separate maths fluency (maths gym).
- Information of our discrete maths teaching is shared via the **half termly learning leaflet** and in **weekly homework**.
- Our **Maths Policy** details how mathematics is taught at Hartford Infant School and should be read in conjunction with this document.
- The **KS1 and EYFS calculation policy** and **Early Years Progression in Maths** outline clear progression of number, as well as the four areas of calculation, and should be read in conjunction with this document.
- End of year expectations (including non-statutory) are based on the Early Years Curriculum/Development and National Curriculum for KS1. See below.

Subject content	Reception	Year 1	Year 2
<u>Number</u> Place value	**Development matters:** Count objects, actions and sounds. Subitise. Link the number symbol (numeral) with its cardinal number value. Count beyond ten. Compare numbers. Understand the 'one more than/one less than' relationship between consecutive numbers. Explore the composition of numbers to 10. **ELG: 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.**	To count to and across 100 forwards and backwards beginning with 0 or 1 or from any given number To count in multiples including 2's, 5's and 10's Given a number identify 1 more and 1 less. To identify and represent numbers using concrete objects and pictorial representations including the number line and comparing numbers using the language of equal to, more than, less than (fewer) most, least To read and write numbers to 100 in numerals. To read and write numbers from 1-20 in numerals and words. To use ordinal numbers when counting/ordering (non statutory).	To count in steps of 2,3 & 5 from 0 and in tens from any number forwards and backwards. To identify, represent and estimate numbers using different representations including the number line. To read and write numbers to at least 100 in numerals and words. To compare and order numbers from 0-100; use <,> & = signs To recognise the place value of each digit in a 2 digit number. To use place value and number facts to solve problems.

Number Addition and Subtraction	Development matters: Automatically recall number bonds for numbers 0–10. **ELG: 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**	To read, write and interpret mathematical statements involving +/- signs. To represent and use number bonds and related subtraction facts within 20 using counters, parts and wholes, ten frames, objects and pictures as per calculation policy. To solve one step problems that involve addition and subtraction using concrete objects and pictorial representations and missing number problems. To add & Subtract 1 digit & 2 digit numbers to 20 including 0.	To recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100. To solve problems with addition and subtraction: -using concrete objects & pictorial representations including those involving numbers, quantities and measures -applying their increasing knowledge of mental and written methods. To add & Subtract numbers using concrete objects (counters, dienes, bundles of tens and ones), pictorial representations (place value grid, number line, number square, column grid, part-whole and bar model) and mentally including: • 2 digit no and ones • 2 digit no and tens • two 2 digit numbers • adding three 1 digit numbers (see calculation policy). To show that addition of two numbers can be done in any order (commutative) & subtraction of one number from another cannot. To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.
Number Multiplication and division	**ELG: 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**	To learn about odd and even numbers, e.g. in the context of patterns in the number system (non-statutory). To learn doubles and halves to 10 in a variety of different contexts (non-statutory). To solve one step problems involving multiplication and division, calculating the answer using concrete objects, pictorial representations (pictures of objects, ten frames and number lines as per calculation policy) and arrays with the support of the teacher.	To recall and use multiplication and division facts for the 2,5,10 tables including recognising odd and even numbers. To calculate the mathematical statements for multiplication and division within the multiplication tables and write them using the signs To show that multiplication of two numbers can be done in any order (commutative) & division of one number by another cannot. To solve problems involving multiplication and division, using materials (as per calculation policy use objects, counters and number lines), arrays,

