Mathematics in Year 6

A guide for parents

'Without mathematics, there's nothing

you can do.

Everything around you is mathematics.

Everything around you is numbers.'

The purpose of this short booklet is to make you aware of the National Curriculum end of year expectations for the teaching of Maths for your child's specific year group.

With the latest National Curriculum (2014) the mathematical knowledge and understanding that children in KS2 require has become more demanding than any previous curriculum. I hope this booklet will make you aware of the standards required and enable you to support your child in their learning.

Best Wishes

Upper Key Stage 2 Team

You will never have this day again so, with the guidance of God, make it count!

Number – number and place value

Pupils should be taught to:

- read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
- round any whole number to a required degree of accuracy
- use negative numbers in context, and calculate intervals across zero
- solve number and practical problems that involve all of the above.

Number – addition, subtraction, multiplication and division

Pupils should be taught to:

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
- divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
- divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context
- perform mental calculations, including with mixed operations and large numbers
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Number – fractions

Pupils should be taught to:
- use common factors to simplify fractions; use common multiples to express fractions in the same denomination

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- compare and order fractions, including fractions > 1
- add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- multiply simple pairs of proper fractions, writing the answer in its simplest form
- divide proper fractions by whole numbers
- associate a fraction with division and calculate decimal fraction equivalents
- identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places

Ratio and proportion

Pupils should be taught to:
- solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
- solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
- solve problems involving similar shapes where the scale factor is known or can be found
- solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

Algebra

Pupils should be taught to:
- use simple formulae
- generate and describe linear number sequences
- express missing number problems algebraically
- find pairs of numbers that satisfy an equation with two unknowns
- enumerate possibilities of combinations of two variables.

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Measurement

Pupils should be taught to:

- solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
- use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
- convert between miles and kilometres
- recognise that shapes with the same areas can have different perimeters and vice versa
- recognise when it is possible to use formulae for area and volume of shapes
- calculate the area of parallelograms and triangles
- calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3].

Geometry – properties of shape

Pupils should be taught to:

- identify 3-D shapes, including cubes and other cuboids, from 2-D representations
- know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
- draw given angles, and measure them in degrees
- identify:
  - angles at a point and one whole turn (total 360 degrees)
  - angles at a point on a straight line and half a turn (total 180degrees)
- use the properties of rectangles to deduce related facts and find missing lengths and angles
- distinguish between regular and irregular polygons based on reasoning about equal sides and angles.

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Geometry – position and direction

Pupils should be taught to:

- identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.

Statistics

Pupils should be taught to:
- solve comparison, sum and difference problems using information presented in a line graph
- complete, read and interpret information in tables, including timetables.

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Spend at least 30 minutes a week completing activities on Mathletics as well as completing mathematics Home Learning tasks.

Spend two minutes every so often counting on and back from different starting points in a variety of steps passing through zero.

Spend time learning and recalling multiplication and division facts linking to all times tables up to 12x12.

Each day use appropriate language linking to money, solving one step and two step problems mentally. Discuss what coins could be used to buy objects in a shop e.g. comic and sweets. support your child in calculating the cost and change accurately.

Name different 2D and 3D shapes when walking to the shops or going to the park. Can you see any patterns in the fencing panels? What shapes can you see in road signs? Discuss the properties of known shapes, how do you know it's a parallelogram? Are there any lines of symmetry, Parallel or perpendicular lines? What type of angles can you see?

Regularly discuss units of measurements estimating the length and mass of objects. Estimate distances and discuss different units of measurements identifying which units of measurement is smaller / larger and how many of a specific measurement make up another e.g. cm – m. Compare metric and imperial units of measurements e.g. miles to kilometres.

Help your child read and write numbers up to 10,000,000 encouraging accurate pronunciation and spelling. Identify the value of each digit in numbers up to 10,000,000.