La Mare de Carteret Primary School

Numeracy Policy

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Our Vision and Values



LMDCP working together with the entire community to ensure the rights of the child are met by providing a safe, nurturing and challenging education

Aims of the policy

To ensure children are taught a broad, balanced, engaging and progressive curriculum that inspires them to want to learn

To ensure the four outcomes of the Children and Young People's Plan 2019 is achieved:

Included and Respected
Safe and Nurtured
Achieve individual and economic potential
Healthy and Active

Principles of the policy

The principles of this policy are to ensure all children are encouraged to enjoy mathematics and become more enthusiastic mathematicians by developing their skills, knowledge and understanding through practical experiences, which have relevance and purpose in everyday situations. It is important that children develop the skills of Numeracy to become lifelong learners. They should be able to apply the skills in different situations across the curriculum and in daily living outside school.

The aims of teaching mathematics are to:

- promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion;
- develop a numerate environment where mathematical risk-taking, creativity and logical thought are

encouraged in order to develop independent learners;
- promote confidence and competence with numbers and the number system;
- develop the ability to solve problems through decision making and reasoning in a range of contexts;
- develop a practical understanding of the ways in which information is gathered, presented and interpreted;
- explore features of shape and space and develop measuring skills in a range of contexts;
- develop mathematical communication through speaking and listening, practical activities and recording work;
- to understand the importance of mathematics in everyday life including aspects of Financial Literacy.

Organisation of the Maths Curriculum

Learning and Teaching Styles

The school uses a variety of learning and teaching styles in mathematics and implement a variety of engagement strategies (***'Strategies to Engage'***) that cater for different types of learners - direct teaching, use of concrete materials and models and images, use of computer software, playing games, effective questioning, whole class interaction, children asking and answering questions, explaining their thinking and through pupil demonstration. Growth Mindset is encouraged in all lessons across the curriculum (***Engaging Learning, Active Teaching and Informative Assessment policy.***)

A range of suitable learning opportunities are planned and used to cater for different abilities – differentiated group work, children working independently, in pairs, groups and as a whole class. The use of open-ended investigations provides excellent opportunities for differentiated outcomes. Pupil groupings are organised to provide the best possible learning and will change depending on the context. Learning Support Assistants are used to support or extend identified children.

It is important that children are allowed to explore Maths and present their findings not only in written form but also visually and verbally; to that end the school adopts the CPA approach: concrete, pictorial, abstract within their daily teaching. Concrete, Pictorial, Abstract (CPA) is a highly effective approach to teaching that develops a sustainable understanding of maths. The CPA approach builds on children's existing knowledge by introducing abstract concepts in a concrete and tangible way. It involves moving from concrete materials, to pictorial representations, to abstract symbols and problems. This will allow the children to experience the physical aspects of Maths before finding a way to present their findings and understandings in a visual form before relying on the abstract numbers.

Concrete step of CPA

Concrete is the "doing" stage. During this stage, students use concrete objects to model learning. The CPA approach brings concepts to life by allowing children to experience and handle physical (concrete) objects. This can include everyday objects such as pieces of fruit, buttons etc or Numicon, Base 10, cuisenaire rods, place value counters to name a few.

Pictorial step of CPA

Pictorial is the "seeing" stage. Here, visual representations of concrete objects are used to model problems. This stage encourages children to make a mental connection between the physical object they just handled and the abstract pictures, diagrams or models that represent the objects from the problem. It helps children visualise abstract problems to make them more accessible for example, the part, whole model or bar model.

Abstract step of CPA

Abstract is the "symbolic" stage, children will not progress to this stage until they have demonstrated that they have a solid understanding of the concrete and pictorial stages of learning. The abstract stage involves the teacher introducing abstract concepts (for example, mathematical symbols).

Key principles of CPA delivery

- The abstract should always be delivered alongside the concrete materials and place value mats used where appropriate.
- Sequence of teaching should be as follows - '*I do one, we do one, you do one*'.
- Equipment should always be out and on tables, available to all

Curriculum Time

In line with national recommendations mathematics lessons are taught daily. Within Year 1, direct teaching of maths increases gradually throughout the year to 50 minutes per day in preparation for Year 2. From Year 2 to Year 6, daily maths lessons of 50 minutes are taught according to the school's time allocation map.

