Uplands Primary School

How to support your child at home with Mathematics

Mathematics at Home

We believe that enjoying Maths at home and in the real world can provide all pupils with opportunities to sharpen their basic skills, have fun and deepen their understanding.

Maths is essential to everyday life and, as such, it is important for children to see and experience how it can be useful in their own world. Children learn Maths best through activities that encourage them to:

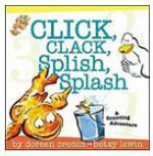
- Explore;
- Think about what they are exploring;
- Solve problems using information that they have gathered themselves;
- Explain how they reached their solutions.

For younger children playing and talking about games together will really encourage their mathematical development and support their learning in school. All activities you do which are seen as a puzzle, a game or as a 'finding out' process will enhance your child's confidence to play with numbers and help them be more competent puzzlers and problem-solvers. Encouraging them to play with numbers and develop a range of mental calculation strategies will also help build their confidence and competence. As well as playing and discussing games, older children need to practise and consolidate skills such as mental arithmetic, solving equations, working out angles and calculating an average. These skills are necessary for solving the 'bigger' problems they will encounter as their mathematics develops. You can also encourage your child to engage with maths in the media, looking at how numbers and graphs are used to support arguments and encouraging them to question the reasonableness of what they are presented with. They may want to investigate further by searching on the internet, for example. Many parents will find that the way maths is taught is different from their own experience. If there are aspects of maths you would like to know more about, talk to your child's teacher. Below are some ideas for how you can support your child's learning at home and help them to develop their sense of curiosity and enjoyment of mathematics as well as develop the skills which will help them in their everyday life.

Please use this booklet in conjunction with our 'Written Calculation Policy'. Both documents can be found on our website.

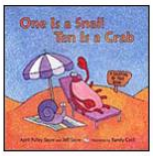
Using Story Books to engage children in Mathematics

Using story books with children is a great way to teach children about Mathematics. A fun way without children realising that they are learning and a rich source of enhancing dialogue and the language of Maths between you and your child at home!



numbers / counting

A list of fun math books for kids just learning numbers and counting.

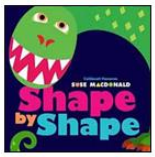


addition books

These creative books make learning addition more fun and concrete.

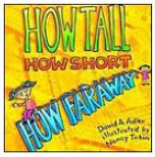
subtraction

Best math picture books for subtraction math lessons.



shapes books

Children's books make learning this fun topic even more fun!

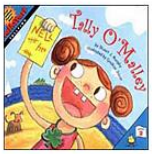


measurement

Add these great books to your classroom or home school math.

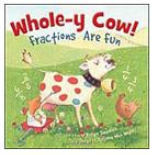
telling time

Elementary math includes teaching days, clocks, calendars...



graphing books

Graphing is fun with these clever math picture books for kids.



fractions books

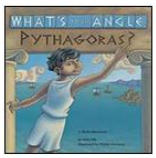
Fractions can be a real challenge, but these books can help!

multiplication

Kids books are great for showing real world uses for multiplication.

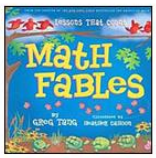
division books

We're still building this list. Know of any math books we can add?



geometry books

Math picture books can make learning geometry more clear.

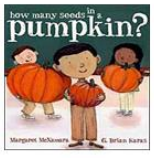


other math

A range of math picture books on place value, odd/even...

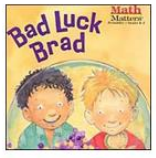
books on money

Make learning about money fun with these great picture books.



estimation

Strong estimation skills are invaluable to math success.



probability

Math books are great for this important topic.

To find out more, visit

http://www.the-best-childrens-books.org/math-for-kids.html

Calculations

A lot of emphasis in Mathematics teaching is placed on using mental calculations where possible, using jottings to help support thinking. As children progress through the school and are taught more formal written methods, they are still encouraged to think about mental strategies they could use first and only use written methods for those calculations they cannot solve in their heads. It is important that children are secure with number bonds (adding numbers together and subtracting them eg 10-6=4, 13+7=20) and have a good understanding of place value (ten and units etc) before embarking on formal written methods.

