Portreath Primary School

Maths Policy

This policy was reviewed September 2024 and will need reviewing September 2026

At Portreath School, we understand that mathematics is a creative and highly interconnected subject that is essential to everyday life, critical to science, technology and engineering and necessary for financial literacy and employment. A high-quality mathematics education provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics and a sense of enjoyment and curiosity.

Key Curriculum Drivers

Our school motto is : Be curious, creative and courageous, to grow and make a difference. Our maths curriculum plays a huge role in promoting this as at the heart of our mathematical journey, we are driven by curiosity, creativity, and courage. We challenge children to be **curious** by instilling the desire to explore the unknown, ask questions, and uncover deeper truths behind mathematical concepts. We embrace **creativity**, approaching problems with innovative thinking, and discovering diverse methods to solve complex challenges. We encourage children to work **courageously** by facing uncertainties head-on, unafraid to take risks, make mistakes, and grow through every attempt. We aim to foster a dynamic and inclusive environment where exploration and bold thinking lead us to unlock the limitless potential of mathematics

Aims

- To foster positive attitudes towards Mathematics by developing pupils' confidence, independence, persistence and co-operation.
- To enable pupils to be proficient, competent and confident with numbers and measures, and to have an ability to solve number problems in a variety of contexts.
- To develop an awareness of the applications of Maths in their everyday environment and to realise that Maths will frequently help to solve everyday problems.
- To encourage automaticity of "basic" number skills and number facts to allow fluency of calculation.
- To encourage children to reason and problem solve mathematically by following a line of enquiry, conjecturing relationships and generalisations and to develop an argument, justification or proof using their mathematical skills.
- To promote use of the language of Maths to talk about the subject confidently and express their ideas fluently.

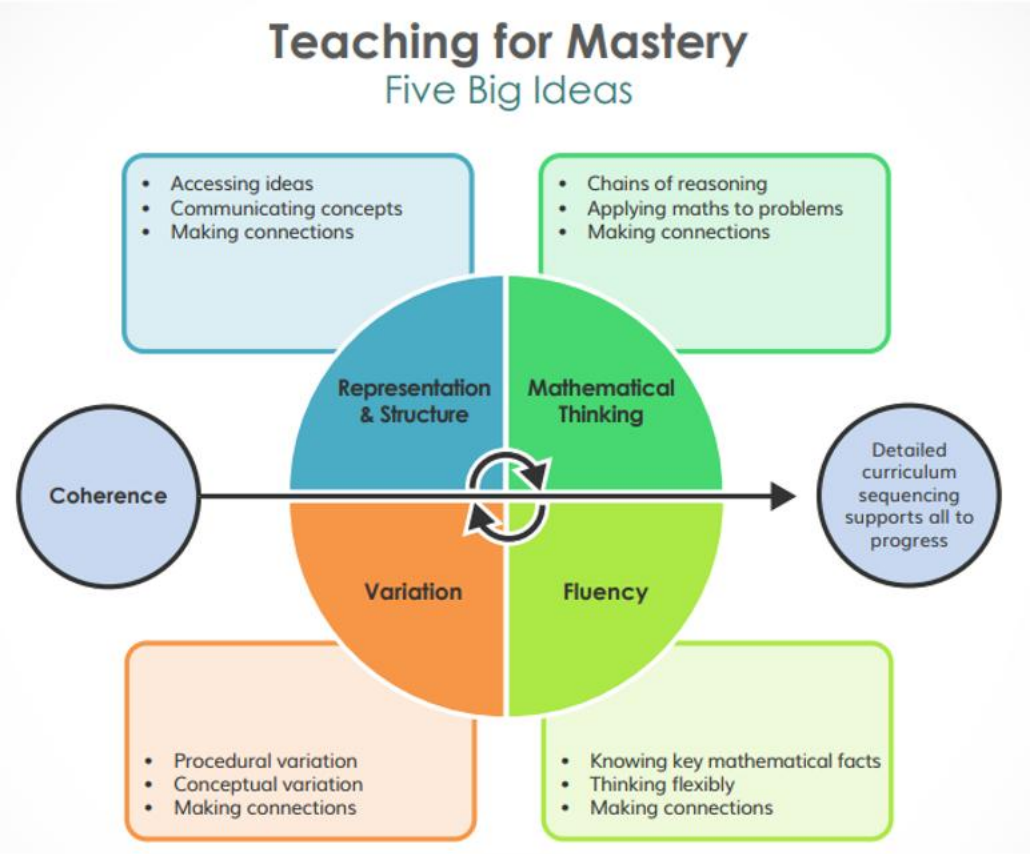
At Portreath School we strive to make maths relevant to everyday life and as exciting as we can. All children will receive dedicated maths sessions each day building on skills that progress throughout the school but it is also taught in many cross-curricular situations too including active maths and outdoor learning.

