

## Progression in Maths at Thurnham CE Infant School through an Empowering Curriculum

2022-23

*"At Thurnham our Empowering Curriculum will give pupils the key skills that they need to flourish; Brain Power, Resilience and Independence."*

At Thurnham we adopt a Mastery approach to the teaching and learning of Mathematics and all pupils are exposed to fluency, reasoning and problem solving activities as part of their Mathematical teaching and when mathematical skills and concepts are applied in a cross-curricular way.

EYFS	YEAR 1	YEAR 2
<p style="text-align: center;"><b><u>Number and place value</u></b></p> <ul style="list-style-type: none"> <li>▪ count to and across 20, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>▪ place numbers in order</li> <li>▪ given a number, identify one more and one less</li> </ul> <p style="text-align: center;"><b><u>number- addition and subtraction</u></b></p> <ul style="list-style-type: none"> <li>▪ Using quantities and objects, add and subtract two single-digit numbers and</li> </ul>	<p style="text-align: center;"><b><u>Number and place value</u></b></p> <ul style="list-style-type: none"> <li>▪ count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>▪ count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</li> <li>▪ given a number, identify one more and one less</li> <li>▪ identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least</li> <li>▪ read and write numbers from 1 to 20 in numerals and words</li> </ul> <p style="text-align: center;"><b><u>number- addition and subtraction</u></b></p> <ul style="list-style-type: none"> <li>▪ read, write and interpret mathematical statements involving addition (+),</li> </ul>	<p style="text-align: center;"><b><u>Number and place value</u></b></p> <ul style="list-style-type: none"> <li>▪ count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</li> <li>▪ recognise the place value of each digit in a two-digit number (tens, ones)</li> <li>▪ identify, represent and estimate numbers using different representations, including the number line</li> <li>▪ compare and order numbers from 0 up to 100; use &lt;, &gt; and = signs</li> <li>▪ read and write numbers to at least 100 in numerals and in words</li> <li>▪ use place value and number facts to solve problems</li> </ul> <p style="text-align: center;"><b><u>number- addition and subtraction</u></b></p> <ul style="list-style-type: none"> <li>▪ solve problems with addition and subtraction: <ul style="list-style-type: none"> <li>▪ using concrete objects and pictorial</li> </ul> </li> </ul>

<p>count on or back to find the answer.</p> <p><b><u>Number-Multiplication and division</u></b></p> <ul style="list-style-type: none"> <li>▪ Solve problems, including doubling, halving and sharing.</li> </ul>	<p>subtraction (-) and equals (=) signs</p> <ul style="list-style-type: none"> <li>▪ represent and use number bonds and related subtraction facts within 20</li> <li>▪ add and subtract one-digit and two-digit numbers to 20 , including zero</li> </ul> <p>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = ? - 9</math></p> <p><b><u>Number-Multiplication and division</u></b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul>	<p>representations, including those involving numbers, quantities and measures</p> <ul style="list-style-type: none"> <li>▪ applying their increasing knowledge of mental and written methods</li> <li>▪ recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</li> <li>▪ add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> <li>➤ a two-digit number and ones</li> <li>➤ a two-digit number and tens</li> <li>➤ two two-digit numbers</li> <li>➤ adding three one-digit numbers</li> </ul> </li> <li>▪ show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</li> <li>▪ recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems</li> </ul> <p><b><u>Number-Multiplication and division</u></b></p> <ul style="list-style-type: none"> <li>▪ recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</li> <li>▪ calculate mathematical statements for multiplication and division within the multiplication tables and write them using</li> </ul>
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### Number-Fractions

- Solve problems including halving.

### Measurement

- children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems.

### Number-Fractions

- recognise, find and name a half as one of two equal parts of an object, shape or quantity
- recognise, find and name a quarter as one of four equal parts of an object, shape or quantity

### Measurement

- compare, describe and solve practical problems for:
  - lengths and heights
  - mass or
  - capacity/volume
  - time)
- measure and begin to record the following:

lengths and heights

mass/weight

capacity and volume

the multiplication ( $\times$ ), division ( $\div$ ) and equals (=) signs

- show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts

### Number-Fractions

- recognise, find, name and write fractions  $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{2}{4}$  and  $\frac{3}{4}$  of a length, shape, set of objects or quantity
- write simple fractions e.g.  $\frac{1}{2}$  of 6 = 3 and recognise the equivalence of  $\frac{2}{4}$  and  $\frac{1}{2}$

### Measurement

- choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ( $^{\circ}$ 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  $=$
- 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

time (hours, minutes, seconds)

- recognise and know the value of different denominations of coins and notes
- sequence events in chronological order using language 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

### **Geometry-properties of shapes**

- They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

### **Geometry-properties of shapes**

- recognise and name common 2-D and 3-D shapes, including:
  - 2-D shapes (e.g. rectangles (including squares), circles and triangles)
  - 3-D shapes (e.g. cuboids (including cubes), pyramids and spheres)

### **Geometry-position and movement**

describe position, directions and movements, including half, quarter and three-quarter turns

- solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
- 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

### **Geometry-properties of shapes**

- identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line
- identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
- 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 and 3-D shapes and everyday objects

### **Geometry-position and movement**

- order and arrange combinations of mathematical objects in patterns
- use mathematical vocabulary to describe position, direction and movement including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise), and movement in a straight line

### **Statistics**

		<ul style="list-style-type: none"><li>▪ interpret and construct simple pictograms, tally charts, block diagrams and simple tables</li><li>▪ ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</li><li>▪ ask and answer questions about totalling and comparing categorical data</li><li>▪ interpret and construct simple pictograms, tally charts, block diagrams and simple tables</li><li>▪ ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</li><li>▪ ask and answer questions about totalling and comparing categorical data</li></ul>
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