

## **Curriculum Area: Mathematics**

**Year Group: 5**

### **An Introduction to Year 5**

Year 5 are set by ability across two sets.

The teaching of mathematics is broken down into seven different areas of learning, which are taught each term to help children consolidate their mathematical knowledge and skills and extend them further to meet the end of year expectation for each pupil. The time at which topics are taught will vary dependant on the group and rate of progress. A top set may encounter topics earlier than listed; a lower set may take more time to revise and consolidate topics from previous terms.

Opportunities are provided to practise and consolidate key concepts and to extend mathematical skills through use of varied differentiated activities and for more able children work is extended through covering key objectives from the next year group if appropriate.

**Key Stage:** Two

**Expected Level of Attainment:** 4b

### **Expectations:**

By the end of the year it is our aim that the children will:

### **Using & Applying Mathematic:**

- Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use
- Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem
- Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry
- Explore patterns, properties and relationships and propose a general statement involving numbers or shapes; identify examples for which the statement is true or false
- Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols

### **Counting & Understanding Number:**

- Count from any given number in whole-number and decimal steps, extending beyond zero when counting backwards; relate the numbers to their position on a number line
- Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers
- Express a smaller whole number as a fraction of a larger one (e.g. recognise that 5 out of 8 is  $\frac{5}{8}$ ); find equivalent fractions (e.g.  $\frac{7}{10} = \frac{14}{20}$ , or  $\frac{19}{10} = 1 \frac{9}{10}$ ); relate fractions to their decimal representations
- Understand percentage as the number of parts in every 100 and express tenths and hundredths as percentages

- Use sequences to scale numbers up or down; solve problems involving proportions of quantities (e.g. decrease quantities in a recipe designed to feed six people)

### **Knowing & Using Number Facts:**

- Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g.  $6.5 \pm 2.7$ , half of 5.6, double 0.34)
- Recall quickly multiplication facts up to  $10 \times 10$  and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts
- Identify pairs of factors of two-digit whole numbers and find common multiples (e.g. for 6 and 9)
- Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations

### **Calculating:**

- Extend mental-methods for whole-number calculations, for example to multiply a two-digit by a one-digit number (e.g.  $12 \times 9$ ), to multiply by 25 (e.g.  $16 \times 25$ ), to subtract one near-multiple of 1000 from another (e.g.  $6070 - 4097$ )
- Use efficient written methods to add and subtract whole numbers and decimals with up to two places
- Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000
- Refine and use efficient written methods to multiply and divide HTU  $\times$  U, TU  $\times$  TU, U.t  $\times$  U and HTU  $\div$  U
- Find fractions using division (e.g.  $\frac{1}{100}$  of 5 kg), and percentages of numbers and quantities (e.g. 10%, 5% and 15% of £80)
- Use a calculator to solve problems, including those involving decimals or fractions (e.g. find  $\frac{3}{4}$  of 150 g); interpret the display correctly in the context of measurement

### **Understanding Shape:**

- Identify, visualise and describe properties of rectangles, triangles, regular polygons and 3-D solids; use knowledge of properties to draw 2-D shapes, and to identify and draw nets of 3-D shapes
- Read and plot coordinates in the first quadrant; recognise parallel and perpendicular lines in grids and shapes; use a set-square and ruler to draw shapes with perpendicular or parallel sides
- Complete patterns with up to two lines of symmetry; draw the position of a shape after a reflection or translation
- Estimate, draw and measure acute and obtuse angles using an angle measurer or protractor to a suitable degree of accuracy; calculate angles in a straight line

### **Measuring:**

- Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6 kg to 2600 g)
- Interpret a reading that lies between two unnumbered divisions on a scale
- Draw and measure lines to the nearest millimetre; measure and calculate the perimeter of regular and irregular polygons; use the formula for the area of a rectangle to calculate the rectangle's area
- Read timetables and time using 24-hour clock notation; use a calendar to calculate time intervals

### **Handling Data:**

- Describe the occurrence of familiar events using the language of chance or likelihood

- Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using ICT to present features, and identify further questions to ask
- Construct frequency tables, pictograms and bar and line graphs to represent the frequencies of events and changes over time
- Find and interpret the mode of a set of data

## **Excursions & Further Experiences**

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Every year EH children participate in World Maths Day, an online international mathematics competition where children all over the world join together in the annual quest to set a world record in answering math questions. Maths problem solving activities are also an integral part of our house day events each term.

## **Assessment**

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**Assessment of Mathematics** is a continuous process through:

- Teachers making ongoing informal assessments of children's work through regular discussions with the child, marking of work and observing children working on mathematical tasks.
- Each term teachers update children's individual target trackers to monitor and evaluate children's progress.
- Formal assessments (Collins end of unit assessment tests) are used by Year 5 during the assessment week each term.

## **Reporting to Parents**

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Children's progress in Mathematics is reported to the parents via:

- Autumn, spring and summer term Parents' Evenings during which progress in mathematics is outlined in a Pupil Profile and discussed individually.
- The short end of term individual reports (Autumn and Spring) and the long end of year report detail the child's progress and achievement in Mathematics, suggesting if appropriate any areas needing reinforcement.

## **Schemes of Work, Texts and Equipment**

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In **Year 5** the **Collins Mathematics Scheme of Work** based upon the National Numeracy Strategy is followed, incorporating a daily session of Mental Maths.

- Most of the work will be done in work books with 7mm squares
- Some work will be done on worksheets
- Some work will come from Collins Book 5A, 5B and 5C
- The pupils should have a blue pen, a pencil, a ruler, a rubber and a protractor. Pupils may have calculators but this is not necessary