In addition to a timetabled mathematics lesson, Key Stage 1 and 2 teachers will plan for an additional 10 minute (KS1) and 5 minute (KS2) slot dedicated to early counting, multiplication, times tables and related division facts. This supports current practice within the UK and recent findings within our school. A variety of teaching tools, strategies and equipment such as, songs, circle games and card games can be used to deliver the times tables top-ups however, only 2 out of 5 activities per week are to be ICT/device based.

The school teaches mathematics using a 4:1 format for lesson planning. The 4:1 approach puts more emphasis on fundamental basic number skills as well as the using and applying of those skills. Four days per week are focused on number to consolidate the basic skills of maths. Within these four days any problem solving involving calculation is addressed. One day is dedicated to teaching strategies for solving problems, puzzles or tasks. Teachers can use their discretion when planning for problem solving, for example carry over a problem solving lesson to the following week if a number lesson is required to consolidate or build on learning already taking place. Shape, space measures and handling data is taught in accordance with the Yearly Long Term Overviews. Additional teaching of specific skills, such as, Data Handling is encouraged via links to foundation subjects but must be mindful of teaching skills appropriately.

Every mathematics lesson should include a short, pacey starter that addresses mental maths skills. Each week, at least 3 out of the 5 mental starters should address passport objectives appropriate for the children in the class and be referenced on the planning. These are to be taught in addition to the 5/10 minute multiplication/division slots.

Opportunities for cross-curricular links are made when appropriate, which provides learning in other areas of the curriculum to support and reinforce children's mathematical learning. The teaching of Mathematics contributes significantly to children's understanding of other curriculum areas.

Planning

Yearly Overviews and Medium Term Plans are available for Years 1 - 6. These documents were created using the Guernsey Unit Plan Curriculum (which uses the Revised National Numeracy Strategy), New Bailiwick Curriculum White Rose Maths, NCETM Spines. They ensure progression across the full range of mathematical skills and practices and that learning objectives are systematically revisited from term to term. Teachers are also expected to teach Financial Literacy Skills, as outlined in the Bailiwick Curriculum. These may be linked to other areas of the curriculum or taught as stand alone topics.

There are three phases of curriculum planning – long, medium and short term. Long term planning is taken from the Yearly Overview for each year group, which identifies key areas of coverage for each year group. Medium term planning gives details of the main teaching objectives for each term. Further planning documents are available if a teacher feels they need more support. Short term planning is completed weekly by staff following a school format using the 4:1 format for lesson planning over a 5 day week with the exception of year 1, who follow a 3:1 model until the summer term.

LMDCP Written Calculations Policy should be used to plan for the teaching of written calculation methods. The policy clearly sets out the stages of mathematical development in children's recording of written calculations using a CPA approach. Methods should be taught in a methodical, progressive way taking into consideration

children's current teacher assessment levels. Use of the Calculation Policy is monitored regularly by the Maths Subject Leader. The Policy is reviewed and updated to reflect any changes and developments in effective teaching and learning in maths following discussions with Island moderators, EDOs and LMDCP staff. Internal and external moderation discussions will include evidence based on LMDCP Written Calculations Policy.

Foundation Stage

Throughout the Reception year, mathematical concepts are introduced through practical activities such as number songs and rhymes, role-play, cooking, construction toys, sand and water play and number games. Planning for mathematics within the Early years is guided by the ***'EYFS Statutory Framework'*** (2014) and topics are chosen with children's interests in mind. There is a balance of adult-directed and child initiated activities, with daily whole class teaching sessions, group work as well as one-to-one teaching. Mathematical concepts that are introduced through adult-directed sessions may be consolidated through children's independent play. Through continuous and enhanced provision there are opportunities for children to consolidate and extend their understanding of mathematical ideas. Children are encouraged to explore their own methods for solving and recording mathematical problems, before being introduced to more formal methods in preparation for their transition to Year One. Children's progress and attainment in Mathematics is assessed in the Autumn and Spring terms against the statements outlined in ***'Development Matters in the Early Years Foundation Stage'*** (2012). In the Summer term they are assessed against the Foundation Stage profile statements.