Guidelines

Portreath School believes that mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are organised into apparently distinct domains / blocks but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. Opportunities are built into our wider curriculum to provide opportunities for children to also use and apply

their mathematical knowledge within other subjects.

At Portreath we promote a mastery approach within maths, ensuring the five big ideas of coherence, representation and structure, mathematical thinking, fluency and variation are all lynch pins embedded in our planning. The expectation is that the vast majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly ('rapid graspers') should be challenged through being offered rich and sophisticated problems and carefully planned, high order questioning. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.



Throughout the school blocks of learning will be taught using the **Concrete – Pictorial – Abstract** model. The CPA model builds on children's existing knowledge by introducing abstract concepts in a concrete and tangible way. It involves moving from concrete materials (doing stage) - during this stage, students use concrete objects to model problems, to pictorial representations (seeing stage), where visual representations of concrete objects are used to model problems and finally to the abstract (symbolic stage) where children are introduced to the concept at a symbolic level, using only numbers, notation, and mathematical symbols (for example, +, –, x, /)

Planning and organisation

At KS1 and KS2 teachers use the National Curriculum for Mathematics (2014) as the basis of our mathematics teaching to ensure complete coverage of all aspects of mathematics. To supplement this further, we use our Agreed Approach to Calculations Document which guides our children through the four operations from EYFS to Y6. (See appendix of calculation policy).
Teachers use the small steps of progression planning provided by the WhiteRose maths hub as a

framework alongside the NCETM curriculum prioritisation materials to ensure that development of children's learning takes place over time and that the curriculum is covered systematically. Lessons are usually planned on power point slides. Lessons include an opportunity to reactivate previous learning, activities that develop fluency and opportunities to problem solve and reason. Further information about the lesson structure can be found in: Appendix 1 Guidance on the key features of a lesson.

The approach to the teaching of mathematics within Portreath School is based on four key principles:

- a daily mathematics lesson to focus on place value, number and calculations or GSM (geometry shape and measure)
- a clear focus on interactive direct teaching alongside exploration work with the whole class and groups coupled with investigative elements. There is a strong emphasis on high quality questioning, use of correct vocabulary and sentence stems
- an emphasis on mental calculation, using and applying and depth of learning
- a commitment to developing the mastery approach, whereby all children have access to and experience of, first quality teaching of their year group's small steps to include daily challenge

EYFS

Mathematics is one of the seven areas of the early years foundation stage and is used to develop a child's confidence and ability with number but also to encourage their understanding of patterns, shapes, space and measures. Planning for this is guided by the White Rose small steps for EYFS and the NCETM Numberblocks support materials. The Mastery for Number programme is used to promote key skills and automaticity four times a week. As a school we have also developed a list of the key skills children we would like to master by the end of Foundation Stage in order for them to be fully prepared to access learning in Year 1. The children are given access to daily mathematical challenges through continuous provision and in addition, participate in adult led mathematics sessions in preparation for Year One. The teachers follow the calculation policy to ensure continuity with the Key Stage One setting.
Appendix 2 Key skills to start Year 1