Children are introduced to different methods of calculating numbers in their head. Number cards, hundred squares, number lines and other apparatus may also be used in this session to act as models and images which will enable children in building abstract pictures in their mind.

Discussing the efficiency and suitability of different strategies is an important part of Maths lessons. Explaining strategies and processes orally helps to develop the use of appropriate mathematical vocabulary. .

When faced with a calculation problem, encourage your child to ask:

- Can I do this in my head?
- Could I do this in my head using drawings or jottings to help me?
- Do I need to use a written method?
- Should I use a calculator?

Also help your child to estimate and then check or prove the answer.

Encourage them to ask:

- Is the answer sensible?

The use of Number Lines

Number lines are a very important tool used in all calculations. Children are introduced to them right from their first year of schooling.

Number lines help to develop an ability to order numbers, and give children a sense of where numbers sit in our number system. Children make jumps up and down a number line to help them solve a mathematical problem.
They allow children to draw a picture – or model – in their heads when calculating

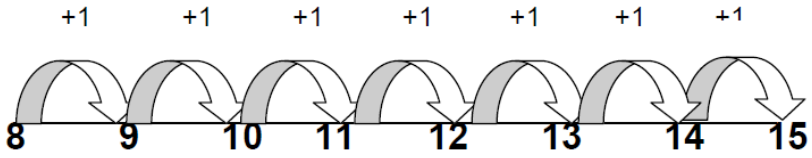
Number lines Can be used in a range of aspects of mathematics – numbers and the number system, fractions, decimals, percentages, addition, subtraction, multiplication, division, measures, handling data.

Initially use a **number track** to count on for addition, counting on from the largest number:

5 + 4 = 9

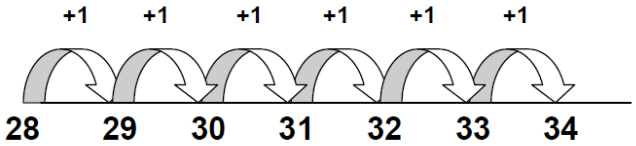
'Put your finger on number five. Count on (count forwards) four.'

8 + 7 = 15 'Put your finger on number eight and count on seven.'



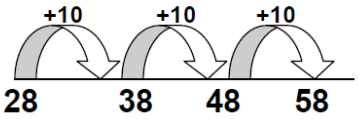
Counting on in ones using an **empty number line,** within 100…

28 + 6 = 34



…and in tens

28 + 30 = 58



Use in conjunction with a **100 square** to show jumps of tens.

Counting Ideas

- Practise chanting the number names. Encourage your child to join in with you. When they are confident, try starting from different numbers – eg 4,5,6…. Also try counting backwards.

- Sing number rhymes together – there are lots of commercial CD's available.

- Read counting books.

- Count items that you can touch! Count toys, kitchen utensils and items of clothing. Help your children count by pointing to and moving the objects as you say each number out loud.

- Count forwards and backwards from different starting points.

- Use household items to practise adding, subtracting, multiplying and dividing

- Count things you cannot touch – window panes, jumps, claps, oranges in a bag.

- Play games that involve counting – eg snakes and ladders, dice games.

- Make mistakes when chanting, counting or ordering numbers. Can your child spot what you have done wrong?

- Chose a number of the week e.g. 5. Practice counting in 5's, up to 5, on from 5,collect groups of 5 items.

- Simple dot-to-dot puzzle books are a great way of practising number order.

- Look for numerals in the environment – e.g car number plates

Practising Number Facts

- It's important children learn number bonds to 10 e.g. 4 + 6 = 10 and number bonds to 20 e.g. 14+6 = 20 by heart. It is expected that children will be able to quickly recall bonds to 20 by the end of year 2.

- Play 'ping pong' to practice components with your child. You say a number and they reply with how much more is needed to make 10, 20, 100 or 1000. Encourage your child to answer quickly without counting or using fingers. E.g. make 100 you shout 40 they shout 60.

