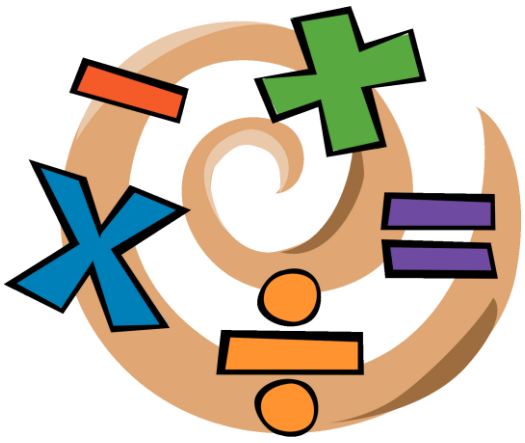
Mosshead Primary School

Let's Focus on...

Numeracy and Mathematics



'To face the challenges of the 21st Century, each person needs to have confidence in using mathematical skills, and Scotland needs both specialist mathematicians and a highly numerate population.'

(Building the Curriculum 1, Scottish Executive, 2006)

What is Numeracy and Mathematics?

Numeracy is the confidence and ability to use the number-based skills that are needed by everyone in their everyday lives. For example, calculating the correct change when buying something, weighing or measuring ingredients when cooking, telling the time or making sense of statistics or graphs in the news.
Mathematics is the study of the properties, relationships and patterns in number and shape, and the use of this knowledge to analyse, interpret, simplify and solve problems.

Why do our pupils learn about Numeracy and Mathematics?

Learners at Mosshead Primary School study Numeracy and Mathematics to develop skills for learning, life and work. They should be encouraged to value Numeracy and Mathematics and have an awareness of its importance and relevance to their daily lives. This will enable them to become functioning adults, who are able to think mathematically, enabling them to reason and problem-solve in a variety of contexts.

'To face the challenges of the 21st century, each young person needs to have confidence in using mathematical skills, and Scotland needs both specialist mathematicians and a highly numerate population.'
(Building the Curriculum 1, Scottish Executive, 2006)

'—to help children and young people in Scotland to understand and value the power of mathematics, to equip them with the skills to contribute effectively in the world of work and in civil society, but also, and perhaps most importantly, to exercise greater control over their own lives.'

(Dylan Wiliam, Co-chair, Mathematics Excellence Group, 2011)

Numeracy and Mathematics at Mosshead Primary School

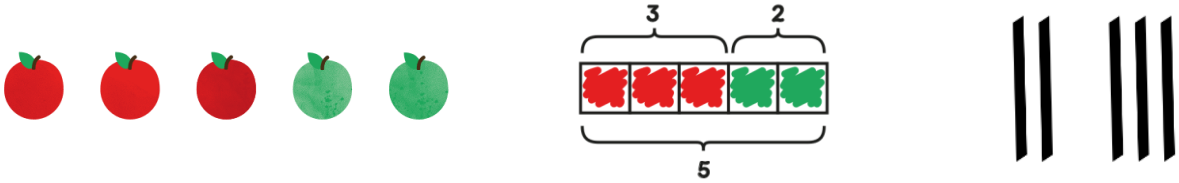
At Mosshead Primary School, our staff teach engaging Numeracy and Mathematics lessons that involve a carefully planned blend of learning and teaching approaches. Staff provide progressive, broad, coherent and meaningful learning experiences that are relevant, challenging and enjoyable. Expectations of all learners are high and we challenge our learners to ensure they make the best possible progress. Our learners build confidence by applying their Numeracy and Mathematics learning in real life and relevant contexts. Staff regularly ask pupils to explain, justify or prove their thinking, talking through the strategies they have used to solve problems.

The Concrete, Pictorial, Abstract Approach

Some learners find maths tricky because it is abstract. This is why we adopt a concrete, pictorial, abstract approach to teaching Numeracy and Mathematics at Mosshead Primary School.

Concrete is the 'doing' stage. Learners use concrete objects to model problems. E.g. if the problem involves having 3 apples and then buying 2 more, ideally learners would initially use real or plastic apples to model this. Then, once they are comfortable, they can move on to using other concrete materials such as cubes, counters or Numicon to represent the objects in the problem. This brings concepts to life and creates relevance by allowing learners to experience and handle physical or concreate objects. Ideally, every abstract concept should first be introduced using physical, interactive, concrete materials.

