Wester Overton Primary School

Numeracy and Mathematics Policy

Rationale

Our pupils are growing and learning in a fast paced, ever-changing society. Our school needs to provide our pupils with the skills they need to contribute effectively in society, allowing them to achieve high levels of success in their daily lives and in the world of work.

Numeracy is a skill for life, learning and work. Being numerate helps us to function responsibly in everyday life and contribute effectively in society. Numeracy and mathematics allow children to problem solve effectively in many ways including helping children to make sense of the world that they live in, to manage time effectively, handle money and develop skills to enhance everyday life. Opportunities to interpret and analyse numerical information supports children to make conclusions, form evaluations and make informed decisions.

The Curriculum for Excellence Numeracy Across Learning and Numeracy and Mathematics Experiences and Outcomes are designed to promote innovative and creative teaching and learning approaches, and we aim to ensure that Experiences and Outcomes, pertinent to the age and stage of our learners, are fully addressed in a progressive manner. All staff are responsible for Numeracy within Curriculum for Excellence.

Aims

Wester Overton Primary School aims to:

- Provide high quality teaching and learning that fosters positive and enthusiastic attitudes towards numeracy and mathematics, ensuring that children can fully participate in society.
- Fully address all Curriculum for Excellence Numeracy and Mathematics Experiences and Outcomes from Early to Second level and beyond, providing progressive, broad, coherent and deep learning experiences that are relevant, challenging and enjoyable.
- Build confidence and develop a secure understanding of concepts, applying learning in a variety of contexts to solve problems including real life contexts for the world of work
- To better meet the needs of our learners through concept teaching and the delivery of fluid groupings
- To make informed decisions for independent living, regarding financial awareness and effective money management
- To assess and interpret different information, to make a reasonable and informed decision
- To use technology to enhance the teaching and learning of concepts

Principles and Practice

At Wester Overton, children and young people should experience success in mathematics and develop the confidence to take risks, ask questions and explore alternative solutions without fear of being wrong. They will be encouraged to enjoy exploring and applying mathematical concepts to understand and solve problems, explaining their thinking and presenting their solutions to others in a variety of ways.

The experiences and outcomes encourage learning and teaching approaches that challenge and stimulate children and young people and promote their enjoyment of mathematics. To achieve this, teachers at Wester Overton will use a skilful mix of approaches, including:

- daily numeracy & maths teaching
- 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 collaboratively and independently
- opportunities for discussion, communication and explanation of thinking
- developing mental agility
- using relevant contexts and experiences, familiar to young people
- making links across the curriculum to show how mathematical concepts are applied in a wide range of contexts, such as those provided by science and social studies
- using technology in appropriate and effective ways
- 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.

At all stages, an emphasis on collaborative learning will encourage children to reason logically and creatively through discussion of mathematical ideas and concepts. We plan for progression in learning using Curriculum for Excellence Maths and Numeracy Experiences & Outcomes, Benchmarks and Progression Pathways to plan programmes of learning in mathematics.

Maths and Numeracy will be taught through the following areas:

Number, Money and Measure

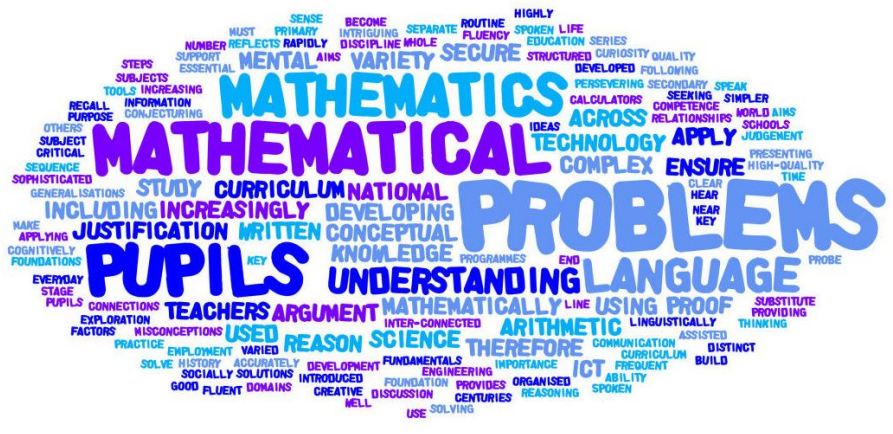
- Number processes
- Measure
- Patterns and relationships
- Expressions and equations

