PORTREATH SCHOOL
Maths Policy

This policy was reviewed at a staff meeting on 20.03.19

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This Policy needs reviewing March 2021

PORTREATH CP SCHOOL

MATHS POLICY

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 children to reason 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 a dedicated maths session 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. They should also apply their mathematical knowledge to science and other subjects.

The expectation is that the 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, /)

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.

The National Curriculum

Knowledge, Skills and Understanding

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). This emersion in mathematics from a young age, ensures that children become competent in mathematics, fostering their ability to

- secure number facts, such as number bonds and multiplication tables
- competently use manipulatives and representations to access challenges
- make sense of problems, including non-routine 'real' problems
- develop spatial awareness and an understanding of geometry, statistics and measure.

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

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.

Teachers' planning and organisation

The approach to the teaching of mathematics within Portreath School is based on five 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

Teachers use the small steps of progression planning provided by the WhiteRose maths hub to ensure development of children's learning takes place over time and that the curriculum is covered systematically. Teachers' planning is supported by high quality text books and web based resources such as 'Maths No Problem,' 'Classroom Secrets", and resources and video material from the NCETM. Lessons are usually planned on SMART slides .

Appendix 1 Guidance on the key features of a lesson.

EYFS

Teaching in EYFS is based on objectives in the 'Curriculum Guidance for the Foundation Stage;' this ensures that they are working towards the 'Early Learning Goals for Mathematics'. Planning is guided by the White Rose small steps for EYFS. 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. Evidence for maths learning can be found in learning journals as well as maths books.

Appendix 2 Key skills to start Year 1

SEND

Pupils with special educational needs may receive additional support through:

- Targets and programmes set in Individual Education Plans (IEPs);
- Additional teaching time both in an outside the classroom (post/ pre teach);
- Mathematical resources and materials;

- Carefully targeted and planned interventions- 'Closing the Gap with Numicon' (EYFS and Y1) and 'Counting to Calculate' (Y2 and KS2)
- Adapted resources e.g enlarged worksheets, coloured paper/ overlays, adapted 99 club

Assessment and record keeping.

Using the 2014 curriculum materials, 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. Target Tracker is used to keep track of ongoing learning using the statements created by Crofty Mat – teachers should keep these up to date and current by assessing at the end of each block (as a minimum). 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. Twice a year NFER tests are administered 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 half termly on Target Tracker 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 in Year 2 and Year 6 . Year 4 will complete the planned multiplication assessment.

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:

- Full lesson observations will take place at least once (??) a year.
- Regular "drop in" observations take place across the year.
- Book scrutinies will take place at least once a term.
- Pupil conferencing will also take place 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 previous E.B.I.s

Time allocation

In Key Stage 1 the designated daily maths session is timetabled to be around 1 hour a day. There is also an emphasis of " 5 minute fillers" to keep mental maths skills bubbling.

In Key Stage 2 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 and mental strategies and is also used to consolidate previous learning.

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 (Class 1 year 1 do this as soon as they are ready).

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FUTURE DEVELOPMENT

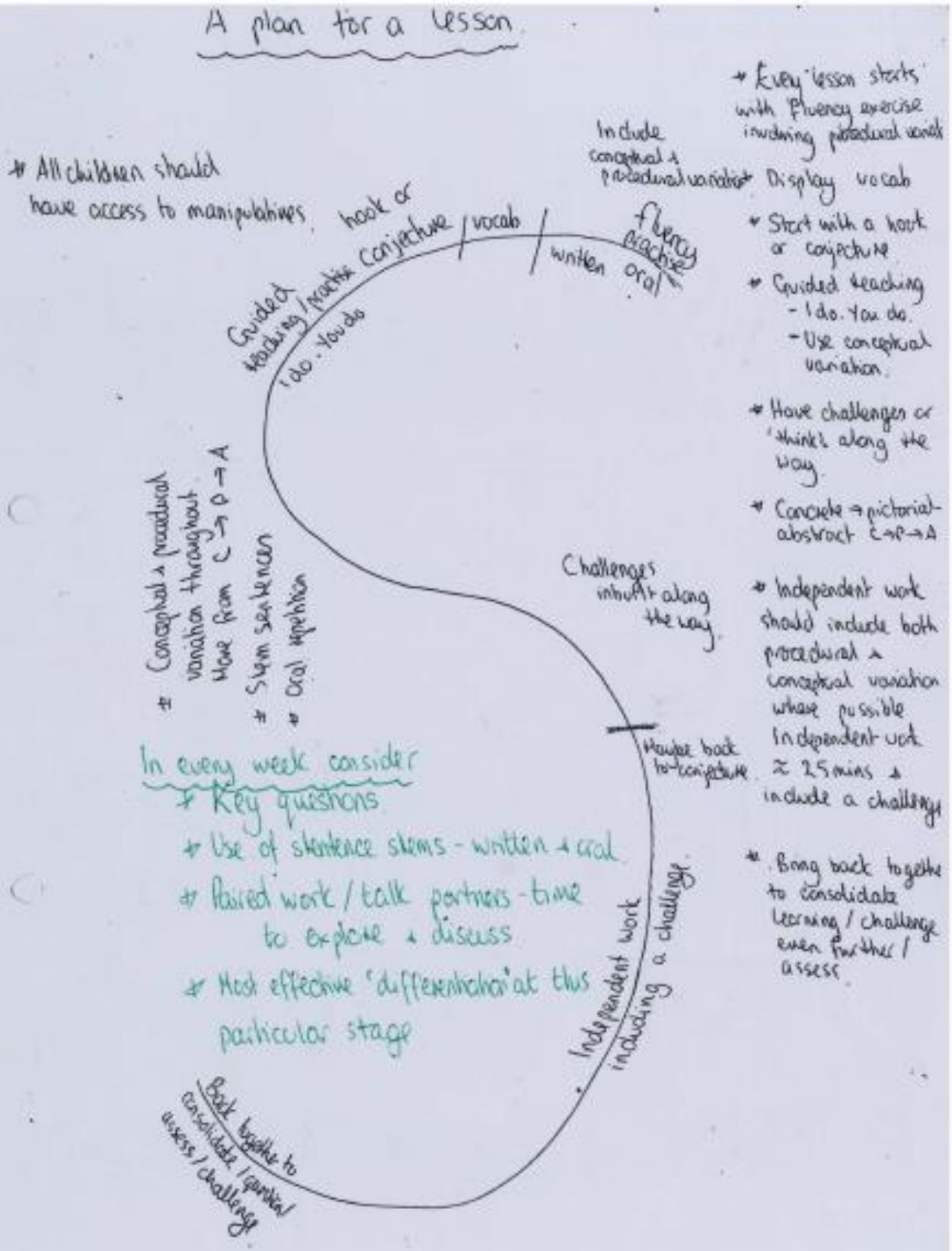
The school's development plan contains details of the targets and timescale for continuing development in Maths.

CALCULATION POLICY

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

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

A plan for a 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.**	