			repeated addition, mental methods, multiplication and division facts including problems in context and subtraction.
Number Fractions	**ELG: Numerical Patterns - Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally**	To recognise, find, name a half as one of two equal parts of an object, shape or quantity. To recognise, find, name a quarter as one of four equal parts of an object, shape or quantity.	To recognise, find, name and write fractions 1/3, ¼, 2/4, and ¾ of a length, shape, set of objects or quantity. To write simple fractions eg ½ of 6 = 3 and the equivalence of 2/4 &1/2
Measurement General	**Development Matters: mathematics** Compare length, weight and capacity.	To compare, describe, and solve practical problems for: • length and heights • mass and weight • capacity and volume • time To measure and begin to record the following: • length and heights • mass and weight • capacity and volume • time (hrs, mins, secs)	To choose and use appropriate standard units to estimate and measure: • length and heights in any direction • mass (kg/g) • temperature • capacity (l/ml) to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels. To read scales to the nearest labelled division. To compare and order lengths, mass, volume, capacity, and record the results using <> and =
Measurement Money		To recognise and know the value of different denominations of coins & notes.	To recognise and use the symbols for pounds (£) and pence (p) combine amounts to make a particular value. To find different combinations of coins that equal the same amount of money. To solve simple problems in a practical context.
Measurement Time		To sequence events in chronological order using language (before, after, next, first, today, yesterday, tomorrow, morning, afternoon, evening) To recognise and use language relating to dates including days of the week, weeks, months & years To tell the time to the hour and half past the hour & draw the hands on the clock face to show these times. (Time also included in our daily routine).	To compare and sequence intervals of time. To tell and write the time to five minutes including quarter past/to the hour and draw the hands on the clock face to show these times.

Geometry Shape	**Development matters: mathematics** Select, rotate and manipulate shapes in order to develop spatial reasoning skills. Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. Continue, copy and create repeating patterns.	To recognise and name common 2D and 3D shapes including: 2D: triangles, circles, rectangles [inc squares] 3D: cuboids [inc cubes] pyramids and spheres	To identify and describe the properties of 2D shapes including the number of sides and symmetry in a vertical line. To identify and describe the properties of 3D shapes including the number of edges, vertices and faces To identify 2D shapes on the 3D surface. To compare and sort common 2D and 3D shapes and everyday objects.
Geometry Position and direction		To describe position, directions and movement including half, quarter and three quarter turns.	To order and arrange combinations of mathematical objects in patterns and sequences. To use mathematical vocabulary to describe position, directions and movement including movement in straight line and distinguishing between rotation as a turn in terms of right angles for quarter, half and three quarter turns (clockwise and anti-clockwise)
Statistics			To interpret and construct simple pictograms, tally charts, block diagrams, simple tables To ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. To ask and answer questions about totalling and compare categorical data.

How will we implement maths in our school?

- Planned **discrete teaching of maths**. Minimum of 4x45 minute lessons per week in KS1 and 2 teaching inputs in reception. This is evidenced on **maths medium term planning and Mastering Number plans.**
- **In KS1** deepening and strengthening tasks are built into the term.
- Separate maths **fluency sessions**, known as maths gym, minimum of 4 times per week. This is evidenced on **maths medium term planning and mastering number plans.**
- **Power Maths and NCETM planning is** used as a tool to aid planning and resource lessons.
- **Number blocks** is used in Reception to support maths fluency.
- **Numbots** used in KS1 used by children at home and in school to support with number, and weekly during maths gym to support fluency.
- Maths is linked to our **whole school enquiry** where relevant.
- **Intervention** for maths includes strengthening and deepening activities
- **IT** is used to support maths, where appropriate. E.g. iPad number bond games and Numbots to engage pupils.
- Children will use maths in their **classrooms** as part of their daily life at school to apply skills taught. For example, independent selection of maths area resources in **COOL time//ready to learn time.**
- **Evidence** of maths can be seen in individual pupil maths books (KS1), maths jotters, on Tapestry, assessment, enquiry books (when linked to enquiry), IWB plans and on medium term planning.
- Our **daily class routine** includes teaching of days of the week, months of the year, time and includes reading scales for temperature as appropriate. Daily snack – linked to number and money across school. We update this where necessary following lessons where children have not grasped a concept fully.

- Weekly **homework** includes what we have been learning in maths and a challenge to complete at home to consolidate this.
- **Maths working walls** display current learning.
- **Parent workshops/online tutorials** to share information, good practice, vocabulary and resources as we believe the partnership between home and school is vital in progression. E.g whole school maths workshop.
- Children encouraged to reason about their maths. **Sentence stems** and **key vocabulary** are shared, modelled, rehearsed and displayed.
- Children are supported by adults to reflect on their mistakes using concrete or pictorial resources.
- Lessons are planned in small coherent steps, using appropriate clear representations, with the ethos that by working hard all children will achieve.