Shape, Position and Movement

- 2D and 3D shape
- Angles, symmetry and transformation

Information Handling

- Data and analysis
- Ideas of chance and uncertainty



Learning and Teaching Approaches

- Active learning approaches
- Play based learning
- Fluid groupings
- Number talks
- ICT and digital technologies
- Development of thinking skills
- Collaborative and independent work
- Self and peer assessment
- Verbal, Concrete, Pictorial and Abstract (VCPA) resources (Numicon, Base 10, cubes)
- Interdisciplinary links
- Problem solving skills
- Critical thinking skills

The main resources to support the delivery of the maths and numeracy experiences and outcomes are:

- Leckie and Leckie Maths
- TeeJay Maths
- Number Talks
- Education City
- Maths Recovery
- Numicon
- VCPA resources (cubes, base 10)
- ICT games
- Teacher made resources

Fluid Maths Groups

This would take the following format:

- Teaching one concept to everyone – start at the beginning, using VCPA to guide the learning
- 3 levels of challenge offered (silver, gold, platinum)
- Pupils take ownership of their own learning by picking which activity matches their development needs. Learners can move between challenges in the lesson and are encouraged to pick an activity which challenges them. This is tracked by the pupils and teacher.

<u>Learning Blog Jotters</u>

Pupils in Primary 1-3 complete learning blogs in the form of floor books/posters, which can be assessed by pupils across the day to support learning and teaching.

Pupils in Primary 4-7 have their own blog jotters, to take notes in during teaching of a specific concept. This will be modelled by the class teacher. Blog jotters can used as required by pupils to support learning and teaching.

Structure of an Effective Numeracy & Mathematics Lesson

- **Interactive Oral Mental Maths** **(10-20 minutes daily) Number Talks**

- **Sharing of Learning Intentions** **This can be co constructed with the children where appropriate. Should be drawn from the wording of the E & O being covered.**

- **Whole Class Concept Teaching (Fluid Grouping)** **Modelling through a variety of approaches (verbal, concrete, pictorial, abstract) Direct teaching of concept being taught with a range of real-life contexts and skills that can be developed.**

- **Further Modelling of Concept** **Further modelling of concepts and skills using a range of concrete, pictorial and abstract materials (ICT). This can take the form of teacher led, group, paired or independent learning.**

- **Success Criteria** **Now that learners know what they are learning, they should be guided through the success criteria. These should be short, measurable, definitions of success starting with 'I can…'. This can be co- constructed where appropriate.**

- **Learner Activities.** **TeeJay, Leckie & Leckie, Practical, Worksheets and Games. Learners are now provided with 3 or 4 differentiated activities for their fluid groupings – silver, gold, platinum.**

- **Assessment** **This can take several different forms. (AiFL- Assessment is for Learning) However, a selection of challenge questions after concept teaching and traffic lighting after learner activity should be completed. This should demonstrate breadth, challenge and application in unfamiliar contexts.**

- **Plenary/ Learning Review** **Whole class/ group collaboration re-capping learning Intentions and measuring achievement against the success criteria, identifying next steps.**

Assessment, Recording and Reporting

Assessments are carried out in a variety of ways, with teachers working collaboratively with stage partners to plan, moderate pupil progress and develop resources:

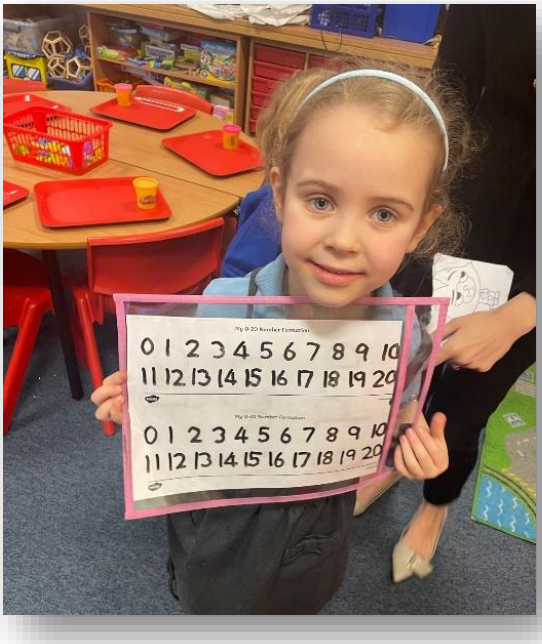
- Hand over notes from previous teacher
- PUMA assessments (twice a year)
- Monitoring of daily progress and meeting of the success criteria to plan responsively
- Teacher feedback to highlight next steps – verbal and written
- Personal target setting
- Peer/ self assessment
- Use of SNSA assessment data
- Use of summative assessment
- AifL
- Observation and effective questioning

Assessment in mathematics at Wester Overton will focus on children and young people's abilities to work increasingly skilfully with numbers, data and mathematical concepts and processes and use them in a range of contexts. Teachers will gather a range of evidence of progress as part of day-to-day learning about number, money and measurement, shape, position and movement and information handling.