Use of ICT

ICT should be used as a tool to enhance the teaching and learning of mathematics. Staff have access to the use of Numicon software, STOPS problem solving, remote control tools, Beebots, IPads etc to support their teaching.

Use of Calculators

Pupil's should be taught to develop their capabilities with calculators and provide an understanding of when a calculator is a useful tool to use.

Reception

Should use calculators as part of role-play.

Year 1

Should use calculators as part of role-play. By the end of the year 1, children should be able to turn the calculator on and off, recognise numerals on the display and find the symbols +, - and =.

Year 2

Should begin to use the calculator to check answers, when appropriate. By the end of year 2, children should be able to use a calculator with some confidence; they will begin to know when it is appropriate to use a calculator and begin to know some of its functions.

Year 3

Year 3 children should have opportunities to use a calculator regularly in maths lessons. By the end of year 3, children should be able to use a calculator with confidence to check answers and solve problems.

Year 4

Year 4 children should have opportunities to use a calculator regularly in maths lessons. By the end of year 4, children will know when it is appropriate to use a calculator and understand most of its functions.

Year 5 and 6

Children should now be familiar with the basic functions of a calculator and be familiar with a variety of different calculators.

Marking / Feedback / Presentation

Children's learning is marked according to the school's agreed ***Engaging Learning, Active Teaching and Informative Assessment policy.***

Recording in mathematics

Children are taught calculation strategies appropriate for their current level of understanding in mathematics and in line with their national curriculum level according to their teacher assessment. Children are encouraged

to use both mental strategies and written strategies when appropriate.

All children are encouraged to work tidily and neatly when recording their learning in accordance with the school's agreed presentation policy. When using a squared book one square should be used for each digit with the exception of Year 1, who use larger squared books until appropriate to move to smaller squares. Children should write in pencil for mathematics.

Resources

Each classroom has a range of resources to support the teaching of mathematics and these should be easily accessible for all learners to use when needed. Years 1 -6 should have a range of Numicon, Base 10, Base 10 Counters and Cuisenaire Rods and Numicon in Reception to support and enhance learning and teaching in maths. All classrooms have a variety of number lines, hundred squares, tens frames and place value arrow cards and a wide range of appropriate small apparatus to suit the needs of learners in the class.
Further resources relating to key whole school topics for example 'Fractions' are kept in the maths cupboard along with teacher reference books and research documents. In addition, there are a range of maths themed story books available in the library.

A range of software / Internet resources are available to support teaching and learning, including Numicon software, ***Times Tables Rockstars*** and STOPS problem solving resources ***www.stopsproblemsolving.co.uk*** . There are Smart Boards/TV's in every classroom. Class teachers can book out the laptops, Chromebooks or IPads to use in lessons when appropriate.

The children should be explicitly taught how to use resources to support their learning and progressively encouraged to select resources suitable for the task in which they are engaged. The Mathematics Subject Leader should be informed when equipment needs replacing or supplementing.

Display

As mathematics is a core subject, each classroom must have a dedicated maths display. The content will vary depending on the year group. However it should, for example, include an appropriate number line, examples of calculation strategies currently being taught, key mathematical vocabulary and some recent examples of children's learning.

Maths Home Learning - Maths Passports and Travel Bags

The school targets children's mental maths skills using ***'Maths Passports'***. Each passport contains a series of mental maths objectives. The passports are broken down into continents and children will work through each of the continents as they go through the school. All pupils from Year 1 to Year 6 have a 'Maths Passport' that meets their learning needs. The children are assessed once a week by a volunteer or LSA who asks a set list of questions from the 'Passport Testing File'. The children are expected to answer approximately 10 questions in 30 seconds (45 seconds for children accessing DDC intervention) and their passport is stamped when they are able to do this. A child must receive three stamps for each target for it to be fully achieved. Once they have successfully completed each target three times, they will complete three mixed tests with their class teacher to ensure they are ready to move onto the next passport. These should also be carried out weekly. Example questions for each target are available for parents to access on the school website. Once a child achieves a passport then a certificate is presented to them in assembly. In discussion with the MSL, class teachers can use their discretion with the frequency and fast tracking of passports and targets for specific children in order to meet individual learning needs. For example, if a child joins our school mid-way through the year.