- Play dominoes – this is great for identifying doubles.

- Throw two dice. Ask your child to find the total of the numbers (+), the difference between them (-) or the product (x).

- Use a set of playing cards (without the picture cards). Turn over two cards and ask your child to add or multiply the numbers. If they answer correctly, they keep the cards. How many cards can they collect in two minutes?

- Play 24 with a pack of playing cards using all of them. You need 4 players each puts a card down and first one to make 24 using any or all of the 4 operations and using all or some of the cards. First one to make number keeps all the cards. E.g. you put down a Jack, 2 hearts, 7 spades and 2 clubs. You could say 2x Jack add 2 hearts.

- Play Bingo. Each player chooses five answers (e.g. numbers to 10 to practise simple addition, multiples of 5 to practise the five times table etc). Ask a question and if a player has the answer, they can cross it off. The winner is the first player to cross off all their answers.

- Give your child an answer. Ask them to write as many number sentences as they can with this answer. You could just ask for addition sentences or any type of calculation.

- Give your child a number fact – eg 5 + 8 = 13. Ask them what else they can find out from this fact – 50 + 80 = 130, 8 + 5 = 13, 13 – 8 = 5, 130 – 50 = 80 etc

- Play '*I'm thinking of a Number*'. Begin by giving clues such as *"My number is more than 50 but less than 100; it is an odd number; It is two more than 37,*

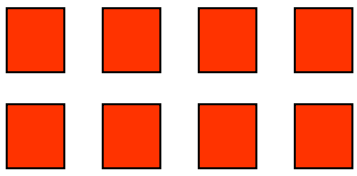
Practising Multiplication and Division Facts

An accurate 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 practise their times tables regularly at home, if not daily.

Indicated below are the expectations for each year group.

- **Year 1:** count in multiples of twos, fives and tens.
- **Year 2:** count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward; Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- **Year 3:** count from 0 in multiples of 4, 8, 5, 10 and 100; recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- **Year 4:** count in multiples of 6, 7, 9, 25 and 1000; recall multiplication and division facts for multiplication tables up to 12 × 12
- **Year 5:** count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000; multiply and divide numbers mentally drawing upon known facts
- **Year 6:** perform mental calculations, including with mixed operations and large numbers

Children are also taught to recognise the reversible effect. They are also taught the relationship with division. The use of arrays can support this image.



$2 \times 4 = 8$
$4 \times 2 = 8$
$8 \div 2 = 4$
$8 \div 4 = 2$

Measurement and Geometry

- Choose a shape of the days. Look for this shape in the environment. Ask your child to describe the shape to you.

- Play 'guess my shape'. You think of shape. Your child asks questions to try to identify it but you can only answer 'yes' or 'no'. This includes flat 2D and solid 3D shapes.

- 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. Help your child to paint or draw symmetrical pictures/ patterns.

- Make a model using different boxes/containers of different sizes. Ask your child to describe their model to you, using mathematical vocabulary.

- Practise measuring the lengths and heights of objects in metric measurements.

- Help your child use different rulers or tape measures correctly. Encourage them to estimate before measuring. Compare measurements in metric and imperial.

- Let your child help with the cooking. Help them to measure ingredients accurately. Talk about what each division on a scale represents.

- Choose some food items out of the cupboard. Try to put the objects in order of weight by feel alone. Then check by looking at the weights on the packets.

- Practise telling the time with your child. Use both digital and analogue clocks. Ask your child to be a 'timekeeper' – e.g. tell me when it is half past four because we are going swimming.

- Let your child borrow your watch. Ask questions such as - Can you tell me when it is 2 o'clock? Can you tell me how long it takes for us to walk from our house to grandma's? You can play on the computer for 30 minutes. Can you tell me when the 30 minutes are up?

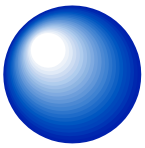
- Play games like 'What's the Time Mr Wolf'?

- Use a stop clock to time how long it takes to do everyday tasks –e.g. how long does it take to get dressed. Encourage your child to estimate first.

