

Dear Parents,

To support mental maths at home with your child we have highlighted key concepts for each year group as a focus. We would be delighted if you could find time to have fun with these maths ideas. We have made some suggestions but we are sure that you will come up with lots of creative ideas of your own too!

Year	Key Concept	Explanations and ideas
R	<ul style="list-style-type: none"> <li>To know number bonds to five and the story of 5</li> <li>To recognise and write numbers to 20</li> </ul>	<p>Children need lots of practice to know how numbers are made, for example that 4 and 1 make 5, but so does 3 and 2.. You could find 5 smarties and share them into two groups, how many could be in each group? or 'If you have 3 smarties in your hand, how many will I have?'</p> <p>Try the BBC Maths Channel  <a href="http://www.bbc.co.uk/programmes/p017l3pg">http://www.bbc.co.uk/programmes/p017l3pg</a>. We call this the 'story of...' children need to know the number stories for 3, 4, 5 and when ready, 10.</p> <p>Reading door numbers, asking your child to find page 7 in a book, making numbers out of play dough, sprinkling flour and drawing numbers with a finger, playing hide and seek with number cards.</p>
1	<ul style="list-style-type: none"> <li>To know number bonds to 10 and the story of ten</li> <li>To know doubles and halves of numbers to 20</li> <li>To recognise numbers to 100 and know how two digit numbers are made</li> </ul>	<p>As with Year R, Year 1 children need to know the number stories for <u>all</u> numbers to 10. They also need to know the related subtraction facts, for example <math>3+4 = 7</math>, <math>7 - 4 = 3</math>. Try songs from the BBC Maths Channel, for example the number bond song, or playing games in the car, when walking to school etc. '6 and ? makes 9?' '3 and how many more make...?' 'How many ways can you make 8?'</p> <p><a href="http://www.bbc.co.uk/programmes/p0115h1h">http://www.bbc.co.uk/programmes/p0115h1h</a></p> <p>In practical ways, explore sharing items between two people, or finding out how many altogether if both people have the same number, such as biscuits, grapes, socks...</p> <p>Children understand larger numbers best when they experience holding sets of real objects in their hands or see them laid out. Use pasta shapes or other small items to lay in rows of tens, talk about how many rows and 'extra ones'.</p>
2	<ul style="list-style-type: none"> <li>To know number bonds to 20</li> <li>To count on and back in steps of 10</li> <li>To count in 2s, 10s, 5s and 3s</li> </ul>	<p>See Year 1, but with faster recall of the bonds to 10, and then to know the bonds to 20 and the related subtraction facts.</p> <p>Children need to know what ten more and ten less than any two digit number is, for example <math>45 + 30</math>, or 45 and 10 and 10 and 10, counting like this: 45... 55, 65, 75</p> <p>Repetition and chanting of these facts is the basis for learning all multiplications and division facts in the future. You could take turns to say a number &amp; child gives the next fact, like a game of ping-pong.</p>
3	<ul style="list-style-type: none"> <li>To know multiplication facts for</li> </ul>	<p>Singing and chanting multiplication facts</p>