Assessment approaches help learners to show their progress through the levels and enable them to demonstrate their achievements in a range of ways which are appropriate to learning. For learners to demonstrate that their progress is secure and that they have achieved a level, they will need opportunities to show that they:

- have achieved a breadth of learning across the experiences and outcomes for an aspect of the curriculum
- can respond to the level of challenge set out in the experiences and outcomes and are moving forward to more challenging learning in some aspects
- can apply what they have learned in new and unfamiliar situations.
- Teachers can use these three aspects to decide when a learner has met agreed expectations and achieved a level, either in a part of a curriculum area such as reading, or in a whole curriculum area.

Teachers use ongoing high quality assessment when teaching each concept. A high-quality assessment task will demonstrate the following:



1. **Breadth of learning** - it comes from a range of Experiences and Outcomes across different organisers
2. **Challenge** - it asks pupils to use a range of higher order thinking skills such as analysis, creation, evaluation, problem solving, tackling multi step tasks, interpreting tasks
3. **Application** of learning in new and unfamiliar situations

And will come from one of the four contexts of learning :

- **Life and ethos of the school as a community**
- **Curriculum areas and subjects**
- **Opportunities for personal achievement.**
- **Interdisciplinary learning**

Learners should be integral to the assessment process and know what they have to do to be successful. They should have opportunities for Self & Peer-Assessment, evaluating learning against agreed Success Criteria to support their understanding of the measures of success.

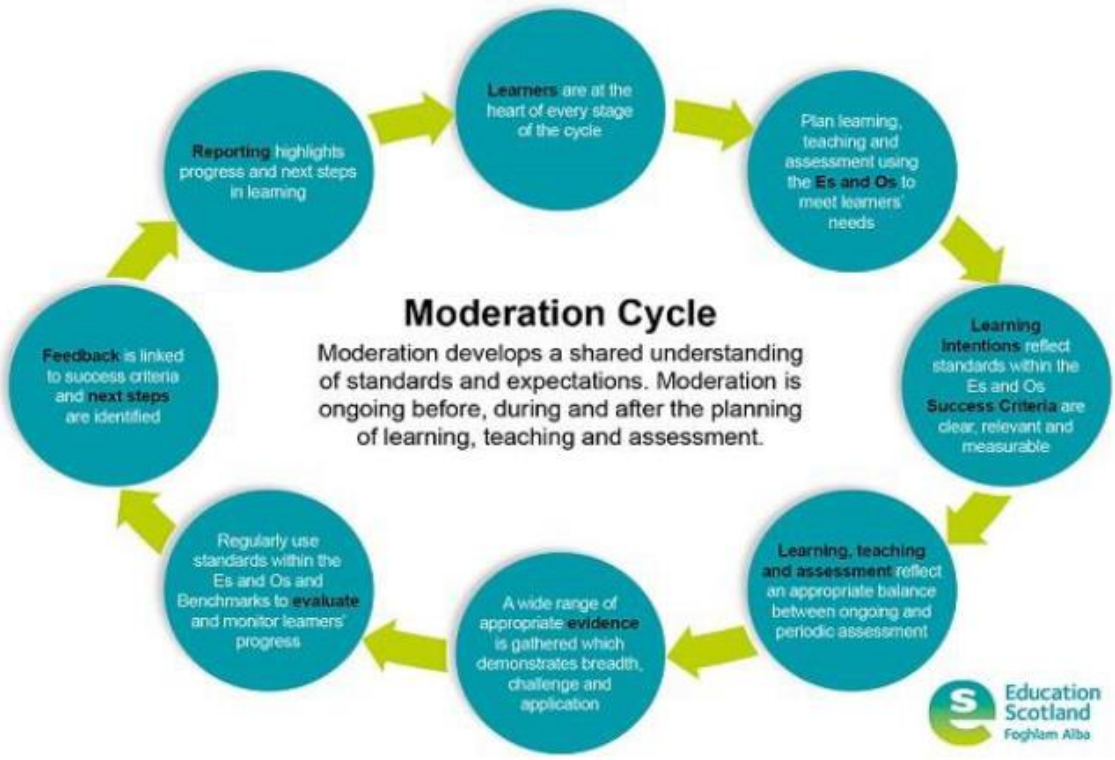
The learner should have opportunities to provide feedback to others, a process which will require modelling, scaffolding and practice as appropriate to their age and stage.