Depth of Learning

Depth of learning is a fundamental principle to our mathematics teaching at Portreath. Children explore mathematical challenges through a range of experiences; using manipulatives, representations and visual prompts to scaffold their understanding of mathematical ideas. Through careful planning and preparation, we aim to ensure that throughout the school children are given opportunities for:

- daily practice of basic written and mental arithmetic to ensure fluency of number facts
- problem solving, both across the curriculum and in every lesson
- individual, group and whole class discussions and activities
- open and closed tasks, providing opportunity to investigate mathematical concepts
- exploration of a range of manipulatives and representations
- development of conceptual understanding and exploration of complex problems
- daily challenge through carefully planned variation
- Using jottings to explore ideas and thinking

SEND

Pupils with special educational needs may receive additional support through:

- Scaffolding and use of manipulatives
- Provision maps
- Targets and programmes set in Individual Learning Plans (ILPs);
- Additional teaching time both in an outside the classroom (post/ pre teach);
- Carefully targeted and planned interventions
- Adapted resources e.g enlarged worksheets, coloured paper/ overlays, adapted 99 club

Assessment and record keeping.

Teachers are expected to make regular assessments of each child's progress and to record these systematically. The data should then be used to inform planning and identify and address any misconceptions. Assessment in mathematics is formative and summative and allows the S.L.T to track each child's learning journey termly, throughout their time at Portreath School.

Formative assessment

Teachers use children's mathematics books and observation and questioning to assess children's learning daily and to ensure mastery of the curriculum is achieved by all. Wherever possible live marking and instant feedback is promoted. Post Teach (keep up sessions) is planned for children who need to spend more time on a concept to master it efficiently and this is evident in children's books. The assessment tool Sonar is used to keep a record of termly teacher assessment. The use of gap analysis should then inform future teaching.

Summative assessment

In years 1 – 6, White Rose assessments are administered at the end of year teaching block to support Teacher's judgement of each child in relation to each small step. The Whiterose end of term tests are administered three times a year to support teachers' judgement of the mathematical level of each child and this, combined with knowledge of the child and book evidence, supports our triangulated approach to assessment. Attainment steps are recorded termly by the class teacher and analysed by the maths leader and headteacher to ensure that the progression of each child is rapid and that the expected progress (see assessment policy) is being met in each cohort. Children carry out National end of key stage assessments Year 6 and the optional end of key stage assessment in year 2. Year 4 complete the multiplication tables check.

Cross curricular links

Throughout the whole curriculum opportunities are planned to teach, extend and promote mathematics. Teachers seek to take advantage of all opportunities through cross curricular mathematical challenges.

Equal opportunities

It will be ensured that all children will have equal access to the full Mathematics curriculum irrespective of age, ability, culture or gender.

Co-ordination

The role of the Maths Leader:

- Take the lead in policy development and implementation.
- Ensure progression and continuity in Maths throughout the school.

- Monitor and evaluate standards of achievement in Maths and advise the SLT on action.
- Monitor the Maths learning environment and resources.
- Support and monitor teaching and learning in Maths.
- Produce yearly action plan for Maths.
- Termly review of progress against targets in Maths action plan and School Development Plan.
- Organisation of observation of Maths lessons, learning walks, drop-ins, sampling of books, pupil conferencing etc
- Facilitating of moderation across year and phase groups.
- Support colleagues in development of plans.
- To organise personal C.P.D for staff according to need.
- Take responsibility for the purchase and organisation of resources.
- Keep up to date with developments in Maths education and disseminate information to colleagues both informally and as INSET and to parents as appropriate.

Monitoring – see monitoring timetable.
In order to ensure continuity in both planning and the quality of the work a rigorous monitoring timetable involving both S.L.T and governors is in place. This includes:

- Regular observations take place across the year.
- Book scrutinies will take place at least once a term.
- Pupil conferencing will also take place at least annually.
- External moderation through systems such as S.I.L.C.

