



MATHS POLICY

Capel St. Mary CEVC Primary School
The Street, Capel St Mary, Ipswich, Suffolk IP9 2EG

Tel: 01473 310386

E:mail ad.capelstmary.p@talk21.com
Website: www.capel-st-mary.suffolk.sch.uk

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Suffolk County Council

Mathematics Policy

(Updated 2021)

At Capel St Mary Primary school we value every pupil and the contribution they have to make. As a result we aim to ensure that every child achieves success in mathematics and that all are enabled to develop their skills in accordance with their level of ability.

Rationale

Mathematics equips pupils with the uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways. Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a positive and enthusiastic attitude towards mathematics that will stay with them.

The National Curriculum for mathematics (2014) describes in detail what pupils must learn in each year group. Combined with our Calculation Policy, this ensures continuity, progression and high expectations for attainment in mathematics.

Aims

Regardless of gender, ethnic origin or ability - 'Every Child has the Right to Learn' (UNICEF), we specifically aim to:

- To foster a positive attitude to mathematics as an interesting and attractive part of the curriculum.
- To develop the ability to think clearly and logically, with confidence, flexibility and independence of thought; to reason, think logically and to work systematically and accurately.
- To develop a deeper understanding of mathematics through a process of enquiry and investigation.
- To develop an understanding of the connectivity of patterns and relationships within mathematics.
- To develop the ability to apply knowledge, skills and ideas in real life contexts outside the classroom, and become aware of the uses of mathematics in the wider world.
- To develop the ability to use mathematics as a means of communicating ideas, asking and answering questions, openly sharing work and learning from mistakes.
- To develop an ability and inclination to work both alone and cooperatively to solve mathematical problems.
- To develop personal qualities such as perseverance, independent thinking, cooperation and self-confidence through a sense of achievement and success.
- To develop an appreciation of the creative aspects of mathematics and an awareness of its aesthetic appeal.
- To develop clarity and confidence in explaining mathematical thinking by using correct mathematical vocabulary along with the ability to hypothesise, conjecture, reason, consider all possibilities, give examples or proof.

Principles of Teaching and Learning in a Mastery Curriculum

In most lessons, the children are taught in year group sets. We believe that all pupils can attain highly in mathematics and every pupil will have different strengths and development areas. Therefore groupings within classes are flexible and pupils will work in different groups dependent on their need.

Practise and consolidation play a central role to mathematics learning. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in tandem. Teachers use precise questioning in class to test conceptual and procedural knowledge, and assess pupils regularly to identify those requiring intervention so that all pupils keep up. Teachers ensure that concepts are modelled to pupils using multiple representations. This ensures that procedural and conceptual understanding are developed simultaneously.

Differentiation

The large majority of pupils progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge, range of challenge in lessons and through individual support and intervention. The questioning and scaffolding individual pupils receive in class as they work through problems will differ and pupils who grasp concepts rapidly are challenged through more demanding problems which deepen their knowledge further.

Pupils with special educational needs and disabilities may have separate targets which could be worked upon within the lesson as well as on a 1:1 basis outside the mathematics lesson.

Mathematics Curriculum

The National Curriculum sets out year-by-year programmes of study for key stages 1 and 2. This ensures continuity and progression in the teaching of mathematics.

We aim to ensure that all pupils:

- have a well-developed sense of the size of a number and where it fits into the number system (place value)
- know by heart number facts such as number bonds, multiplication tables, doubles and halves
- use what they know by heart to figure out numbers mentally
- calculate accurately and efficiently, both mentally and in writing and paper, drawing on a range of calculation strategies (see calculation policy)
- recognise when it is appropriate to use a calculator and be able to do so effectively
- make sense of number problems, including non-routine/'real' problems and identify the operations needed to solve them
- explain their methods and reasoning, using correct mathematical terms
- judge whether their answers are reasonable and have strategies for checking them where necessary
- suggest suitable units for measuring and make sensible estimates of measurements
- explain and make predictions from the numbers in graphs, diagrams, charts and tables
- develop spatial awareness and an understanding of the properties of 2D and 3D shapes

Teaching Approaches

EYFS

Mathematics within the EYFS is developed through purposeful, play based experiences and will be represented throughout the indoor and outdoor provision. The learning will be based on pupils' interests and schemas or current themes and will focus on the expectations from Development Matters / Statutory Framework for the Early Years Foundation Stage. As the pupils progress through, more focus is placed on representing their mathematical knowledge through more formal experiences. Pupils will be encouraged to record their mathematical thinking when ready and this will increase throughout the year.

KS1 and 2

Teachers use a range of teaching strategies to engage the children in maths and ensure progress is made by all children within a class; no set formula is used.

A typical lesson would include:

- Both teaching input and pupil activities,
- A balance between whole class, guided grouped and independent work, (groups, pairs and individual work)
- Effectively differentiated activities/objectives and appropriate challenge.

Planning

Careful planning and preparation ensures that throughout the school children engage in:

- practical activities and games using a variety of resources
- problem solving to challenge thinking
- individual, paired, group and whole class learning and discussions
- purposeful practise where time is given to apply their learning
- open and closed tasks
- a range of methods of calculating e.g. mental, pencil & paper and using a calculator
- working with computers as a mathematical tool through a creative approach to teaching and learning
- the opportunity to explore and utilise further opportunities to use and apply mathematics across all subject areas.

Staff use the National Curriculum as a long term plan to ensure coverage of all areas.

We have a range of schemes plus access to White Rose planning to aid medium term planning.

It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives for each lesson and give details of how the lessons are to be taught. The class teacher creates these individual plans, which they annotate according to the success of the lesson.

