

Burnhaven School

Numeracy and Mathematics Policy

1. Rationale

Numeracy is a skill for life, learning and work. Being numerate helps us to function responsibly in everyday life and contribute effectively to society. Mathematics is a life skill which permeates and supports all learning across the curriculum and in future in the world of work.

Our Mathematics and Numeracy policy recognises the following: All children have the right to an education. **Article 28** The purpose of education is to develop every child's personality, talents and mental and physical abilities. Education should prepare children to live responsibly and peacefully in a free society. **Article 29** All children have the right to relax and play, and to join a wide range of activities. **Article 31**

2. Aims

The aim of this policy is to support to teachers to ensure pupils "master" numeracy and mathematics and can then apply it to a range of contexts.

The following description of what it means to master numeracy and mathematics is helpful, and illustrates its importance:

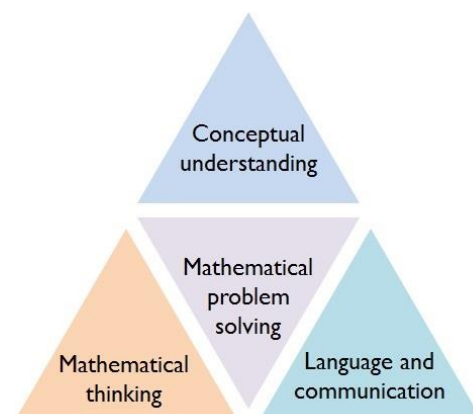
A mathematical concept or skill has been mastered when a pupil can represent it in multiple ways, has the mathematical language to communicate related ideas, and can independently apply the concept to new problems in unfamiliar situations.

Mastery is a journey and long-term goal, achieved through exploration, clarification, practice and application over time. At each stage of learning, pupils should be able to demonstrate a deep, conceptual understanding of the topic and be able to build on this over time.

This diagram is useful to explain the main elements of Teaching for Mastery in Numeracy and Maths.

Key concepts and approaches in a mastery approach include:

- Real-life problem solving scenarios
- Concrete-pictorial-abstract approach
- Developing fluency
- Variation – conceptual and procedural
- Mathematical thinking
- Number talks



3. Teaching and Learning

At Burnhaven School we use a progression based on the Aberdeenshire Progression Framework and Education Scotland Curriculum outcomes. The experiences and outcomes and progressions detailed in the Aberdeenshire Framework support effective learning and teaching methodologies which will stimulate the interest of children and young people and promote creativity and ingenuity.

A rich and supportive learning environment will support a skilful mix of a variety of approaches, including:

- planned active learning which provides opportunities to observe, explore, investigate, experiment, play, discuss and reflect modelling and scaffolding the development of mathematical thinking skills;
- learning both collaboratively and independently;
- opportunities for discussion, communication and explanation of thinking;
- developing mental agility;
- building on the principles of Assessment is for Learning, ensuring that young people understand the purpose and relevance of what they are learning;
- developing problem-solving capabilities and critical thinking skills;
- frequently asking children to explain their thinking;
- use of relevant contexts and experiences, familiar to children and young people;
- using technology in appropriate and effective ways;
- making frequent links across the curriculum, so that concepts and skills are developed further by being applied in different, relevant contexts;
- promoting an interest and enthusiasm for numeracy.

Aberdeenshire Numeracy and Mathematics Framework: June 2018

Core Resource: Maths Enhancement Programme

<https://www.cimt.org.uk/projects/mepres/primary/index.htm>

The Maths Enhancement Programme provides a progression of learning activities which allows teachers to teach maths for mastery by:

- Having very high expectations of teachers and pupils
- Ensuring mathematics is taught as an integrated subject in a spiral, ever widening curriculum throughout the primary years, with continual revision of facts and concepts
- Providing lessons which are highly interactive, have many activities and involve all pupils
- Ensuring the logical foundation of mathematics is stressed, with correct, concise mathematical notation and language being used at all times
- Using mental visualisation and models and manipulatives, and relating concepts to real life situations where relevant, are important aspects
- Encouraging creative thinking, critical discussion and evaluation.
- Using a whole-class, collaborative, disciplined yet friendly ethos is envisaged.