- Use a TV guide. Ask your child to work out the length of their favourite programmes. Can they calculate how long they spend watching TV each day/week?

- Buy your child a pocket diary or calendar and help them plan out a daily timetable for their week. Write in the times of activities on the days of the week.

- *How many days/ weeks until your birthday/ Christmas/ our holiday?*




Statistics

- Sort household items. As your child tidies up toys or clothing, discuss which items should go together and why.

- Show your child how to sort food items in the fridge.

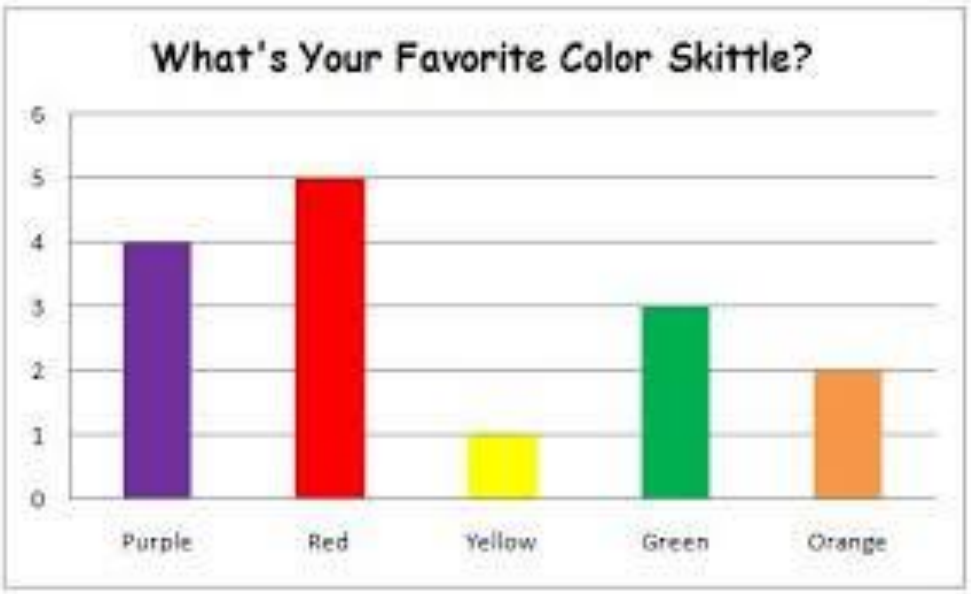
- Encourage your child to sort other household items – crayons by colour, cutlery by type or shape, coins by denomination. Can they sort 1 way and then 2 ways?

- Make a weather graph. Draw pictures on the calendar to record each day's weather. At the end of the month, make a picture graph showing how many sunny days, cloudy days or rainy days there were in that month.

- Make a food chart. Create a chart to record the number of different types of food your family eats on each day. At the end of the month, have your child count the number of food items eaten. Ask questions such as how many more/less? What was the families most/least favourite food that month.

- Talk about the likelihood of events. Have your child draw pictures of things your family does often, things you do sometimes, and things you never do. Discuss why you never do some things (swim outside in January).

- Ask your child if it is likely to rain today.



Real Life Problems

- Go shopping with your child to buy two or three items. Ask them to work out the total amount spent and how much change you will get.

- Buy items with a percentage extra free. Help your child to calculate how much of the product is free.

- Plan an outing during the holidays. Ask your child to think about what time you will need to set off and how much money you will need to take.

- Use a bus or train timetable. Ask your child to work out how long a journey between two places should take. Go on the journey. Do you arrive earlier/later than expected? By how much?

- Help your child to scale a recipe up or down to feed the right amount of people.

- Work together to plan a party or a meal on a budget

- Timings – how long have we been at the park? You may go to bed at 8 o'clock. How many minutes until then?

- Portion control is great for discussing fractions; percentages and proportion e.g. are there equal numbers of different types of chocolates in the tin? Count all of the chocolates and see decide if half are chocolate and half are toffee.

Getting children involved in real situations where they are using mathematical skills is motivating and stimulating.