

Welcome to St Leo's and Southmead Catholic Primary Mathematics Page

The following information explains how Mathematics is taught throughout the school. As stated in the National Curriculum (2014) mathematics is, "... essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment."

Mathematics is a wonderful subject in which the children can develop important life skills, not only mathematically but problem solving and decision making as well. As children grow into adulthood it becomes vital that they have mathematical skills. From reading a bus timetable to planning their budget, they access mathematics on a daily basis.

At St Leo's we believe in trying to make maths fun and exciting for our pupils whilst teaching them to become **fluent** in the fundamentals of mathematics. We aim for all our pupils to develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

They are taught to **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.

Our pupils are taught to **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

During key stage 1:



The principal focus of mathematics teaching in Key Stage 1 is to ensure that our pupils develop confidence and mental fluency with whole numbers, counting and place value. This involves working with numerals, words and the four operations (+, -, X and \div), including with practical resources (for example, concrete objects and measuring tools). They will develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. They will use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

During Key Stage 2:

In Years 3 and 4 we teach our pupils to become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. They will develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

In Years 5 and 6 we ensure that pupils extend their understanding of the number system and place value to include larger integers. Pupils develop connections that are made between multiplication and division with fractions, decimals, percentages and ratio. By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Mental Mathematics Skills

The skill of mentally calculating is a priority within the teaching of mathematics. The children are taught quick methods to calculate, using facts that they already know. The children regularly practise these skills and we have a weekly "Rapid Recall" test which they approach enthusiastically, aiming to beat their previous score.

Steps 1, 2, 3 - 20 seconds

BIG MATHS... BEAT THAT!

My "Beat That" score was...

$4 + 4 =$	$3 + 3 =$
$5 + 5 =$	$1 + 1 =$
$2 + 2 =$	$2 + 3 =$
$2 + 1 =$	

7

Steps 1 - 15 - 100 seconds

BIG MATHS... BEAT THAT!

My "Beat That" score was...

$2+2=$	$2+2=$	$2+2=$	$2+2=$	$2+2=$	$2+2=$	$2+2=$	$2+2=$	$2+2=$	$2+2=$
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70

Reasoning and Problem Solving

This is a vital part of the children's future lives. The children are taught to use their understanding and embed their knowledge of numbers by applying it through challenges and games. For example, once they can use column addition accurately, they are challenged to identify missing numbers from a given addition and explain how they worked out the missing numbers.

The children being able to apply their skills in everyday situations is essential for their future lives. For example, being able to apply mathematic skills to problems like, "Is it cheaper to buy a multipack of beans or buy 4 separate tins?" (KS2) or for KS1 see below:

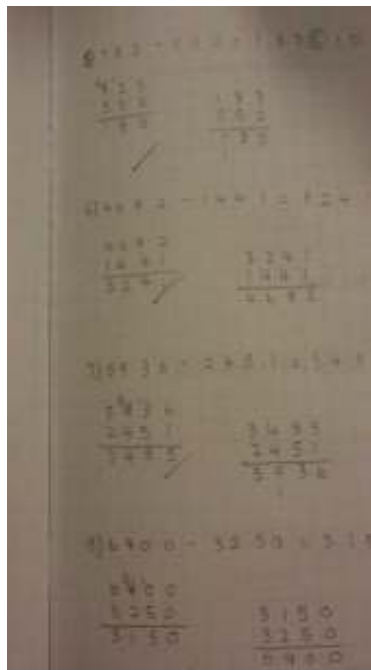
You are Pirates looking forward to going on an exciting adventure. You need to decide what to buy with your last 15 golden pennies. What can you buy? You need to spend all of your money.

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<p>Jolly Roger Flag</p>  <p>2p</p>	<p>Wheel</p>  <p>3p</p>	<p>Compass</p>  <p>4p</p>	<p>Telescope</p>  <p>6p</p>	<p>Treasure Map</p>  <p>7p</p>
<p>Eye Patch</p>  <p>3p</p>	<p>Cutlass</p>  <p>4p</p>	<p>Canon</p>  <p>5p</p>	<p>Small Pirate Ship</p>  <p>6p</p>	<p>Large Pirate Ship</p>  <p>8p</p>