	<p>5x, 2x, 4x, 8x, 3x, 6x tables and equivalent division facts</p> <ul style="list-style-type: none"> <li>To tell the time in 5 minute intervals using the language of 'past' the hour e.g. 6.40 pm would be 'forty minutes past 6.'</li> <li>To know and use all money from 1p to £5 to add coins and give change</li> </ul>	<p>Any spare moment: in the car, walking to school. Learn 5x and 10x together, then 2x and 4x, then 8x once ready. Finally don't start the 6x until they are secure with 3x. The aim is that children have rapid recall rather than counting on their fingers.</p> <p>In year 3 we look at analogue clocks – clocks with hands! Consider buying your child an analogue watch. Ask your child to use your home clock to know when to do things- remembering that we are only counting in 5 minute intervals and using the language of past the hour (not 'to' the hour).</p> <p>Children need to handle real money and recognise the coins &amp; their value. Some children believe that a smaller coin, like a 5p is worth less than a bigger coin such as a 2p. Sorting and counting the amount of loose change in the house, adult's purse or pocket.</p>
4	<ul style="list-style-type: none"> <li>To tell the time to the minute on a digital and analogue clock</li> <li>Halving and doubling of all two-digit numbers</li> <li>Multiplication and division facts for all times tables to 12x</li> <li>Number bonds to 100</li> </ul>	<p>See year 3, make sure that your child is secure with their understanding of an analogue clock first before moving onto digital. In year 4 we move on to telling the time to the minute, but still keep the language of 'past the hour'.</p> <p>Halving and doubling whole numbers, such as double 38. For example, mentally double the 30, double the 8 and recombine to make 76. Follow a similar method for halving.</p> <p>By the end of year 4 all children are expected to know ALL of the multiplication and division facts. For example <math>7 \times 8 = 56</math> and <math>56 \div 7 = 8</math>. This should be rapid recall and not worked out on fingers.</p> <p>This means all pairs of numbers that make 100. For example 39 and ? make 100. This would make a good game to play in the car. This can also be practised with money, for example how much more do you need to make £1?</p>
5	<ul style="list-style-type: none"> <li>To tell the time on a digital and analogue clock, including a 24-hour clock</li> <li>Multiplication and division facts for all times tables to 12x</li> <li>To convert measurements from metres to millimetres, litres to centilitres, kilograms to grams</li> </ul>	<p>See year 4. In year 5 the 24 hour clock and 'to the hour' is introduced. Reading train timetables, world time clocks, converting times, such as in the TV guide into 24hr clock.</p> <p>See year 4. In year 5 we consolidate and increase their speed of recall.</p> <p>Children need to know that there are 1000 millilitres in 1 litre, 1000 grams in 1 kilogram and 1000 millimetres in 1 metre. Mental arithmetic homework books always cover this, so check your child understands and can explain. Cooking is a useful way to do this, as is helping with DIY.</p>
6	<ul style="list-style-type: none"> <li>Multiplication and division facts for all times tables to 12x and</li> </ul>	<p>In Year 6 we use what we call 'known facts' to work out similar questions, for example, 'if I know that <math>9 \times 7</math> is 63, then</p>

	<p>use them to find related facts e.g. if I know <math>6 \times 8 = 48</math> then I know <math>6 \times 80</math> is 480</p> <ul style="list-style-type: none"> <li>• Halving and doubling money</li> <li>• To know all prime numbers to 30</li> <li>• To know all squared numbers to 144</li> </ul>	<p>I know that <math>0.9 \times 7 = 6.3</math>, which will help me work out 7 metres of ribbon at £0.90 per metre. All quick fire games are great to practise recalling these facts, such as 'Can you be faster than a calculator' to say the answer.</p> <p>Money is a great way to practise halving and doubling numbers with two decimal places. Real experience is vital.</p> <p>Prime numbers to 30 are: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29. These numbers can only be divided by 1 and themselves, therefore they have 2 factors. Game: Can you name all the prime numbers in less than 15 seconds?? If so, can you also do it backwards?</p> <p>Squared numbers are: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144. Squared numbers are the product of a number multiplied by itself, for example <math>2 \times 2 = 4</math>. Play similar games as above.</p>
--	---	---

#### Useful websites:

- Go to the [BBC maths channel](#), then look at clips. There are lots of useful short videos to watch with your child covering a range of topics for all year groups
- Look at [www.mathsmastery.org](http://www.mathsmastery.org). Go to the 'What we do' tab and then 'Information for Parents' tab

#### Useful books:

- *The Elephant in the Classroom: Helping Children Learn and Love Maths* by Jo Boaler
- *Maths for Mums and Dads* by Mike Askew

## And finally....think and talk like a mathematician...

- Questioning and prompts can be powerful tools to boost your child's mathematical thinking: 'What do you think...?' 'Why ...?' 'What will happen if...?' 'What do you notice about...?' 'Can you see a pattern between...?' 'What if we try...?'
- Find out what new maths vocabulary your child's teacher is introducing so you can use it at home to complement their learning. Always encourage your child to *explain* how they have gone about solving a problem, and work with them to test, prove, explain, reflect and spot patterns.
- To support your child's understanding of mathematical words, ask them to explain the words they've been using and what they mean.
- Mathematics language often uses common words in a new way. For example, 'difference', 'right', 'product', 'table'.
- It is always okay to say 'I'm not sure' and then find out with your child.