

**Uplawmoor Primary School**

**Numeracy and Maths Policy**

**Rationale**

“Mathematics is important in our everyday life, allowing us to make sense of the world around us and to manage our lives. Using mathematics enables us to model real-life situations and make connections and informed predictions. It equips us with the skills we need to interpret and analyse information, simplify and solve problems, assess risk and make informed decisions.”

(Scottish Government, online)

In 2016, the Making Maths Count Group set out their intention to turn Scotland into a maths positive nation. This was in response to their research which showed that, as a country, we are too happy to label ourselves as “no good with numbers”, and this attitude is holding back real progress.

Additionally, improving attainment, particularly in literacy and numeracy along with closing the attainment gap between the most and least disadvantaged children and young people are fundamental priorities for Scottish Education. The paper Advancing Excellence and Equity in Education in East Renfrewshire recognises the similarities between ERC and national priorities, and the ethos in the authority of continuous improvement. As a result, our emphasis must be to build on our current strengths, raising the bar for all learners, whilst at the same time, ensuring we improve the attainment of particular groups of children and young people, who experience disadvantage.

**Our Vision**

In the context of numeracy and mathematics we need to ensure all children and young people develop the numeracy and mathematics skills they need to be successful throughout life. However the vision also challenges all involved to make mathematics more inspiring, enjoyable and relevant to real life work, and in doing so ‘help to create greater enthusiasm, encourage greater participation and raise attainment’.

**Our Values and Principles**

It is vital that we provide young people with the skills they need to navigate the world successfully, fairly and responsibly: “Being numerate helps us to function responsibly in everyday life and contribute effectively to society” (Education Scotland, online). As outlined in the United Nations Convention on the Rights of the Child (UNCRC) children are entitled to a quality education that fully develops their talents and interests. Our numeracy and maths policy is underpinned by a commitment to children’s rights, wellbeing and learning by providing suitable support and challenge to learners, engaging their interests and ensuring appropriate pace and coverage of skills. All children have the right to an inclusive education that ensures equity as far as possible in terms of social background, race, gender and disability (Article 2, UNCRC).

**Our Objectives and Aims**

Our six key aims come directly from East Renfrewshire Education Department’s Numeracy and Mathematics Strategy 2018-2021 (ERC, 2018: 4).

**Aims:**

To improve:

* outcomes and reduce inequalities in numeracy & mathematics development;
* attainment in numeracy & mathematics throughout the years of the broad general education and senior phase;
* confidence and fluency in mathematics for children, young people and parents and all those who deliver mathematics education;
* the employability skills of pupils, school leavers and adults;
* the quality of learning, teaching and assessment; and,
* public attitudes to numeracy & mathematics.

**Objectives:**

* to reduce inequalities in outcomes for numeracy and mathematics through pedagogic approaches and interventions based on evidence;
* to provide high quality learning experiences for all learners, underpinned by the design principles;
* to provide consistent, high quality professional learning for staff in the effective use of strategies and resources to support pedagogical development of numeracy and maths;
* to facilitate moderation opportunities to ensure consistent high standards in numeracy and maths;
* to embed procedures for the sharing of best practice both within and across establishments;
* to engage with families to promote a growth mind set approach to numeracy and maths and to develop confidence and fluency;
* to ensure quality numeracy and maths teaching is embedded in Developing the Young Workforce approaches.

**Our Approaches:**

**Curriculum for Excellence**

“All schools, working with their partners, need to have strategies to ensure that all children and young people develop high levels of numeracy skills through their learning across the curriculum” (Scottish Government, online: 1). Learning and teaching within numeracy and maths is built on the design principles of the curriculum, includes interdisciplinary approaches and uses the moderation cycle to ensure standards and quality. Approaches draw on the “features of effective learning and teaching in mathematics” detailed in the *Mathematics: Principles and Practice* document (Scottish Government, online: 2).

**CPA (Concrete, Pictorial, Abstract)**

CPA is a highly effective approach to teaching mathematics based on the work of Jerome Bruner (1960) that develops a deep and sustainable understanding of maths in pupils. At the concrete phase children use appropriate materials e.g. unifix, dienes, ten frames, dot patterns, counters, dice to support their learning. When moving into the pictorial phase children are provided with and create diagrams or visuals to represent the concrete phase. At the abstract phase, children use numbers and symbols (algorithms) to represent concepts.



**Growth Mindset**

Research findings show that children’s brains can grow, adapt and change – enabling them to learn mathematics to high levels. The myth of a ‘maths person’ should be challenged in classrooms – all learners are capable of growing their minds. Developing strong mathematical mindsets includes:

* Developing a culture of ‘I can’t do it yet’ and using mistakes as learning opportunities
* Promoting depth as more important than speed
* Encouraging learners to ask questions to deepen their understanding and use varied strategies
* The power of struggle – facing challenge is important and should be recognised
* Supporting children to be visual in exploring maths

**Problem Solving**

Curriculum for Excellence supports a problem solving approach and promotes the development of children’s problem solving, reasoning and fluency skills. Problem solving within mathematics is the ability to apply mathematical skills and strategies to a variety of situations. To facilitate this, we embed opportunities for problem solving across numeracy and maths that develop creativity, promote resilience and celebrate challenge. Additionally, we use interdisciplinary approaches that require learners to transfer their skills into new contexts.

