Mathematics Policy

Believe **E**njoy **S**ucceed **T**ogether

"I can do everything through God who gives me strength"
Philippians 4:13

Cronton CE Primary School

The KEYS Curriculum

Knowledge and skills
Empower
You to
Succeed

Keys To Success


Knowledge

Skills

Vocabulary

KEYS Curriculum

At Cronton CE Primary School our KEYS Curriculum is built around the National Curriculum, enriched to reflect the children and community we teach in. As a church school our Christian ethos and school values are the heart of everything we do. We believe every child can be their BEST with our Vision statement reflecting this.

"I can do everything through God who gives me strength" Philippians 4:13

Curriculum Intent

Our Curriculum has been designed by Cronton CE to provide a bespoke, unique and exciting curriculum that is tailor-made to suit our children, their learning and their futures. Every child is unique and important. They are at the centre of their learning; starting as part of a class, whole school, the local community and then on to their future role in modern Britain and as a future global citizen. Our KEYS curriculum develops each child and the understanding that **K**nowledge and skills **E**mpower **Y**ou to **S**ucceed.

We maintain a broad and balanced approach to our curriculum, which alongside English and Mathematics will provide our children with skills, knowledge and vocabulary rich experiences that excite and engage. We will foster attitudes and qualities which will enable them to become confident, caring, respectful and responsible citizens. We offer a spiritual, moral, social and cultural experience for all through our curriculum and also through extra-curricular clubs and activities, day trips and residential experiences in KS2. We use a wide variety of resources to assist us in delivering this bespoke curriculum including specialist teachers, visits and curriculum enhancements and ensure links and relationships are meaningful to the children and their learning.

Our curriculum is planned to ensure it will build upon what children already know in a sequential way to give them powerful knowledge and skills while making relevant links to secure their understanding of the world around them. We ensure that all children receive quality first teaching for every subject with high of expectations for all. We provide a quality education that is inclusive and equips our children to be lifelong learners.

Our KEYS Curriculum:

Develops each child with, **KNOWLEDGE**, **SKILLS** and **VOCABULARY**. It is broad, balanced and has clear progression which is sequential in these areas

It is filled with rich purposeful first-hand experiences and uses sourced expertise. It develops values and the learning attitudes of **INDEPENDENCE**, **PERSERVERENCE, CURIOSITY, TEAMWORK** and take **RESPONSIBILITY** to always be the **BEST** we can be.

We want our children to show **RESPECT** and have **RESPONSIBILITY** to each other and in all aspects of life. It embraces children's knowledge and understanding of the developing world we live in, from our **COMMUNITY**, modern multi -cultural Britain and as a Global Citizens of the future.

How Math links with our Keys Curriculum

Our Core curriculum focuses on the knowledge and skills we need to succeed in life.

The core areas of the curriculum aims are;

- To equip children with the tools to solve problems and reason about maths through learning about number, algebra, geometry and statistics.
- To learn to calculate efficiently using a range of mental and formal written methods.
- A clear purpose for learning
- Well-planned lessons that provide children opportunities to embed learning and allow them to develop their knowledge Skills and vocabulary.

The 5 Part lesson structure supports this learning.

The KEY attributes for our mathematicians:

- **Curiosity** to make mathematical statements and investigate them
- The ability to **reason and problem solve** about mathematics
- Have a good understanding of all the different **concrete materials** and 'choose to use' them to help with independent work
- A good understanding of the correct mathematical **vocabulary** correctly and the ability to use it effectively to explain ideas, thinking and solutions
- **Resilience** to be able to see the challenge of overcoming mistakes as important and exciting steps to learning and discovery
- **Perseverance** in finding an answer by trying different strategies until the correct answer is found
- **Fluency** in number bonds and times tables
  The ability to make links and apply basic math skills to all areas of the curriculum and beyond

Intent

At Cronton CE Primary our maths is accessible to all in order to ensure all children have access to a rich, deep, varied and enjoyable mathematical experience.

We believe that a high quality mathematics education is essential. Our maths curriculum aims to develop children's ability to calculate, reason, problem solve and have a good understanding of the basic fundamentals in every year group

Our main aims in teaching Mathematics are:

- To secure the three main aims of the national Curriculum by showing an ability to show fluency in their work, solve problems, to reason, to think logically and to work systematically and accurately.
- To encourage all pupil's competence and confidence in their mathematical abilities in using and applying mathematical knowledge, concepts and skills and ensure progress in their knowledge and understanding as they move through the school.
- To develop personal qualities such as cooperation, independence in thought and action, persistence, logical and systematic thinking, imagination, creativity and flexibility.
- To give the pupils the opportunity to use and apply mathematics in a variety of everyday contexts, in practical tasks and as a powerful tool in other subjects.
- To allow the pupil to develop mathematical language, so that they can communicate ideas, solve problems and explain results.
- Confident communication of maths where pupils ask and answer questions, openly share work and learn from mistakes.