Feedback & Next Steps

The learner is integral to feedback and next steps. Learners should understand the purpose of feedback and be given time to act upon it.

Next steps will:

- Ensure learners are clear about their strengths and what they need to do next to improve.
- Involve engaging learners in high quality interactions throughout the learning process.
- Involve both quality dialogue and or written comments.
- Be presented as is age and stage appropriate.



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Meeting Learning Needs

Teaching staff are recognised as being best placed to understand the needs of their individual pupils. Staff are expected to communicate regularly with the SLT about children's progress and to highlight any concerns, through written records and verbally where appropriate. Staff are expected to differentiate appropriately to ensure that the needs of all children are met. Staff need to be aware of the different learning styles of their pupils and the use of active learning is expected at all stages. This may range from imaginative play in P1 to solving real life problems, using mathematical skills in the later stages.

Supporting Innovation and Quality Learning and Teaching

Wester Overton Primary School's SLT will track and monitor progress in numeracy and mathematics in all classes on a termly basis through tracking and forward plan reviews. Staff are provided with quality, constructive feedback and advice, in written and oral form. The SLT engage in regular professional dialogue with staff about pupils' progress. SLT will monitor progress through jotter monitoring and classroom visits. The focus of classroom visits will always be shared in advance, in line with South Lanarkshire Council guidance.

Additional Support for Learning

The classroom teacher should act as the first level of Additional Support intervention, and regular dialogue about children's progress with the SLT may mean that some learners require support additional to that provided by the class teacher, or interventions to be put in place such as Power of Two sessions with a support assistant.
Timetables will be reviewed by the SLT on a termly basis, on a greatest need basis. The SLT will regularly review the resources available in the school and will take regular feedback from staff to ensure that the resources required to deliver high quality teaching and learning are provided, as far as possible.
The SLT will ensure that Support Staff are effectively deployed, where possible, to support children's Numeracy and Mathematics learning.

Self Evaluation

In Wester Overton Primary School, we recognise and value the benefits of rigorous self-evaluation in informing continued improvement. All teachers are actively encouraged to reflect on their own daily practice to help ensure that optimum learning is maximised. Engagement with Quality Indicators is promoted regularly at whole school level throughout the school year and through moderation, individual classroom visits and forward planning meetings.

Career Long Professional Learning

Wester Overton Primary School's SLT will provide opportunities for staff to extend their skill and confidence in teaching Numeracy and Mathematics, through provision of quality CLPL experiences. Wester Overton Primary SLT acknowledges the quality CLPL to be found in providing time for staff to observe others' teaching practice, to engage in quality dialogue with other practitioners and to learn from each other and visitors to our establishment at in school in-service meetings.

South Lanarkshire Council's Progressive Framework.

Figure 1.2. South Lanarkshire Council's Progressive Framework.

Stage	Strategies		
	Addition	Subtraction	Multiplication/Division
Nursery	Counting On	Counting Back	
Primary 1	Counting On Reordering Doubles	Counting Back	
Primary 2	Counting On Reordering Doubles/Near Doubles	Counting Back	Repeated Addition
Primary 3	Counting on Reordering Doubles/Near Doubles Place Value – Partitioning Bridging through 10	Counting Back Reordering Place Value – Partitioning	Repeated Addition
Primary 4 (End of First Level)	Counting on Reordering Doubles/Near Doubles Place Value – Partitioning Bridging through 10 Friendly Numbers Compensation	Counting Back Reordering Place Value – Partitioning Place Value and Negative Numbers Bridging through 10	Repeated Addition Doubling and Halving Repeated Subtraction
Second Level At Second Level the children should be able to apply and use a variety of strategies. They should have developed an awareness of which strategies are more effective for a particular problem. The strategies should be revisited throughout the level through increasing complex calculations.	Counting on Reordering Doubles/Near Doubles Place Value – Partitioning Bridging through 10 Friendly Numbers Compensation	Counting Back Reordering Place Value – Partitioning Place Value and Negative Numbers Bridging through 10 Adjusting for Easier Numbers Keep a Constant Difference	Repeated Addition Doubling and Halving Repeated Subtraction Friendly Numbers Partial Products Breaking Factors into Smaller Factors Grid Method Partial Quotients Multiplying Up

Nursery – P1/2: Strategies explored would be with concrete materials such as ten frames, dot images & rekenreks.

P3- P7: Strategies explored would involve a gradual move away from concrete materials to more mental exploration