Above all, MEP aims to make all pupils mathematical thinkers and to make mathematics lessons challenging and fun for both teachers and pupils.

MEP is followed on three days of each week with children being taught in ability groups across the school. On the other two days, class teachers address any areas which require additional practice. To support this, teachers have access to a range of resources such as TeeJay text books and work books and online activities. We use a wide range of maths games and practical materials to reinforce concepts.

Mental Maths: Maths Passports

Children are set passports with particular mental challenges which they practise at home to improve their **immediate recall** of key facts. They travel the world with each new passport. Parents are given a fact sheet with each passport to demonstrate how children should be able to work with the challenges. Children work at their own pace to learn the facts and then ask to be tested at school. They need to achieve the task 3 times for each challenge. Once a passport is complete, they will move to the next passport to travel round the world. All children will work at their own pace, some going faster than others at different stages of the programme. Ideally children will reach Globetrotter level by Primary 7 but there are opportunities to blast off to the stars! Equally, adaptations will be made for children whose learning needs means that they need to approach the learning differently.

Some time will be set aside in school for children to practise their targets however your children will benefit from lots of short bursts of practice at home. Little and often is the key to help children retain the information and be able to use it. We are looking for **Instant Recall**.

British Isles A	Counting to 10
British Isles B	Working with numbers to 10
1. Europe	Working with numbers to 20
2. Asia	Counting in 2s,5s,10s, all number bonds to 10 and doubles to 10
3.1 Africa	Number bonds to 20, bonds of ten to 100, doubles and halves to 20, 2 times table
3.2 South Africa	Division facts for 2xtable, multiplication and division facts for 5 and 10x table.
4. Australasia	All addition and subtraction facts for multiples of 10-100, all number bonds to 100, multiplication and division facts for 3xtable.
5. Antarctica	Multiplication and division facts for 4xtable, 6xtable and 8xtable, Recognise multiples of 2,5,10 up to 1000
6. North America	Double and half any 2 digit number, multiplication and division facts for 7 and 8x table
7. South America	Double and half numbers with 1 decimal place, use all multiplication facts in multiples of 10 and 100
8. Globetrotters	All squares of numbers 1-12, squares of multiples of 10, recognise and recall factors of numbers to 100

4. Assessment and monitoring

Teachers assess pupil progress using the Education Scotland Benchmarks to support their professional judgement. We have are mapping the Maths Enhancement Programme against the benchmarks. The progress of a group is **briefly** evaluated at the end of every term.

The pupils are also assessed twice a year using the Maths Enhancement Programme assessments and groups are adapted accordingly. All this information is discussed at tracking meetings.

Children working within the Curriculum for Excellence Level expected for their age and stage may be considered On Track; those on a different level can be considered as making Appropriate Progress or Requiring Support, depending what progress they are making, or they could be Exceeding Expectations.

Scottish National Standardised Assessments (SNSAs) are taken in P1, P4 and P7 to support professional judgements and give some information of the areas where children are being successful and where they need support.

5. Mathematics across the curriculum

We plan coherent activities which allow children to apply their learning in relevant and practical ways which demonstrate the real life relevance of numeracy and mathematics. These activities are evident on interdisciplinary plans. Holistic assessments will be developed to review how well children can apply their numeracy and mathematics skills in a range of contexts.

6. Involvement with stakeholders

Our parents have asked for more information regarding the progress their children are making in numeracy. In addition to parents evenings and annual report, The maths passport progression gives parents an opportunity to track their children's progress when recalling mathematical facts.

Opportunities to visit the school to take part in maths learning in the classroom will be offered as a part of our Reporting Framework.

7. Agreement and Review

This policy has been developed with school staff and the parent body in session 2019/2020. It will be reviewed in three years unless curriculum requirements are changed.

8. Documents

The documents referenced in this policy are available on our website for teachers to support their teaching and stakeholders for their information.

- Aberdeenshire Mathematics and Numeracy Learning Progressions
- Maths Enhancement Programme <https://www.cimt.org.uk/projects/mep/index.htm>
- Burnhaven maths benchmarking document (under development)