

Maths at St Winifride's

Teaching Maths

From Year 1, all pupils will have a dedicated daily mathematics lesson. Within these lessons there will be a good balance between whole-class work, group teaching and individual practice. Children are organised into similar ability groups and activities are differentiated to suit the needs of the children, by progressing to the next year's objectives or back tracking to the previous year's, through the use of more difficult numbers or by using problem solving and encouraging children to use and apply the skills they have learned.

A typical lesson

A typical 45 to 60 minute lesson in Year 1 to 6 will be structured like this:

- ◆ Oral work and mental calculation (about 10 minutes)
This will involve whole-class work to rehearse, sharpen and develop mental and oral skills.
- ◆ The main teaching activity (about 30 to 40 minutes)
This will include both teaching input and pupil activities and a balance between whole class, grouped, paired and individual work.
(In the Foundation Stage, 10-15 minutes will be spent on whole class teaching, followed by 10-15 minutes individual and/or group work)
- ◆ A plenary (about 10 to 15 minutes (about 5-10 minutes in the Foundation Stage))
This will involve work with the whole class to sort out misconceptions, identify progress, to summarise key facts and ideas and what to remember, to make links to other work and to discuss next steps.

How we work in Reception

In Reception the class will be organised to promote social skills and the development of mathematical language and understanding. The areas of

Mathematical Development include counting, sorting, matching, seeking patterns, making connections, recognising relationships and working with numbers, shapes, space and measures. Counting is incorporated into many activities throughout the school day, for example, counting the children into the classroom after playtimes, which allows frequent practise of counting skills. Other opportunities like this are capitalised on wherever possible to supplement the daily mathematics lesson. Methods used incorporate stories, songs, games and imaginative play, exploring and experimenting and may often be initiated by, or extended into other areas of learning and daily routines.

Children take part in a daily mathematics lesson, the length of which is determined by the listening skills of the children and will normally last between 40-50 minutes by the end of the Reception year. The majority of activities planned for children are of a practical nature, involving 'hands on' activities to ensure complete involvement of all children and making use of the outdoor area where possible. Activities are also, as far as possible, linked to real-life experiences in order to maintain children's enthusiasm, interest and confidence. Mathematical language is reinforced in numerous ways, through daily routines, role-play, small world play, construction toys, music, physical activities, design, ICT, stories, TV programmes, creative work and outdoor play. The children are able to play freely with or in the maths activity and Reception staff may then intervene in the play to ask the children questions and develop their understanding in ways that have been planned.

Maths Planning

The planning structure for Maths in Year groups 1-6 is organised into five blocks. Each block has incorporated into it objectives relating to the Using and applying of mathematics. The blocks are:

- **Block A:** Counting, partitioning and calculating
- **Block B:** Securing number facts, understanding shape
- **Block C:** Handling data and measures
- **Block D:** Calculating, measuring and understanding shape
- **Block E:** Securing number facts, relationships and calculating

Each block is made up of three units, one of which is covered in each term. A unit represents 2 or 3 weeks of teaching.

	Block A Counting, partitioning and calculating	Block B Securing number facts, understanding shape	Block C Handling Data and measure s	Block D Calculating, measuring and understanding shape	Block E Securing number facts, relationships and calculating
Autumn Term	A1	B1	C1	D1	E1
Spring Term	A2	B2	C2	D2	E2
Summer Term	A3	B3	C3	D3	E3

Maths Expectations

The following information will give you an idea of some of the key objectives taught during each year group and what we expect most children to be able to do by the end of the year.

Maths in Foundation Stage

By the end of the year, most children should be able to:

- Say and use the number names in order in familiar contexts
- Count reliably up to 10 everyday objects
- Recognise numerals 1-9
- Use language such as *more* or *less*, *greater* or *smaller*, *heavier* or *lighter*, to compare two numbers or quantities
- In practical activities and discussion, begin to use the vocabulary involved in adding and subtracting
- Find one more or less than a number from one to ten
- Begin to relate addition to combining two groups of objects and subtraction to 'taking away'
- Talk about, recognise and recreate simple patterns

- Use language such as circle or bigger to describe the shape and size of solids and flat shapes
- Use everyday words to describe position
- Use developing mathematical ideas and methods to solve practical problems

Maths in Year One

By the end of the year, most children should be able to:

- Read and write numerals from 0 to 20, then beyond
- Use knowledge of place value (tens and units) to position three numbers on a number track and number line
- Derive and recall all pairs of numbers with a total of 10 and addition facts for totals to at least 5; work out the corresponding subtraction facts
- Use the vocabulary related to addition and subtraction
- Use symbols to record addition and subtraction number sentences
- Visualise and name common 2-D shapes and 3-D solids and describe their features; use them to make patterns, pictures and models
- Estimate, measure, weigh and compare objects, choosing and using suitable uniform non-standard or standard units and measuring instruments (e.g. a lever balance, metre stick or measuring jug)
- Answer a question by recording information in lists and tables; present outcomes using practical resources, pictures, block graphs or pictograms

