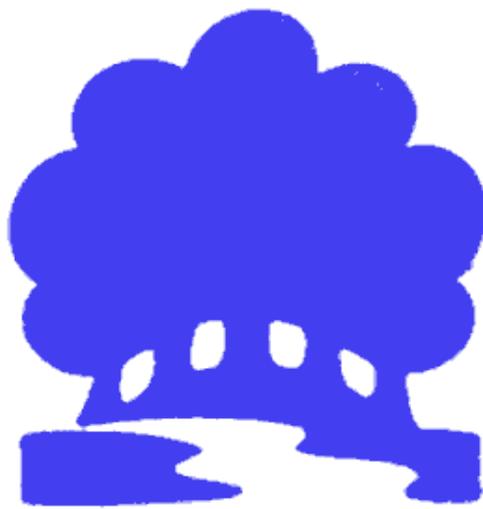# Supporting your Child

with

Maths in Key Stage Two

A place to think and grow

Brookhurst Primary School

Carl Upton

Supporting your child at home with Maths

Maths should be **FUN**!!

Maths should be part of children's everyday lives!

Maths should be about exploring the world around them!

As your child moves from simple counting and adding to becoming a fluent mathematician, it is not always clear –especially to parents who are not confident mathematicians – how to help. But in fact your help is crucial, and can make a big difference to your child's confidence and success.

Golden Rules
- Whatever you do, make sure your children enjoy it.
- If they struggle to understand, make mistakes, or get bored: keep calm, make it easier, change the subject, tell them a joke, play football, go to the park …. but please don't get cross or impatient – do not say you were no good at maths when you were at school - you could put them off maths for life!

Generally the advice is:

- Talk about and involve children in the situations in which you use maths in everyday life;

- Play games involving numbers and/or logic, such as card games, dominoes, darts, draughts, chess etc.;

- Stimulate their thinking at times of boredom, (such as when travelling), with mental activities;

- Check with the school for any specific help which would be useful. Also check the methods they are teaching with your child's teacher (Calculation Policy is on the School Website);

- The following gives a very rough idea of appropriate activities but any number games that the children enjoy are great

For all ages
One very good idea which is appropriate for any level, great for a car/bus/train/plane journey:

Ask the question:
'The answer is 10 (or any number), what's the question? '
Possible answers:
- 8 plus 2

- 1 million divided by one hundred thousand

- 5 x 2

- 25 - 15

- 2.5 times 4

- the number before 11

This is a brilliant activity because: there's no failure; it stimulates thinking about and stretching knowledge of numbers and mathematical relationships; it's also good fun.

Look out for car number plates. What is the number on the plate? What is this to the nearest 10 or 100 or 1000? How many more would you need to reach the next multiple of 10, 100 or 1000?

Key Stage 2
Mental activities:

- A good knowledge and quick recall of times tables is essential to children's mathematical progress. The children are taught up to 12 x 12. The target is for all children to know their tables by the end of year four. It is very important that children practice their times tables daily at home.

- When learning their tables, children are taught to look for patterns such as odd and even number answers, or patterns made by adding together the separate digits in the answers. E.g. If you add together the digits of the numbers in the 3 times table, they are all a multiple of 3 (5 x 3 = 15; 1 + 5 = 6)

- Children are also taught to recognise the reversible effect (commutivity) so that they know 6 x 2 is the same as 2 x 6. They are also taught the relationship with division so that knowing 6 x 2 = 12 means they also know that 12 ÷ 2 = 6 and 12 ÷ 6 = 2. For each known times table fact, they also know three others:

  6 x 7 = 42 so they know that 7 x 6 = 42
  42 ÷ 6 = 7
  42 ÷ 7 = 6

- To help children with their multiplication, one of the ways we use is to find all the factors that are used to make up a number. For example the factors of 18 are 1, 18, 2, 9, 6, and 3 because 18 x 1, 1 x 18, 3 x 6, 6 x 3, 9 x 2, 2 x 9 all equal 18.

- Practicing and developing knowledge of addition

  and subtraction facts within 20 (7+8, 13-5 etc.)

  and multiplication and division facts to 12 x 12

  (6x7, 35 ÷ 5 etc.) Make it into a game if possible,

  E.g. have a set of cards numbered 1-10, pick a number such as 4, say 4 times the number on the card as each is turned over, keep all the cards you get right. Beat the calculator as above. On a journey, adult passenger times response, try to beat your own time.