In Reception a child will be given a pre-passport 'travel bag' by their class teacher. The children will begin to collect items to put in their travel bag as and when they complete the targets that are listed. The children must show that they are confident in their understanding of the concepts before they collect an item for their travel bag from the MSL. Once a child has collected all of the items in their travel bag then they are deemed ready to 'travel'. When they are ready, they will be given their first Numeracy Passport (which will be Europe) and they will begin their journey. All Reception children will have started their travel bags by October half term, which shall go home for daily practice.

Passport success is celebrated by presenting a half termly 'Frequent Flyer' award to a pupil in each class that the teacher feels has worked hard, persevered and practiced their passport regularly.

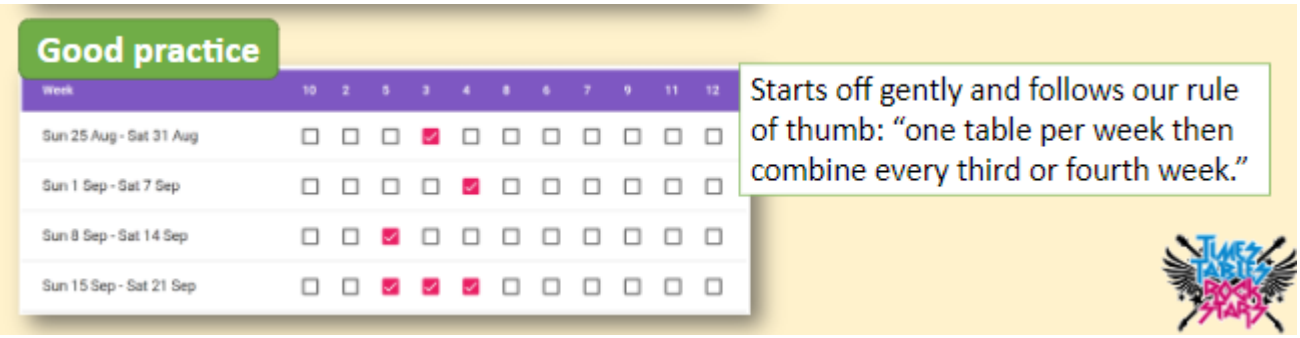
Passport progress is tracked via the Passport Assessment Grid. This grid is to be updated regularly by class teachers and handed up to new class teachers at the end of each academic year.

Maths Home Learning – Times Table Rockstars

The school subscribes to an online maths programme, ***Times Tables Rockstars***, which allows children in Years 2 - 6 individual access to a personalised times tables learning platform. Concepts and skills of multiplication and related division facts will have been taught in the classroom, and activities and games can be released by the class teacher for children to use either in school or at home to practise and consolidate those skills.

In Years 3 - 6, 20 sessions (20 minutes) of specific activities, that class teachers would like children to complete at home, will be set every Friday by 3.00pm to be completed by 8.30am the following Wednesday. This will be set using the Garage option and must follow on from the learning focus that is taking place in the classroom that week in order to revisit and consolidate facts. Discretion can be used for children who may need different content set to meet individual needs. Recurring sessions can be set for the duration of a half term but only a half term as a maximum at any given time. Within years 5 and 6, homework that hasn't been completed by the Wednesday 8.30am deadline will result in children needing to attend homework club on a Friday lunchtime.

The homework will be set based on the classroom focus for the week as per the program guidance -



In Years 3 - 4 class teachers will keep a note of children who have not completed their homework on a weekly basis however, they will not attend homework club on a Friday. Homework will need to be completed the next time they log in and use the programme before they are allowed to access any of the other playing options.

In addition to homework club on a Friday, there is a weekly TT Rockstars home learning club every Monday lunchtime, which ensures children with limited internet or access to devices at home are not excluded from using the resource.

The programme is highly motivational with opportunities for children to earn coins, which can be redeemed virtually at the times tables shop. Every child has the opportunity to create their own Avatar and can enjoy a range of individual and team games and challenges.

TT Rockstars can be used as a teaching and learning tool in the classroom on Wednesday, Thursday and Friday only.

Assessment

Assessment takes place in line with the agreed school's assessment policy. Assessment is regarded as an integral part of learning and teaching and is a continuous process. Ongoing informal assessment is used to inform planning and guide future teaching.

