



Hillcross Primary School
Parent and Carer's Guide

The Year 6 Mathematician

Working mathematically

By the end of year 6, children will be able to:

- ✓ Structure their own investigations and solve a wide variety of increasingly complex problems
- ✓ Independently develop their own lines of enquiry
- ✓ Prove their solutions in a variety of ways including algebra, negative proof (use a counter example to prove the rule)
- ✓ Communicate their results using accurate mathematical language
- ✓ Demonstrate secure knowledge and confidence to talk in depth about mathematical concepts and explain their solutions, decisions and reasoning

Number

Counting and understanding numbers

By the end of year 6, children will be able to:

- ✓ Extend and apply their knowledge of place value for numbers up to and beyond one million (including decimals and negative numbers) in a variety of situations
- ✓ Extend their knowledge of common factors, common multiples and a deeper understanding of prime numbers
- ✓ Able to round numbers and identify what degree of accuracy is appropriate

Calculating

By the end of year 6, children will be able to:

- ✓ Become fluent with a wide range of mental and formal written calculation strategies for all operations
- ✓ Extend long division to four digit numbers by two digit numbers
- ✓ Apply estimation in a range of ways
- ✓ Through investigations, explore the effect of the order of operations including the use of brackets

Fractions including decimals and percentages

By the end of year 6, children will be able to:

- ✓ Recall and using equivalences between simple fractions, decimals and percentages
- ✓ Able to express fractions in their simplest form and calculate the decimal equivalent, for example
 $\frac{3}{8} = 3 \div 8 = 0.375$
- ✓ Order, add and subtract fractions (including mixed numbers and those with different denominators)



e.g. $\frac{1}{3} + \frac{1}{4} + \square = 1$

- ✓ Multiply and divide proper fractions and mixed numbers by whole numbers using hands-on resources and images e.g. $\frac{1}{4} \times 2 = \frac{1}{2}$ and $\frac{1}{3} \div 2 = \frac{1}{6}$
- ✓ Solve problems involving the calculation of percentages linked to real life situations

Ratio and proportion

By the end of year 6, children will be able to:

- ✓ Explore ratio and proportion through real life experiences such as changing the quantities in recipes (scaling), scale drawings and maps

Algebra

By the end of year 6, children will be able to:

- ✓ Confidently use symbols and letters to represent variables and unknowns in mathematical situations for example, simple formula and equivalent expressions $a+b = b+a$
- ✓ Describe number sequences and missing number calculations

Measurement

Through investigation and problem solving, children will be able to:

- ✓ Convert between a range of measurement units (including both imperial and metric)
- ✓ Calculate the perimeter and area of shapes including parallelograms and triangles
- ✓ Explore the relationship between area and perimeter
- ✓ Calculate, estimate and compare volume of cubes and cuboids identifying when it is appropriate to use formula

Geometry

By the end of year 6, children will be able to:

- ✓ Draw 2-D and build 3-D shapes with accuracy using given dimensions and angles
- ✓ Create nets of common 3-D shapes
- ✓ Consolidate their knowledge of angles within shapes and extend it to find missing angles in triangles, quadrilaterals and regular polygons
- ✓ Name parts of circles, including radius, diameter and circumference, and explore the relationships between these elements
- ✓ Use four quadrant co-ordinate grids to describe positions, draw and translate simple shapes
- ✓ Predict missing co-ordinates and express these algebraically

Statistics

By the end of year 6, children will be able to:

- ✓ Increase their knowledge of different data representations to include interpreting and constructing pie charts (using their knowledge of angles, fractions and percentages) and line graphs (e.g. miles to km conversion)
- ✓ Know when it is appropriate to use the mean as an average and how to calculate it



Glossary of terms

<http://www.amathsdictionaryforkids.com/dictionary.html>

<http://www.theschoolrun.com/primary-numeracy-glossary-for-parents>