**Assessment**

In Uplawmoor Primary assessment is planned as part of learning and teaching as these are inextricably linked, with each one informing the others. Evidence is gathered from across significant aspects of learning in a holistic way which provides robust, valid and reliable assessment information rather than assessment based on evidence from a single learning experience or one-off piece of work. The range of evidence gathered supports teachers in reaching a judgement of where children are in their learning. The range of information and evidence gathered is used to monitor and track progress and achievement - a key aspect of raising attainment. Through tracking and monitoring meetings, we ensure that the pace of learning is appropriate for each learner. Research in assessment suggests that learners learn best, and attainment improves, when they:

* understand clearly what they are trying to learn, and what is expected of them;
* are given feedback about the quality of their work, and what they can do to make it better;
* are given advice about how to go about making improvements;
* are fully involved in deciding what needs to be done next, and who can give them help if they need it.

**Homework**

 **Lesson structure**

Numeracy and Maths teaching today aims to help learners develop a range of strategies to enable them to solve problems in the most efficient way and in a way that they understand. Teaching is often very practical with a high focus on mental calculation and where pupils are encouraged to discuss their thinking and reasoning with their peers and their teacher.

It differs from teaching in the past when a topic such as subtraction using tens and units was taught in just one way, whether it was the best method to use or not. From the earliest days, your child will be encouraged to learn and use the language of mathematics. This is particularly important in problem solving when words such as total, make, score, and altogether may be used instead of equals. You can help your child with this by playing 'Give me another word for ...' E.g. try with rectangle, narrow, take away, circle, divide, above, share. As your child becomes proficient ask for two or more alternative words.

Numeracy and mathematics session include Number Talks which provide opportunities for children to articulate their mathematical thinking, practise skills, discuss alternative mental methods and be shown how to use a range of approaches. Learners are encouraged to learn tables and number bonds and use these known facts to solve other problems. Halving and doubling, rounding up or down, counting on and back, knowing the squares of numbers and recognising prime numbers are just some of the skills developed during mental maths sessions.

Regular practice also helps children to understand inverse operations such as 3 x 7 = 7 x 3; 13 + 7 = 7 + 13. Pupils are taught to picture problems in their heads then work out the best method to use.

Asking your child to describe how he /she has solved a problem will give you an insight into whether the strategy used was an efficient one or not. Daily activities have a positive impact on our children and we want this to continue. Therefore daily activities will continue to be sent home. **Each of the questions should be read out loud to pupils to enable them to calculate answers in their heads. The use of “traffic light” coding will allow teachers to see which strategies need to be reinforced in class.**

**Resources**

Insert establishment details here

**What is expected of stakeholders?**

In order to maximise achievement and attainment in maths across insert establishment name here, all stakeholders in the school community have important roles.

Managers and maths leads at insert establishment name here will:

* continue to provide and support quality career-long professional learning opportunities for staff in pedagogy and practice in maths, including sharing of best practice at school level
* support the sharing of best practice in numeracy and maths at cluster and local authority level
* facilitate and support the moderation of numeracy and maths at school, cluster and local authority level
* ensure the quality, progression and pace of numeracy and maths delivery through monitoring and tracking meetings, professional dialogues and planning meetings
* ensure consistent partnerships with parents
* provide access to suitable resources through procurement and management of concrete and digital materials

Our teachers and support staff will:

* continue to undergo professional development in numeracy and maths through training and routine sharing of best practice
* plan, lead and deliver high quality learning experiences within numeracy and maths and across the curriculum that develop conceptual understanding, build fluency and allow the application of skills
* provide clear and consistent feedback to learners and parents on progress and next steps
* monitor the quality of numeracy and maths experiences through evaluation and moderation
* support the championing of numeracy and maths by providing representatives from the staff team in this role
* promote maths as an essential skills for life and work, embedding quality numeracy and maths teaching in DYW approaches

Our learners will:

* demonstrate perseverance when undertaking experiences within numeracy and maths and across the curriculum in order to maximise on the potential for achievement
* contribute to the development of a growth mindset culture by explaining their thinking and sharing their strategies
* develop resilience in the face of challenge
* contribute to the monitoring and evaluation of learning experiences through the use of existing evaluation and reflection tools (e-portfolios, blogs, floor books etc)

We ask our parents and careers to:

* encourage learners to try their best when undertaking educational experiences in order to maximise on the potential for achievement
* promote resilience and perseverance by sharing positive ideas about maths
* promote maths as an essential skills for life