Principles in the teaching and learning of Mathematics

Mathematics is important because:

Mathematics is a core subject in the National Curriculum and the learning objectives are spread through five main areas of learning called ‘strands’. These give a broad overview of the Mathematics Curriculum

in the Primary phase. Objectives for each year group are aligned to the five strands to demonstrate progression.

Implementation

Long term planning

The National Curriculum for Mathematics 2014, Development Matters and the Early Learning Goals (Number, Shape Space & Measure) provide the long-term planning for mathematics taught in the school.

We use the White Rose Long term plans for each year from Reception to Year 6

Medium term planning

Years R - 6 use the White Rose Maths Hub schemes of learning as their medium-term planning documents.

These schemes provide teachers with exemplification for math's objectives and are broken down into fluency, reasoning and problem solving, key aims of the National Curriculum. We use Small Steps Planning to ensure that key mathematical concepts are given to support learning. They support a mastery approach to teaching and learning and have number at their heart. They ensure teachers stay in the required key stage and support the ideal of depth before breadth. They support pupils working together as a whole group and provide plenty of time to build reasoning and problem solving elements into the curriculum. Other mastery resources are used to supplement lessons such as NCTEM, Deepening Understanding and the DFE Ready to Progress materials.

Teaching and Learning Structure

In all lessons, learning objectives are created as "I Can "statements which are used to mark learning against.

Key Principle	Name of part of lesson	Notes
Recap/ Review previous learning	Review	This can look at the previous day's work and children are shown where the errors were made and how to correct them. The children then do the corrections in the books or a challenge if they do not have any corrections.
KEY Vocabulary	Key Vocabulary	Children are shown the Key vocabulary for the lesson and they are discussed and explained. Children will be expected to use it in the lesson This is a time to introduce any new vocabulary and review old vocab to remind them what it is. Mathematical vocabulary should be used correctly
	Do	They will review new learning for the lesson. The children will be reminded of what they already know and use this as a step to build on new learning. They will do small tasks in preparation of the lessons objective.
Warm Up Task	Hook and share and learn	This starts the main teaching of the day's objective or I CAN. This is just one question which hooks them into learning. The teacher will share a problem/story/theme/ equation etc. with the children. The children will 'have a go' at the problem. During this time, the teacher will 'floor sweep' and provide targeted/timely intervention. It may be necessary to include the use of question and response stems. The children can work with their chatter partner at this time. Teachers will select examples of answers- mixture of

		correct and incorrect to use in part 3.
Focused Teaching	Refining techniques	This is doing the same objective in a different way or looking at it from a different angle or just having another go together. It is essential that they move towards the 'most efficient' method to develop procedural and conceptual understanding. It is integral to give children experience of various questions/ equations/ problems they may encounter so that they can master mathematical concepts. Some may not be ready to use it but they must be opened to it. Strategies can be taught during arithmetic lesson and used in this lesson. If required, go over this question as well if some children are still unsure of the objective.
Independent or Group Work	Practise	This is the independent aspect of the lesson where children should now apply what they have been taught and learned into the work. It is the role of the teacher and TA to 'floor sweep' again to 'immediately' address any misconceptions. This section would have a variety of question types and have about three or four questions to complete using a variety of question types. **Deepening understanding** This is when children have finished the practise. This is the same objectives but more problem solving and reasoning to deepen learning. **Challenge** This is a more challenging question. If this is not used in the lesson it should be glued in at the end of the lesson after you have marked for the kids who have answered it all correct to be completed in the next day's review and do lesson.

Short term planning

The medium term plans support daily lesson/Notebook planning. Lessons are monitored at intervals by the mathematics subject leader to ensure coverage. EYFS planning is based on the appropriate medium term plans and delivered to individual children with thought to where the children are now and what steps they need to take next.

Maths meeting - 15 minutes per day

Maths Meetings are a vital part of our timetable. Their purpose is to consolidate key areas of mathematics and basic skills. The maths meeting occurs daily for 15 minutes. Each meeting could start with a song, rhyme, poem or chant, to ensure full participation and enjoyment.

Maths Meetings should:

- Provide opportunities to develop number sense. This includes exploring conservation of number, ordinality, cardinality and the relationships between numbers (greater than, less than and equal to). Every Maths Meeting should also provide pupils practice of partitioning and recombining numbers within ten (e.g. using a part-whole model), with the goal of achieving fluency by the end of the year.
- Give students repeated practice of basic skills and concepts (fluency, consolidation, mastery of what has been taught)
- Be a whole-class ritual around the Meeting Board or IWB

Maths lessons

All classes have a daily mathematics lesson where possible. In key stage one, lessons are 45-60 minutes and in key stage two at least 60 minutes.

Each year has four lessons based on the White Rose planning and one lesson based on Arithmetic skills using a variety of resources such as Rising Stars Arithmetic.