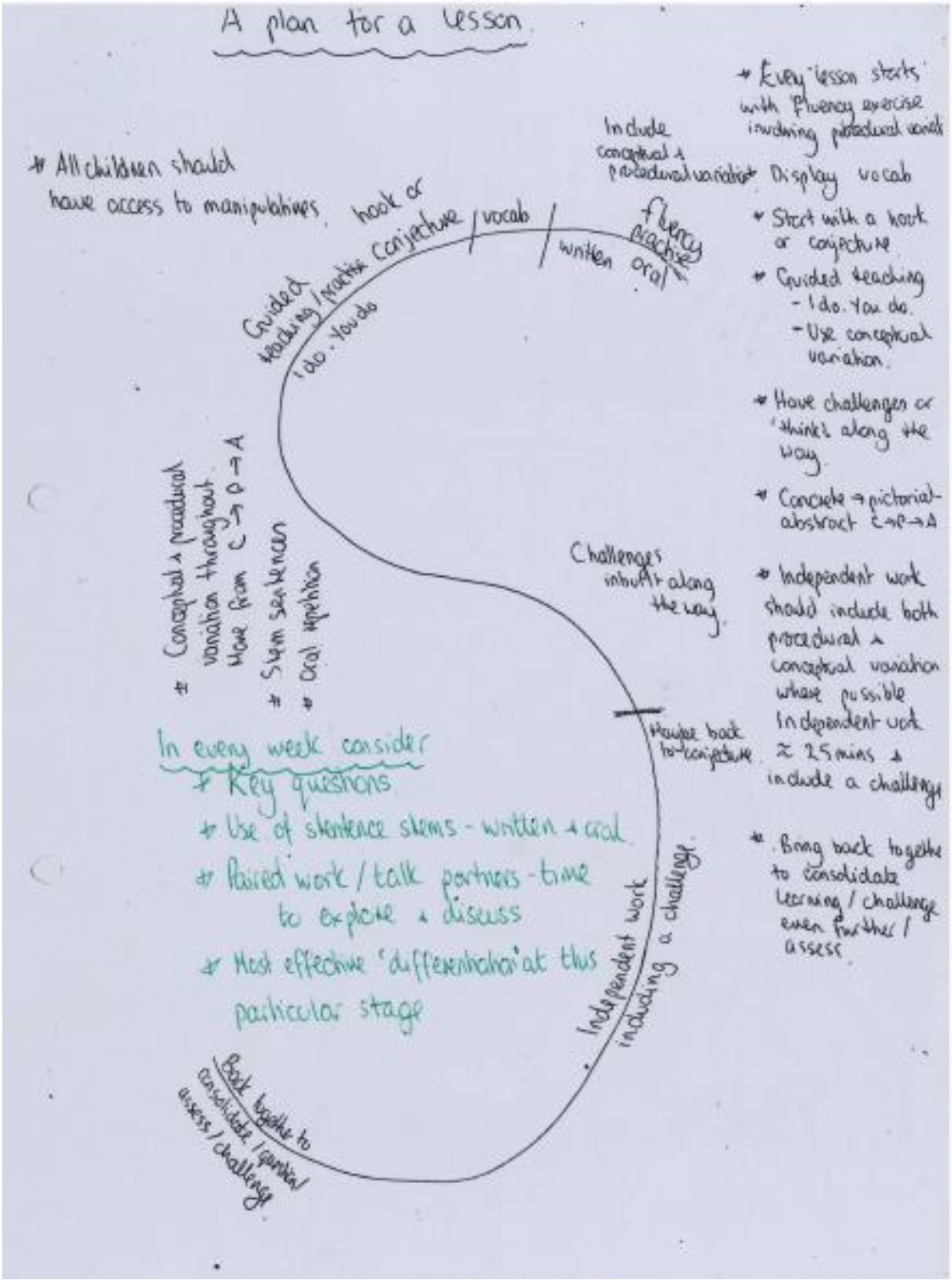
The focus of this monitoring will link with the School Development Plan, the Maths Action Plan and from points noted in previous observations and book scrutinies.