- Ask 'progressive' calculations, e.g. 7 + 6, 17 + 6, 27 + 6, 47 + 6, 147 + 6; 5 x 2, 50 x 2, 500 x 2, 500 x 20.

- Working out 2-digit additions and subtractions, multiplying and dividing 2-digit numbers by 1 digit numbers mentally. Talk about how to make it easier, e.g. for 28 + 15, call it 30 add 13 and that's easy; for 16 x 4, double 16, then double 32.

- Open-ended activities, e.g. the answer's 25, what's the question? How can you use combinations of 3 and 6 to make different numbers? (Use each number as many times as you like with addition, subtraction, multiplication or division.)

Maths in our Everyday Lives:

Playing Maths Based Games

Children love to play Maths games especially if it involves spending quality time with an adult.

Games that you could play:
- Snakes & Ladders
- Dominoes
- Children's dart boards
- Battleships (simple coordinates)
- Ludo
- Chess
- Draughts
- Mastermind
- And lots more!

Cooking

- Weighing, measuring capacity and timing when cooking.
  - Converting a recipe for 4 people to one for 6 people. (Scale a recipe up or down to feed the right amount of people)

- Let your child help with cooking:
  - Measure ingredients accurately (weighing scales, jugs, etc)
  - Talk about the scales on the equipment

Weighing & Measuring

- Being involved with measuring:
    - calculating how much curtain fabric is needed
    - How many floor tiles are needed?
    - How much carpet?, etc.

- Practise measuring the lengths and heights of objects in metric measurements
    - Use different rulers or tape measures
    - Estimate before measuring

- Choose some food items and put items in order of weight by feel alone. Check weights on packets

- Practise telling the time on both analogue (clocks with hands) and digital clocks

- Ask your child to be the 'timekeeper' – tell me when it is half past four because we are going ...

- Working out distances and directions from maps

Time

- Talking about time:
    - How long is it until lunchtime?
    - The journey takes 2 ½ hours, when will we arrive?
    - We need to be there by 2:00pm, when do we need to leave home?
    - Many children will still need practice with reading clock times, particularly minutes past and to the hour.

- Use a bus/train timetable:
    - How long will a journey between two places take?
    - Go on the journey – Did you arrive earlier/later than expected? By how much?

- Use a stop clock to time how long it takes to do everyday tasks. E.g. Get dressed, have breakfast , etc

- Use a TV guide :
    - How long is their favourite programme?
    - Calculate how long they spend watching TV each day/week

Money

- Handling amounts of money when shopping ,
    - working out total costs
    - working out change
    - checking receipts
    - working out prices of sale items, e.g. 20% off.
    - managing pocket money and saving for things

- Discussing and comparing house prices

- On a journey:
    - Working out how much petrol will be used
    - Average speed of the journey
    - Costing journeys or holidays, etc

- Plan an outing during the holidays:
    - What time will you need to set off?
    - How much money will you need to take?

Shapes & Patterns

- Choose a shape of the week:
    - Look out for this shape in the environment
    - Ask your child to describe the shape
    - Play 'Guess my Shape'. Think of a shape and your child asks questions to try and guess it but you can only answer 'yes' or 'no'.

- Hunt for right-angles around your home:
    - Can your child spot angles that are bigger or smaller than a right-angle

- Look for symmetrical objects/patterns:
    - Children can draw or paint symmetrical pictures/patterns

- Make a model using different boxes/containers of different sizes
    - Children can describe their model focussing on the shapes they can see

Activities & Games:

- Card games such as Sevens, Cribbage, Pontoon, etc

- Beat the calculator:
    - In pairs, one with a calculator, one without, each works out the answer to a calculation aiming for the one without the calculator to say the answer first

- Maths puzzles

- Specialised computer games and apps for developing and using maths

Useful websites:

www.mad4maths.com/
www.bbc.co.uk/schools/ks1bitesize/numeracy
www.bbc.co.uk/schols/ks2bitesize/maths
www.woodlands-junior.kent.sch.uk/maths/
www.nrich.maths.org/public
www.crickweb.co.uk/ks1numeracy.html
www.crickweb.co.uk/ks2numeracy.html
www.ictgames.com/resources.html