Children will be taught a range of strategies for tackling problems and answering calculations. These will include mental and pen and paper and use the CPA approach. They will be taught standard methods of setting out and working whilst being encouraged to find their own ways of working accurately.
Teachers of the EYFS ensure the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom. Mathematics is taught through an integrated approach.

Pre-learning lesson.
This is before the main lesson starts and could be done by the TA during math's meetings or registration. This is given to a small group of children who need extra support for new concepts.

Multiplication tables
Tables are taught through different aspects of the math's lessons. We use the LDST Multiplication Strategy to develop times tables from Year 2 onwards. It is also taught in math's meetings and through the support of Times Table Rock stars. TTRS is a fully interactive online mathematics learning tool for children is used by teachers to support multiplication learning both in class and at home. Children are encouraged by school to access it regularly at home to support learning. KS2 are assessed weekly through a Times Table Challenge.

Special educational needs & disabilities (SEND)
Daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. Where required, children's IEP's incorporate suitable objectives from the National Curriculum for Mathematics or development Matters and teachers keep these in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the mathematics lesson. Maths focused intervention in school helps children with gaps in their learning and mathematical understanding. These are delivered by trained support staff and overseen by the SENCO and/or the class teacher. Within the daily mathematics lesson, teachers have a responsibility to not only provide support for children with SEND but also activities that provide sufficient challenge for children who are high achievers. It is the teachers' responsibility to ensure that all children are challenged at a level appropriate to their ability. We use the ready to Progress Document to support the stages of learning in maths.

Equal Opportunities
Positive attitudes towards mathematics are encouraged, so that all children, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics.

The aim is to ensure that everyone makes progress and gains positively from lessons and to plan inclusive lessons where all children are exposed to the different levels within the lesson. This will help develop the expected standard as well as greater depth learning. Teachers use Concrete, pictorial and abstract approach to teaching which support all children and will benefit children including those for whom English is an additional language (EAL).

Marking
Marking of children's work is essential to ensure they make further progress. Work is marked in line with the school marking policy. Children are given time to read teachers' comments and make corrections or improvements in the review section. 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, live marking and exercises involving routine practice with support and guidance from the teacher.

Assessment
Assessment is an integral part of teaching and learning and is a continuous process. Teachers make assessments of children daily through:

- regular marking of work
- analysing errors and picking up on misconceptions
- asking questions and listening to answers
- facilitating and listening to discussions
- making observations

These ongoing assessments inform future planning and teaching. Lessons are adapted readily and short term planning evaluated in light of these assessments.

Termly assessments are carried out across the school using the assessment materials for each year group provided by the NFER for year 1, 3, 4 and 5. Year 2 and 6 use previous SAT's papers. These materials give each child a standardised score which is recorded on a termly Tracker. They are placed on the ATLAS system which will give "Question Level Analysis" for each child. This process of careful tracking adds to helping teachers form an assessment for each child.
Pupil Progress meetings are timetabled each term for all classes. Progress of pupils is discussed and appropriate intervention considered and put in place where appropriate. Y2 and Y6 complete the national tests (SATs) in May.

Resources
Each class has a stock of core resources that are age appropriate. Additional mathematical equipment and resources are stored centrally in the resources room.
Homework
Homework may be used to support Mathematics through tasks such as:

- To learn number facts such as the times tables
- To reinforce work in class.

Display
Mathematics is supported in class by working walls to support the learning and development of the strand of math's being taught. This is to be built up over the sessions to show efficient methods, examples of working out, useful information and helpful hints. New vocabulary can also be placed on the board to support learning.

Health and Safety Issues
As in all areas of the curriculum, safety of the children is paramount. Children must be taught to use equipment safely and correctly and should never be allowed outside the school grounds unsupervised.

Learning attitudes
Maths is an important aspect of the curriculum and we want our children to have positive learning attitudes. We encourage them to show Perseverance when they are finding things difficult to have the attitude to continue showing resilience. Use Teamwork to work together when required to support each other. Be independent in their practice section to show their understanding. Show curiosity in their learning to continue to work out the problem solving activity and want to learn more. They are encouraged to take responsibility for their own learning and take ownership of their actions.

Impact

Impact will show through formative assessment throughout the maths lessons and marking of books. This will be used to support and identify specific areas children need to develop. This knowledge will then impact on the daily planning of lessons to support and develop these specific areas.

Summative test will also be given at the end of each term. Year 2 and 6 will complete Year group specific test papers. Year groups 1, 3, 4 and 5 will complete NFER test. These will be placed onto the system AskEddi which will give each class a closer question analysis to support the specific areas.

The development of the lesson ensures that all children have the opportunity at working within the expected level and at greater depth. The impact of the maths lesson will ensure that all children make good progress from their starting point. This will be shown at the end of key stage test where progress and attainment are shown to be above national.