



**ST SERF'S PRIMARY SCHOOL**

**OUR GUIDELINES FOR:**

# **NUMERACY AND MATHEMATICS**



**ST. SERF'S** PRIMARY SCHOOL

Clackmannanshire Council

"Establishing good numeracy skills is necessary for successful learning across the curriculum and developing these skills needs to be of high priority for all children, young people and their teachers. Mathematics can offer particular opportunities for motivation. Children and young people can experience real satisfaction and enjoyment through, for example, fascination with patterns and successes in solving problems and puzzles. At the appropriate stage of their development, engaging with more abstract mathematical concepts encourages children and young people to develop important new kinds of thinking..."

*BUILDING THE CURRICULUM  
SCOTTISH EXECUTIVE*

## **RATIONALE**

Being numerate involves developing an ability and confidence in using numbers that allows us to function responsibly and contribute effectively to society. High quality numeracy skills are necessary for successful learning and are essential for life and work beyond school. Numeracy and Mathematics equip us with the skills we need to interpret and analyse information, simplify and solve problems, assess risk and make informed decisions.

## **AIMS**

The aims for the impact of our Numeracy and Mathematics Guidelines are:

- to offer all our learners access to meaningful learning experiences which enable skills progressions, taking full advantage of digital technologies;
- to ensure a consistent approach to the teaching and learning of numeracy and mathematics across the school;
- to create a numeracy-rich curriculum encouraging the belief that all our pupils are mathematicians;
- to improve the retention of mathematical knowledge, understanding and skills in our pupils;
- to develop a positive attitude to numeracy and mathematics, fostering high aspirations and an ethos of achievement.
- to ensure continuity and progression in learning through effective transitions at each stage.

# NUMERACY AND MATHEMATICS ACROSS LEARNING

Each of the four contexts for learning provide a range of opportunities for the development of numeracy skills. Making explicit links across learning will both enrich learners' experiences and deepen their knowledge and understanding.

Here is an example of Numeracy and Mathematics links across the curriculum.

## Literacy and Modern Languages

Counting, Problem Solving, Analysis, Mathematical Vocabulary, Data Handling, etc.

## Social Subjects

Percentages, Probability, Time, Data Handling, Scale, Co-ordinates, Ratio, Length, etc.

## Expressive Arts

2D Shape & 3D Objects, Proportion, Speed, Time, Fractions, Length, Tiling, Ratio, Scale, Volume, Symmetry, Measurement, etc.

## Health and Wellbeing

Speed, Distance, Time, Data Handling, Scale, Co-ordinates, Weight, Measure, Counting, etc.

## Religious and Moral Education

Number Systems, Data Handling, Impact of Maths on the World, etc.

## Sciences

Speed, Distance, Time, Algebraic Thinking, Data Handling, Length, Weight, Volume, etc.

## Technologies

Measurement, Time, Capacity, Algebraic Thinking, Decimal Fractions, Problem Solving, etc.

## LEARNING AND TEACHING EXPECTATIONS

The expectations of all staff in terms of delivering carefully planned, well-paced learning activities in Numeracy and Mathematics involve a blend of approaches including:

- Opportunities to explore, investigate, experiment and play;
- Outdoor learning opportunities to connect with the environment;
- Development of problem solving strategies;
- Use of relevant contexts which are familiar to our learners' experiences;
- Appropriate and effective use of digital technologies;
- Collaborative and independent learning;
- Making links across the curriculum;
- Effective use of "Assessment is for Learning" strategies;
- Consistent and correct use of mathematical vocabulary;
- Appropriately differentiated lessons and activities;
- Visual, auditory and kinaesthetic learning activities to accommodate the learning styles of all pupils;
- Effective links between home and school;
- A balance of written and mental strategies taught;
- Use of open-ended questions, requiring pupils to explain their thinking and prove their responses;
- Fostering a positive ethos and resilience through a "have a go" attitude where pupils are encouraged to learn from mistakes and celebrate each others' achievements;
- Use of an interactive maths wall displaying the relevant maths vocabulary, strategies and real-life applications;
- Appropriate use of hands-on and digital manipulatives across all stages to support learning;
- Opportunities to apply learning in new contexts;
- Feedback given in the moment, developing metacognition in learners leading them to recognise their next steps and how to take them.

## NUMERACY AND MATHEMATICS AT ST SERF'S

Commencing in the 2023/24 session, Big Maths Online will be the core resource for the planning, delivery and assessment of Numeracy and Mathematics at St Serf's Primary. The online Big Maths resource allows for effective planning, resource management, regular assessment and analysis of learners' progress. It will be supplemented by a range of other resources including (but not limited to) Leckie and TeeJay Textbooks, Clackmannanshire Numeracy Glow Tile resources and a variety of physical and digital manipulatives.