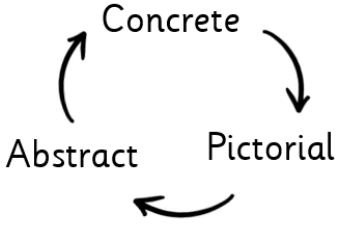
Pictorial is the 'seeing' stage. Here, visual representations of concrete objects are used to model problems. This could be drawings of the apples, dots that represent the apples, or a bar model split into sections that represent the 3 and 2 apples. This stage encourages children to make a mental connection between the physical object they previously handled and the more abstract pictures, diagrams or models that represent the objects from the problem. Asking learners to build or draw a model makes it easier for them to grasp more abstract concepts. Simply put, a picture helps them to visualise abstract problems and make them more accessible.



Abstract is the symbolic stage, where learners use abstract symbols to model problems, e.g. 3 + 2 = 5. Learners cannot progress to this stage until they have demonstrated that they have a solid understanding of the concrete and pictorial stages. This is where concepts are introduced at a symbolic level, using only numbers, notation and mathematical symbols.

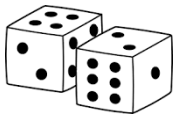
$$3 + 2 = \boxed{5}$$

Although the concrete, pictorial, abstract approach can be thought of as 3 distinct stages, this is actually a more realistic representation of the approach:



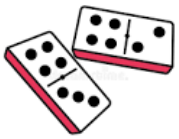
Learners will go back and forth between each stage, revisiting each to reinforce and extend mathematical concepts. Therefore, learners will be using concrete materials and pictorial representations right throughout their time at primary school, and will still be using these in Primary 7.

How You Can Support Your Learners at Home…



The Four Operations (Addition, Subtraction, Multiplication and Division)

- Look for numbers in the environment and ask learners to identify them – house numbers, road signs, phone numbers etc.



- Play board games and card games that involve mental calculations, e.g. Snakes & Ladders, dominoes, 21, etc. Scrabble is great for adding up scores, Yahtzee and Perudo involve both mental calculation and developing skills in determining chance and uncertainty. Generally, any games that involve dice or a scoring system will develop learners' numeracy skills.

Fractions

- Ask learners to help with preparing meals, e.g. cutting up vegetables, dividing up sandwiches, pizzas, serving up portions to each family member, etc.
- This is also a good opportunity to practise some measure skills, e.g. using scales, measuring jugs, etc.

Time

- Seek every available opportunity to ask learners what time it is, using both analogue and digital clocks.
- Plan events at certain times and ask learners how long it is until the event begins, ends, etc.
- Use timers to help establish a deeper understanding of the context of time. These can be used to time events or activities, e.g. bath time, play time outdoors, etc.

Money

- If learners are given pocket money or gifts of money for birthdays, help them count the money in their piggy bank.
- Support learners to budget for toys / treats. Ask them to calculate how much money they will need, how long it will take them to save up that amount of money, etc.
- Ask learners to help with shopping – adding up prices, paying, working out change, etc.

There are videos available on the school website to help with supporting your learners with the written methods of calculations (i.e. 'chimney sums', 'bus stop sums', etc.) These can be found under Parent Info > Supporting Your Child at Home > Supporting Numeracy > Instructional Videos, or at the following link:

http://www.mosshead.e-dunbarton.sch.uk/parents-info/supporting-your-child-at-home/

Other Useful Websites

BBC Bitesize - https://www.bbc.co.uk/bitesize/subjects/z6vg9j6
Sumdog – https://www.sumdog.com/sc/
Top Marks - https://www.topmarks.co.uk
Mathsframe - https://mathsframe.co.uk/
Maths Games - https://maths-games.org/
Oxford Owl - https://home.oxfordowl.co.uk/kids-activities/fun-maths-games-and-activities/
ICT Games - https://ictgames.com/
Times Tables - https://www.timestables.co.uk/
Mathsbot (for concrete materials to use at home) - https://mathsbot.com/manipulativeMenu