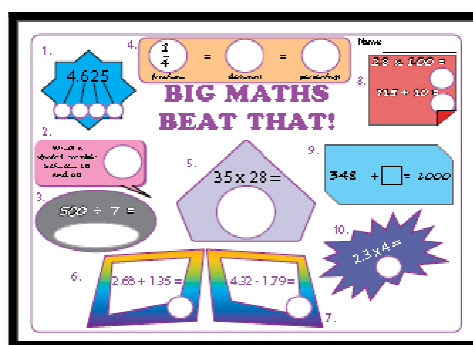
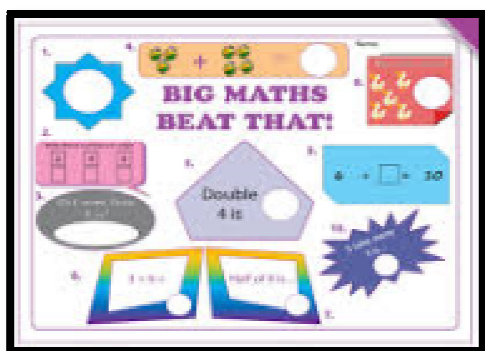
Written Calculations

We always encourage children to ask themselves if they can do a given calculation mentally first, however, there are some calculations which need a written method. The children in the foundation stage and KS1 use informal methods and jottings (including pictures and use of practical apparatus) to help them calculate. As they progress through the school more formal methods are introduced, for example, the use of column addition/subtraction and the grid method progressing to short/long multiplication.



Big Maths

The children practise basic skills on a weekly basis. These skills include addition, subtraction, multiplication, division and place value. Once they have mastered the skills on a particular level and they have demonstrated these skills on three separate occasions they are introduced to the next level.



I Pads

Each class also has access to I Pads (each morning) which can be used to support and consolidate learning.

Mathletics

Mathletics is a wonderful resource which allows the children to consolidate their skills and compete against children in other parts of the world. It is a web site which the children have their own personal account and password to enter (both in school and at home). <http://www.mathletics.co.uk/>

Abacus Planning Support

We currently use the Abacus (web based) scheme of work which the teachers personalise to the needs of their class. Within this scheme homework can be set for some objectives and the children are able to access their homework on the web. We are aware that not all the children have access to internet/computer facilities at home, so games and other forms of homework is also given.

Theme Days

Mathematical theme days are planned each year. During the day the children enjoy fun, practical maths activities which consolidate and challenge their skills. When other curriculum subjects are being taught for a day, mathematics will normally be incorporated. See below for more details.

Mathematics within other curriculum subjects

Science

Within their science lessons the children apply their mathematical skills. They could be reading a scale (for example, temperature or length), using a chart or table to record information, representing their results in graphical form and will look for patterns in their results.

Geography

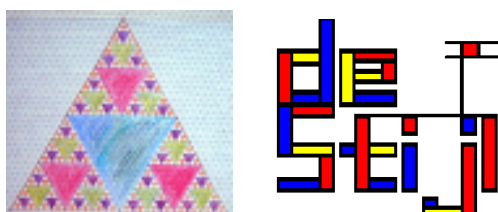
The children will their understanding of co-ordinates during map reading, use their understanding of measure to compare geographical themes (for example, the difference in heights between different mountains, the difference in temperature between locations within the world).

History

The understanding and use of Roman Numerals can be consolidated through our work in history. A historical context enables the children to add and subtract larger numbers in a meaningful context – for example, to work out how long a famous person lived, how long ago an event was.

Art and Design

Art is a fantastic medium for the children to reinforce their geometry skills. Look at the pictures painted by famous artists (for example, Mondrian) helps the children identify shapes and patterns. Through observation drawing they can practise drawing two and three dimensional shapes.



Design Technology



There are opportunities for the children to use their mathematical skills when designing and making products, for example, measuring the length, width or height of their product or weighing when cooking.

“They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art.” (National Curriculum Design Technology 2014)

Physical Education

The children use their counting skills (how many jumps, skips etc in a given time), apply their understanding of time when using a timer, estimate and measure (how far someone has jumped or thrown a ball).

Computing

The children can use different programmes to help them represent data, for example, from a science investigation and use the programme to represent this data as a graph. Using a variety of control programs reinforces and allows for the application of their skills in positional language and use of angles.

“To select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.” (KS2 Computing objective 2014)

Music

The children will use their understanding of fractions, for example, through the use of quavers (half a beat).

Mathematics is an important element of all of the children’s learning in school and an essential life skill.