There are a range of guides found in Staff Share to help staff who are unfamiliar with Big Maths to understand and use the online resource. The basic structure for using Big Maths is:

- **BASELINE ASSESSMENT** at the start of the session. This initial assessment focuses only on basic skills known as CLIC (Counting, Learn Its, It's Nothing New and Calculations).
- **ADDRESS LEARNING GAPS** - it is crucial to address any learning gaps which arise from the baseline assessment before moving on. Pupils can only be successful if their basic foundations of maths are secure.
- **GROUP LEARNING** - Once learners are grouped following analysis of the Baseline Assessment, commence routine daily teaching and learning using the online resources and printable materials. These can be supplemented by other resources outwith Big Maths.
- **SAFE MATHS & BEYOND** - When you feel you and your class are ready, introduce SAFE Maths (Shape, Amounts, Fractions and Equations). Begin at the same stage as CLIC but be prepared to address any emerging learning gaps as before.
- **WEEKLY ASSESSMENT** - once per week (usually Friday but whatever works best for you and your learners) pupils should complete a CLIC, BEAT THAT and SAFE assessment. P4-7 pupils can do this online. Younger pupils may prefer to complete this on paper. Pupils should strive to beat their last score and not compare their score with other learners. If a pupil achieves 10/10 in any assessment three weeks running, they are promoted to the next level. All results should be recorded online for tracking and monitoring purposes.

## **EFFECTIVE PLANNING**

Planning using the Big Maths online resource is highly effective and saves teachers a lot of time. Following any assessment, teachers can easily see where the pupils' next steps in learning are and click on them to create a new maths lesson to teach that step. Teachers can choose the date to teach this lesson and the resources they wish to use.

It is essential that the online planning is used by all staff. If a member of staff is absent, the teacher covering their class can still access the online plans and resources and teach the lesson as planned. There is no need to duplicate short-term plans if all teachers have access to the online resource. If a supply teacher is brought in from outwith the school, they too can be given access to the online resource.

Each teacher should plan 4 full lessons per group per week with the fifth day dedicated to the Big Maths Beat That assessments. An additional lesson can be taught on day five if required.

## **GROUP LEARNING**

The Big Maths approach lends itself to learners working in groups. It is highly unlikely that whole class maths lessons would continue being the norm. For most classes, a carousel approach should work effectively with one group working with the teacher and the others engaged in group or individual tasks as appropriate. Up to three groups per class is advised but this depends on the needs of the class.

## **ASSESSMENT**

A range of assessment methods are to be used for Numeracy and Mathematics. This include, but are not restricted to:

- Baseline Assessments to establish learning groups;
- Weekly Big Maths Beat That CLIC, SAFE and LEARN ITS challenges;
- Big Maths Online Tracking and Monitoring resource;
- Teacher Professional Judgements;
- Standardised Assessments - SNSA in P1, P4 and P7, PUMA across the school, Sandwell;
- Moderation to include the use of Big Maths Curriculum Mapping document to identify links between progress in Big Maths and the Curriculum for Excellence Benchmarks.

## CONSISTENCY

It is essential that pupils are encouraged to use the correct mathematical vocabulary throughout their learning. This starts with how it is introduced to them by their teacher. Consistent use of correct vocabulary must be evident in the classroom. For example "sum" should only be used in the context of addition. "Chimney sum" is often used incorrectly whereas "column method" would be more accurate. More advanced vocabulary can be introduced as pupils progress through the primary stages but there is nothing wrong with exposing younger learners to accurate mathematical language.

The Numeracy Working Group have created a Glow Tile which is essentially a Mathematics Dictionary, clearly defining all maths concepts and strategies. This can be accessed by all pupils, parents and staff to aid understanding, support revision and offer useful learning tool in class lessons.



## RETENTION

The extensive range of mathematical concepts and skills can be a challenge for children to retain. It has been noted that current practice of planning for learning experiences in blocks (e.g. a week of fractions, then a week of measure etc) is not helping to resolve the retention issue.

Using Big Maths as our core resource will help to achieve this aim as each day allows for pupils to practice several concepts in one lesson outwith the main lesson intention.

Current research (Dylan Wiliam - <https://www.tes.com/magazine/archive/memories-are-made>) confirms that regular revisiting of taught concepts, especially at times when pupils are just about to forget, will aid with long-term memory. The Big Maths approach supports this theory.

At St Serf's we will continue to monitor the issue of retention and evaluate our practise to reflect current research and support our learners more effectively.



## RESPONSIVE PLANNING

The Big Maths approach allows for a much greater level of responsive planning rather than following a yearly framework for teaching maths concepts. It is the class teacher's responsibility to ensure the breadth of coverage of Es and Os is achieved throughout the year, but day-to-day planning should be responsive to the learners' needs at the time.

## PUPIL VOICE

A cross-section of pupils from across the school were invited to share their views on their learning in Numeracy and Mathematics.

I really enjoy learning in maths when we have stations that we can go round. I like doing lots of different activities.

-P4 Pupil

I like it when my teacher is able to sit near me to give me a hand when it gets tricky.

-P6 Pupil

I prefer to use my Chromebook to do maths rather than use a jotter all the time.

-P7 Pupil

Maths can get boring. It's much better when my teacher does different things like games or Google Classroom tasks.

-P6 Pupil

I quite enjoy being challenged. I want to do harder things but in a fun way.

-P4 Pupil

## **MONITORING AND REVIEW**

The current version of these guidelines was completed in June 2023. They are to be reviewed by all members of teaching staff and updated as necessary.

Thereafter they are due to be updated on an annual basis.

**NEXT REVIEW DATE: June 2024**