Key Learning Points from 2014 Maths Curriculum

Year 3

* count in 4s, 8s, 50s, 100s and tenths from zero
* read, write, compare and order numbers to at least 1000
* know the place value of each digit in three-digit numbers
* find 10 or 100 more or less than a given number
* add and subtract ones, tens and hundreds to or from three-digit numbers mentally, two two-digit numbers where the answers could exceed 100
* add and subtract three-digit numbers using formal written columnar methods
* tables and division facts for x3, x4 and x8
* add and subtract fractions with the same denominator
* develop formal written multiplication and division methods for two-digit by one-digit numbers
* begin to understand unit and non-unit fractions as numbers on the number line, and deduce relations between them, such as size and equivalence
* measure the perimeter of simple shapes
* tell the time to the nearest minute using analogue clocks
* add and subtract amounts of money to give change, using both £ and p in practical contexts
* draw 2-D and make 3-D shapes
* recognise and describe 3-D shapes in different orientations
* recognise that angles are a property of shape or a description of a turn, using right angles as a marker
* horizontal and vertical lines and pairs of perpendicular and parallel lines
* understand and use simple scales (e.g. 2,5,10 units per cm) in pictograms and bar charts
* **solve number problems and practical problems involving these ideas**

Year 4

* count in 6s, 7s, 9s, 25s, 1000s and hundredths; count backwards through zero to include negative numbers
* read, write, compare, order and know place value of numbers to at least 10000 and numbers with the same number of decimal places up to two decimal place
* round any number to the nearest 10, 100 or 1000 and decimals with 1 decimal place to the nearest whole number
* add and subtract up to four-digit numbers mentally and using formal written columnar methods
* tables and division facts 12 x 12, including 0 and 1
* multiply three numbers
* multiply two and three-digit numbers by a one-digit number using formal written layout
* dividing a one or two-digit number by 10 and 100, identifying value of digits add and subtract fractions with the same denominator
* measure and calculate perimeter of rectilinear shapes in metres and centimetres
* find the area of rectilinear shapes by counting squares
* read, write and convert time between analogue and digital 12 and 24-hour clocks
* conversion between units of measure
* sorting and classifying quadrilateral and triangles
* identify lines of symmetry in 2-D shapes presented in different orientations
* identify acute and obtuse angles and compare and order angles up to two right angles by size
* description positions and translations (movement) within the first quadrant
* **solve number problems and practical problems involving these ideas**

Year 5

* read, write, order and compare numbers to at least 1 million and numbers with up to three decimal places, determine the value of each digit
* interpret negative numbers in context, counting forwards and backwards
* round any number up to a million to a power of 10 and decimals with two decimal places to the nearest whole or tenth
* add and subtract whole numbers with more than four-digits, including using formal written methods
* identify prime numbers to 100 and recall those to 19, awareness of prime factors and non-prime numbers
* short multiplication and division of four-digit by a one-digit and long multiplication of four-digit by two-digit number
* multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
* compare, order, add and subtract fractions whose denominators are all multiples of the same number
* understand that per cent relates to "number of parts per 100", and write percentages as a fraction with denominator 100, and as a decimal
* multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
* convert different units of metric measures;
* understand and use equivalences between metric and imperial units
* calculate the **perimeter** of composite rectilinear and the area of rectangles using standard units
* given angles and measure them in degrees (°) including acute, obtuse and reflex angles
* distinguish between regular and irregular polygons based on reasoning about equal sides and angles
* **solve number problems and practical problems involving these ideas**

Year 6

* read, write, order and compare numbers up to 10 million and determine the value of each digit
* short and long multiplication and division using numbers up to four digits; multiply one-digit numbers with up to two decimal places by whole numbers
* mental calculations, including with mixed operations and large numbers
* multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
* add and subtract fractions with different denominators and mixed numbers
* multiply simple pairs of proper fractions and divide proper fractions by whole numbers
* recall and use equivalences between simple fractions, decimals and percentages
* solve problems involving ratio and proportion
* use algebra in terms of formula, sequences, variables and unknowns
* recognise and use the formula for volume and area including parallelograms and triangles
* illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
* recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
* draw and translate simple shapes on the coordinate plane, and reflect them in the axes
* construct pie charts
* calculate and interpret the mean as an average
* **solve number problems and practical problems involving these ideas**