Children's achievement in mathematics is assessed throughout the term. In Years 1 -6, a minimum of 6 children in each class are to be assessed using APP, which is in line with current Education Services expectations. These children's APP grids will then be used as a benchmarking tool to assess all other children within the class. Staff who wish to complete grids for all children are encouraged to do so. To ensure consistency of sub-levelling of the number and calculating strand (Ma2), class teachers use the following grid taken from Mathsmap. This

system focuses purely on the number of highlighted bullet points on the APP grid within Ma2, rather than the examples.

Guidelines for APP levels based on highlighted AFs				
	Below level	**c**	**b**	**a**
Level 1	0-2	3-5	6-8	9-10
Level 2	0-2	3-5	6-9	10-12
Level 3	0-2	3-6	7-10	11-14
Level 4	0-3	4-8	9-13	14-18
Level 5	0-4	5-10	11-16	17-22

Grids covering all other strands within mathematics have been created by the MSL to support teacher assessment and allow for a robust and consistent approach to fine-levelling throughout the school. Discretion can be used with regards to the number of bullet points at internal and external moderation.

In reception, children's progress and attainment in Mathematics is assessed termly against the statements outlined in ***'Development Matters in the Early Years Foundation Stage'*** (2012) during the Autumn and Spring terms and against the statements outlined in the Foundation stage profile in the Summer term.

All children's fine levels for every strand are recorded termly on the GSY Termly tracking documents in SIMs (updated Aut 2019). Internal moderations within year groups are held termly during teachers planning time and one whole school moderation takes place per year. External moderation meetings are carried out for selected year groups. Progress and attainment will be discussed with parents orally at Parent/ Teacher meetings in the Autumn and Spring terms along with strengths and areas for development. Fine levels shall be shared via a written report in the Summer term.

Expectations

In line with national expectations we would expect that:

· By the end of the Foundation Stage an average child would be expected to achieve the Early Learning Goals for maths.

· By the end of key Stage 1 (Year 2), the performance of the great majority of pupils should be within the range of levels 1 to 3. Most pupils are expected to achieve a secure to high level 2.

· By the end of Y4, the performance of the great majority of pupils should be within the range of levels 2 to 4. Most pupils are expected to achieve a secure to high level 3.

· By the end of key Stage 2 (Year 6), the performance of the great majority of pupils should be within the range of levels 3 to 5. Most pupils are expected to achieve a high level 4.

Monitoring and Evaluation

The teaching staff monitor their pupils through observation, discussion, teacher assessment, marking work and some testing, if appropriate. Year groups monitor and moderate internally twice per year during teachers planning time and one whole school moderation takes place per year. The Maths Subject Leader monitors pupil achievement by tracking data, observing lessons, sampling work, working with pupils and discussions with staff.

In conjunction with the SLT the quality of teaching and learning in mathematics is monitored through regular lesson observations, learning walks, work sampling, planning monitoring and the analysis of data.

Intervention groups

Pupil's are selected for intervention groups through discussion between the class teacher, the Maths Subject Leader and members of SLT at termly pupil progress meetings.

Intervention Programme	Delivered by	Target Group
1st Class@Number KS1	LSA	Low level 1 at the beginning of Year 2
1st Class@Number KS2	LSA	Low Level 2 in Year 3 or Year 4
Success@Arithmetic	LSA	Low Level 3 in Year 5 Secure Level 3 in Year 6
Passport Control	LSA	Support for children stuck on specific targets

Role of the Maths Subject Leader

The Maths Subject Leader (MSL) will:

- Strategically lead the development and direction of mathematics in the school;
- Keep up to date with developments in the teaching of mathematics;
- Support colleagues in the teaching, learning and assessment of mathematics;
- Organise / deliver In-service training as appropriate;
- Manage resources to enable successful mathematics teaching;
- Monitor pupil achievement by tracking data, observing lessons, sampling work, working with pupils and discussing with staff;
- In conjunction with the SLT, monitor the quality of teaching and provision through regular lesson observations, learning walks, work sampling, planning monitoring and the analysis of data;
- Review the mathematics policy every two years.

Reviewed and amended by A Mills - December 2019

Agreed by staff - February 2020