Time allocation
The designated daily maths session is timetabled to be around 1 hour a day.
In addition to the 1 hour designated daily maths lesson each class will also have a "quick maths" session of 10-15 minutes at least 4 times per week. This concentrates on practising recall, mental strategies, automaticity and generally developing good number sense. In EYFS Y1, Y2, Y4 and Y5 this takes to form of the "Mastering Number" programme whilst in Y3 the Number Sense programme is used. In Y6 a variety of number skills are rehearsed and reactivated in this time.
It is expected that teachers ensure that time is allocated for post –teach (keep up sessions) to take place in all year groups . These will usually take place on the same day as the first teaching and will often be led by a teaching assistant.
All children in year 1 -6 involved in the motivational 99 club once a week at a time to be chosen by the class teacher outside of the maths lesson.

Future Development
The school's development plan contains details of the targets and timescale for continuing development in Maths.

Calculation Policy
Portreath School has a separate, more detailed, calculation policy.

Appendix 1 - Guidance on the key features of a maths lesson



Appendix 2: Key skills to start year 1

Number	
Development matters statements.	To get them ready to access Year 1 curriculum(Ref Ruth Mertons)
• Recognises some numerals of personal significance.	
• Recognises numerals 1- 5.	• Recognises some 2 digit numbers related to their own experience e.g Daddy is 34. I live at number 56 etc.
• Counts up to 3 or 4 objects saying one number name for each item.	
• Counts actions or objects which cannot be moved.	
• Counts objects to 10 and beginning to count beyond 10.	• Count forward to 100 in unison with other children. • Count backwards from at least 20.
• Counts out up to 6 objects from a larger group.	
• Selects the correct numeral to represent 1 to 5 then 1 to 10 objects.	• Begin to compare numbers e.g knowing that 6 is bigger than 4
• Counts an irregular arrangement of up to 10 objects.	• Subitise numbers up to and including 6 : do children recognise arrays, dots on a dice etc ***without*** counting. • Match numbers to fingers e.g hold up 7 fingers (without counting them)
• Estimates how many objects they can see and checks by counting them.	
• Says the number that is one more than a given number.	
• Finds “one more” or “one less” from a group of up to 5 objects … then 10 objects.	• Know the next number or previous number from any number up to at least 20.
•	• Know the story of 6 (3+£, 2+4, 1+5, 6+0) and the stories of 5,4 and 3
• In practical activities and discussion beginning to use the vocabulary involved in adding and subtracting.	• Starting to record written calculations – shared to start off with aiming for independent.
• Records using marks that they can interpret and explain.	• Write the numbers 1-20

• Begins to identify own mathematical problems based on own interests and fascinations.	
Early learning goal. **Children count reliably with numbers from 1 to 20, place them in order and say which number is 1 more or 1 less than a given number. Using quantities and objects, they add and subtract two single digit numbers and count on or back to find the answer. They solve problems including doubling, halving and sharing.**	
Shape, space and measure.	
• Beginning to use mathematical names for "solid" 3D shapes and "flat" 2D shapes and mathematical terms to describe shapes – e.g this one rolls, this one has corners.	
• Selects a particular named shape.	
• Can describe their relative position such as "behind" or "next" to.	
• Orders 2 or 3 items by length or height.	
• Orders 2 items by weight or capacity.	
• Uses familiar objects and common shapes to create and recreate patterns and build models.	
• Uses everyday language related to money.	• Recognition of 1p,2p,5p,10p,20p,50p and £1 coin.
• Orders and sequences familiar events.	
• Measures short periods of time in simple ways.	
•	• Spots and continues patterns.
Early Learning Goal. **Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.**	