What is mental maths?

The aim of mental maths is to enable children to develop the skills of carrying out calculations 'in their head'. This requires supporting children to visualise the problem, hold on to numbers internally and manipulate them to reach the correct answer. Mental maths also keeps our brains quick and sharp. The brain, like the muscles, gets stronger and more efficient with use.

Why do we do Mental Maths?

- Mental Maths encourages actual understanding, not just memorisation. It engages the brain and helps the child get ready to learn – we wouldn't take part in physical exercise without warming up first.
- Mental maths can help prepare children for daily life – doubling amounts in recipes, estimating their spend in a shop, reading timetables, using fractions or percentages to work out discounts etc.
- Mental Maths is fun and can build confidence. If a child starts thinking that maths is hard, they can believe they are not good and don`t try as hard. Children enjoy playing games and setting challenges for themselves which will continuously feed their positive beliefs about their maths abilities.

What happens at Portmoak Primary?

Every class, from infants to upper school, use the key strategies in mental maths activities.

These skills are taught explicitly at each stage, with specific activities planned to develop and practice the skills.

They are also referred to regularly in everyday maths lessons, when children are asked to explain how they reached a particular solution.

Ideas to use at home

A pack of cards can be an invaluable resource for helping children of all ages with number bonds, place value and using all four operations.

- **200 game**
  - players begin with the same starting number – I use 200 but could be less
  - the cards are placed face down on the table and each player takes turns to pick two cards.
  - the player multiplies the cards together (face cards are 10, an ace is 1)
  - if the two cards are the same colour, the player adds them to his/her score. If they are different colours, then they subtract.
  - this continues until a player reaches zero

  If the focus is solely on tables work, the children could use a calculator to help with the addition and subtraction.

- **General tables practice** – show the children 2 cards and ask them to multiply or deal 2 cards then a single card and practice division.
- **Place value** – deal 3/4/5/6 cards. Ask the children to read the number then add or subtract 10, 100, 1000 etc.
- **Mental addition and subtraction** – deal 2 sets of 2 cards. Ask the children to add them together or find the difference.
- **Play a game of Fizz Buzz.** Choose a times table to start with. Count up starting with 1 but every time you say a multiple (or station) of that times table you say 'fizz' instead eg. 3 times table would be 1, 2, fizz, 4, 5, fizz etc. To make this more challenging, add in another times table. For example, the 3 and 5 times tables would be 1, 2, fizz, 4, buzz, fizz, 7, 8, fizz, buzz, 11, fizz, 13, 14, fizz buzz (15 is in both tables). This can be lots of fun but does require a lot of concentration!!

- **Guess and estimation**
  In class, we work our estimation skills using a metre stick. At home you could use a ruler or pick up a stick if you are out for a walk! Give each end of the ruler a start and end number eg. this end is 0 and this end is 50. Then point to various points between the two ends and ask where they think you have pointed to. It doesn't always have to start at 0, the ends could be 50 and 100, 100 and 200 etc. This activity really helps the children think about number sequences and improves their estimation and measuring skills.

Ideas to use at home (cont.)

Sequencing activities are a great way to get children thinking and it encourages them to talk about how they got their answers.

- write down a sequence of numbers, missing a few out periodically. Ask what the missing numbers are and what the rules is. This could be multiples of times tables, odd/even numbers, adding 1, then 2, then 3 etc.
- give the children a list of operations to carry out in order to find the final number. eg. 3 + 4 x 6 – 7 ÷ 5 = ___ At this stage, I would encourage the children to work through the sums step by step to find the answer.
- the above sequence could also be done by removing some of the signs in the sequence and giving the children the answer at the end, making them think about the process. eg. 3 + 4 _ 6 – 7 _ 5 = 7 Age and stage of the child will determine how many blanks you leave in the sum. This will encourage the 'Guess, check, improve' problem solving strategy.
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Target numbers or boards

- Target number – give the child a number and ask them to find as many ways to make that number as they can. You may want to challenge them by saying they must use a multiplication/division within the sum.
- Target boards – draw a table (see example below)

34	51	16	28	44
92	87	48	31	12
79	62	24	56	22
54	73	40	9	88

Examples of questions to ask:
Add all the even numbers together.
Which numbers are in the 3 times table?
Find the difference between the highest and lowest number.
Add the middle column.
Double each number on the top row.
Estimate which is row has the highest total.
Can you find pairs of numbers that add to a multiple of 10?

This information leaflet is one of a series of leaflets produced in Session 2016-17 on topics parents asked for more information about. It is intended to be an overview of the topic and won't contain every detail possible. If you do not find what you were looking for, please ask.

Information for Parents

Mental Maths Strategies to Help at Home