Mathematics contributes to many subjects and it is important the children are given opportunities to apply and use Mathematics in real contexts. It is important that time is found in other subjects for pupils to develop their Numeracy Skills, e.g. there should be regular, carefully planned opportunities for measuring in science and technology, for the consideration of properties of shape and geometric patterns in technology and art, and for the collection and presentation of data in history and geography.

We endeavour at all times to set work that is challenging, motivating and encourages the pupils to think about how they learn and to talk about what they have been learning. Additional enrichment opportunities are provided for pupils to further develop mathematical thinking e.g. through cooking, music, and maths investigations and games.

Teachers plan problem solving and investigational activities every week to ensure that pupils develop the skills of mathematical thinking and enquiry.

To provide adequate time for developing mathematics, maths is taught daily and discretely. Maths lessons may vary in length but will usually last for about 45 minutes in Key Stage 1 and 60 minutes in Key Stage 2.

Marking

Marking of children's work is essential to ensure they make further progress. Work is marked in line with the school marking policy, and may include next steps. Where possible this will be done with the child present. Misconceptions can then be dealt with as they occur, individually, in groups, as part of the main plenary or during a mini plenary within the lesson. In Key Stage 2 children will be encouraged to self-mark, where appropriate, and verbal feedback given as necessary.

Children are encouraged to self-assess their work and given time to read teachers' comments and make corrections or improvements. Responses to marking are made as close to the work as possible, ideally at the start of the next lesson. Some pieces of work in mathematics can be marked by children themselves, with support and guidance from the teacher

Assessment

Formative Assessment (AfL) - (monitoring children's learning)

Assessment is an integral and continuous part of the teaching and learning process and much of it is done informally as part of each teacher's day to day work. Teachers integrate the use of formative assessment strategies such as: effective questioning, clear learning objectives, effective feedback and response in their teaching and marking and observing children participating in activities. Findings from these types of assessment are used to inform future planning.

Summative Assessment – (evaluating children’s learning)

More formal methods are used to determine the levels of achievement of children at various times during the school year:

Cold and Hot tasks: Teachers may choose to use short assessment tests at the end of a block of work or half- termly. This is a way of recording children’s progress in objectives covered across that specific term and can be used to inform future planning.

Standardised Testing: (NFER or Twinkl) Standardised tests are used once a term. They allow the school to measure each child’s attainment in all areas of mathematics, and compare this with an “average” for children of that age. The results are used to monitor individual’s progress term on term and to identify those children who have Special Needs in mathematics. These results are discussed in termly Pupil Progress meetings. Staff will use Question Level Analysis Tools to analyse results and inform planning.

Target tracker – Staff will record the progress of each child using Target tracker statements once a term. Additionally, objective statements will be highlighted to show coverage and depth of understanding of each objective throughout the school year.

Times tables – All children in Key Stage 2 will be tested in times tables at the beginning of the school year. For year 3 and 4 this will take the form of a Multiplication check test in preparation for the multiplication check at the end of year 4. This will be repeated and recorded on a termly basis. For year 5 and 6 assessments will be gathered from the initial starting point in the times tables challenge and progress through each level tracked throughout the year.

Statutory End of Key Stage Assessments. (SATs) The National Curriculum requires that each child is assessed, and assigned a Level of attainment at the end of Key Stages One (year 2) and Two (Year 6). New SATs tests were introduced in 2016 with Y2 having two papers – Arithmetic and Reasoning, and year 6 having 3 papers – Arithmetic and two reasoning. Children will have been prepared for these tests using practice papers so that they are familiar with, rather than disadvantaged by, the layout and expectations of the papers.

Resources

A bank of essential mathematics resources are kept in each classroom. Further resources relating to key whole school topics are kept in maths cupboards in the Maths Room. Additional virtual resources are stored on the school teacher drive.

Teachers should use their judgement about when computing tools should be used, including the use of calculators.

Role of the Subject Leader

- Ensures teachers understand the requirements of the National Curriculum and helps them to plan lessons. Leads by example by setting high standards in their own teaching.
- Prepares, organises and leads CPD and joint professional development.
- Works with the SENCO and SLT.
- Plan CPD with colleagues with a view to identifying the support they need.
- Discusses regularly with the Head teacher and the mathematics governor the progress of implementing the National Curriculum for Mathematics in school.
- Monitors and evaluates mathematics provision in the school by conducting regular work scrutiny, learning walks and assessment data analysis.

Moderating and review

Moderating of the standards of children’s work and of the quality teaching in mathematics is the responsibility of the mathematics subject leader alongside members of the senior leadership team. The work of the mathematics subject leader also involves supporting colleagues in the teaching of

mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school.

In the Summer Term of each year an analysis of Year 2 SATs and Year 4 and 5 NFER test data is carried out. The strengths and areas for development for each Key Stage are reported to staff as an aid to their future planning. The Governors are informed of the findings which are used to set whole school Performance Management Targets.

Each term a book scrutiny is carried out to monitor standards, expectations, marking, children's responses, presentation and consistency between parallel classes. Feedback is given to staff as appropriate. Initiatives eg, Booster Clubs are regularly monitored. Observations by the Maths Co-ordinators and SLT take place on a rolling programme. The Maths Link Governor visits the school in the term when Mathematics is a focus and meets with coordinators to receive an annual report of the subject.

Home-school Links

Capel St Mary school recognises and values the contribution parents can make in their child's learning and encourages parents to be involved in their child's mathematical education.

Parents can access the progression in the teaching of 'calculations' used at Capel St Mary. This information is available on the school website.

Homework is set as appropriate to reinforce concepts taught. (See Homework Policy)

Open Evenings are held to inform parents of their child's progress.

Annual reports are sent to parents.

Appointments can be arranged between a teacher and a parent when the need arises to discuss any areas of concern.

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