Maths in Year Two

By the end of the year, most children should be able to:

- Count up to 100 objects by grouping them and counting in tens, fives or twos; explain what each digit in a two-digit number represents, including numbers where 0 is a place holder; partition two-digit numbers in different ways, including into multiples of 10 and 1
- Derive and recall all addition and subtraction facts for each number to at least 10, all pairs with totals to 20 and all pairs of multiples of 10 with totals up to 100
- Add or subtract mentally a one-digit number or a multiple of 10 to or from any two digit number; use practical and informal written methods to add and subtract two-digit numbers
- Use the symbols $+$, $-$, \times , \div and $=$ to record and interpret number sentences involving all four operations; calculate the value of an unknown in a number sentence

(e.g. $\square \div 2 = 6$, $30 - \square = 24$)

- Visualise common 2-D shapes and 3-D solids; identify shapes from pictures of them in different positions and orientations; sort, make and describe shapes referring to their properties
- Use units of time (seconds, minutes, hours, days) and know the relationships between them; read the time to the quarter hour; identify time intervals, including those that cross the hour
- Use lists, tables and diagrams to sort objects; explain choices using appropriate language, including 'not'

Maths in Year 3

By the end of the year, most children should be able to:

- Partition three-digit numbers into multiples of 100, 10 and 1 in different ways
- Derive and recall all addition and subtraction facts for each number to 20, sums and differences of multiples of 10 and number pairs that total 100
- Add or subtract mentally combinations of one-digit and two-digit numbers
- Draw and complete shapes with reflective symmetry; draw the reflection of a shape in a mirror line along one side
- Read, to the nearest division and half-division, scales that are numbered or partially numbered; use the information to measure and draw to a suitable degree of accuracy
- Use Venn diagrams and Carroll diagrams to sort data and objects using more than one criterion

Maths in Year 4

By the end of the year, most children should be able to:

- Use diagrams to identify equivalent fractions (e.g. $\frac{6}{8}$ and $\frac{3}{4}$ or $\frac{70}{100}$ and $\frac{7}{10}$); interpret mixed numbers and position them on a number line (e.g. $3\frac{1}{2}$)
- Derive and recall multiplication facts up to 10×10 , the corresponding division facts and multiples of numbers up to the tenth multiple
- Add or subtract mentally, pairs of two-digit whole numbers (e.g. $47 + 58$, $91 - 35$)
- Develop and use written methods to record, support and explain multiplication and division of two-digit numbers by a one-digit number, including division with remainders (e.g. 15×9 , $98 \div 6$)

- Know that angles are measured in degrees and that one whole turn is 360° , compare and order angles less than 180°
- Choose and use standard metric units and their abbreviations when estimating, measuring and recording length, weight and capacity; know the meaning of 'kilo', 'centi' and 'milli' and where appropriate, use decimal notation to record measurements (e.g. 1.3m or 0.6kg)
- Answer a question by identifying what data to collect; organise, present, analyse and interpret the data in tables, diagrams, tally charts, pictograms and bar charts, using ICT where appropriate

Maths in Year 5

By the end of the year, most children should be able to:

- Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers
- 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. $6.5+2.7$, $6.5-2.7$, half of 5.6, double 0.34)
- Use efficient written methods to add and subtract whole numbers and decimals with up to two places
- 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 parallel or perpendicular sides
- 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
- Construct frequency tables, pictograms and bar and line graphs to represent the frequencies of events and changes over time

Maths in Year 6

By the end of the year, most children should be able to:

- Express one quantity as a percentage of another (e.g. express £400 as a percentage of £1000); find equivalent percentages, decimals and fractions
- Use knowledge of place value and multiplication facts to 10×10 to derive related multiplication and division facts involving decimals (e.g. 0.8×7 , $4.8 \div 6$)
- Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer

- Visualise and draw on grids of different types where a shape will be after reflection, after translations, or after rotation through 90° or 180° about its centre or one of its vertices
- Select and use standard metric units of measure and convert between units of measure using decimals to two places (e.g. change 2.75 litres to 2750 ml or vice versa)
- Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask

If you wish to help your child with maths, please see the Maths Support, located in the Support for Parents Tab, where you will find a booklet relating to your child's year group, a booklet entitled Sums and Things to help parents with the way we now teach Maths, and a booklet entitled 'Helping your child with maths' which gives some great ideas for how to make maths fun.

There are also some websites which you may find useful:

<http://www.bbc.co.uk/schools/ks1bitesize/numeracy/>

<http://www.bbc.co.uk/schools/ks2bitesize/maths/>

<http://nrich.maths.org/public/index.php>

<http://www.mathszone.co.uk/>