Croft Church of England Primary School

MATHS CURRICULUM

1. INTENT, IMPLEMENTATION AND IMPACT

Intent

At Croft we use resources to teach maths at a mastery level. We use concrete, pictorial and abstract methods to cement understanding throughout all areas of the curriculum. The Power Maths Scheme forms the basis of our maths planning and teaching.

Children begin their maths journey in EYFS using the Power Maths Reception scheme. This involves the use of investigation and concrete resources to introduce the children to the concept of number. When the children move into Year 1, they then move onto the textbooks and practice books for Power Maths and continue to use these for the rest of their time at Croft. The Power Maths Scheme uses Small Steps to allow all children to move on with the learning at the same pace. However, allowances do need to be made for those children that can't move on as quickly or need further challenge.

Our aim is for children to leave Croft:

- Having had access to a high-quality maths curriculum that is both challenging and enjoyable.
- Having been provided with a variety of mathematical opportunities, which will enable them to make the connections in learning needed to enjoy greater depth in learning.
- Ensure children are confident mathematicians who are not afraid to take risks.
- Being fully developed independent learners with inquisitive minds who have secure mathematical foundations and an interest in self-improvement.

Our pupils should be able to:

- Recall facts and procedures.
- Move flexibly and fluidly between different contexts and representations of mathematics.
- Recognise relationships and make connections in mathematics.
- Reason about their calculations and recognise/explain mistakes.

Implementation

At Croft, Maths is taught in mixed year groups. Each year group receives the same amount of teacher-led input, practice time and retrieval time, in a pre-planned cycle.

Power Maths starts with a maths story that introduces the concept of the lesson in a contextual real-life way. In all year groups this is taught in a guided way to first teach the concept the children will be working on. Teachers then move onto the think together. The general format is that the teacher models the first question, the class work through the second question with the teacher and then they discuss the third question together before being shown by the class teacher. Working through the maths like this ensures the majority of children all have a clear understanding of the lesson before being asked to apply their new learning independently.

Depending on the lesson, in KS1, teachers work through the practice book with the children to help their understanding of the problems and avoid the children's reading ability impacting their mathematics learning. Year 1 regularly work through all of the practice book together too. However, at Year 2 level, independent learning is used a lot more throughout the final section of the lesson to cement learning.

As the children move into Key Stage 2, procedural variation underpins the Power Maths learning. As they learn new concepts, they are given more and more independence to work it out in their own way using abstract methods. Problem Solving and Reasoning becomes a more integrated part of the daily maths lessons too. In KS2, the practice book is approached in a very independent way, allowing children to apply their learning.

Providing extra Challenge in Maths

At Croft, we use challenges to help the children master each concept of maths. We never move children onto the next area of learning - ahead of others - instead we provide extra challenge on the concept they are currently on. We supplement our use of Power Maths with the White Rose Maths Hub resources. These provide challenging reasoning and problem-solving questions that allow the children to master their skills. In KS2, we also make use of 'Diving Deeper'. This provides the children with ways of furthering their understanding of a concept through explaining, modelling and teaching others.

Supporting children in maths

In all year groups, teachers provide regular support and intervention to the children that need it. Power Maths itself provides ideas that teachers can use to strengthen children's understanding. Sometimes, teachers use previous year group's maths to support the children's basic number knowledge and might use Power Maths or the White Rose materials for this.

Additional resources

In Year 2, children are also introduced to Times Tables Rockstars. At Croft we believe fluency in times tables underpins understanding in all areas of mathematics. Therefore, we use Times tables Rockstars to allow the children to practise this at home in a fun and educational way. This is then used throughout the rest of their time at Croft but is particularly important throughout Year 3 and 4, prior to the Timetables check.

All year groups also have access to 'Flashback 4'. At Croft, we believe it is important for children to regularly recap previous learning in order to cement it into their long-term memory. The Flashback 4 questions children on the concepts from the last lesson, last week, last unit and last year.

To read more about how the different areas of Maths are taught, please click here to access our calculation policy.

Impact

The impact of our mathematics curriculum is that children understand the relevance and importance of what they are learning in relation to real world concepts. Children know that maths is a vital life skill that they will rely on in many areas of their daily life. Children have a positive view of maths due to learning in an environment where maths is promoted as being an exciting and enjoyable subject in which they can investigate and ask questions; they know that it is reasonable to make mistakes because this can strengthen their learning through the journey to finding an answer. Children are confident to 'have a go' and choose the equipment they need to help them to learn along with the strategies they think are best suited to each problem. Our children have a good understanding of their strengths and targets for development in maths and what they need to do to improve. Our maths books show work of a high standard of which children clearly take pride; the components of the teaching sequences demonstrate good coverage of fluency, reasoning and problem solving. Our feedback and interventions support children to strive to be the best mathematicians they can be, ensuring a high proportion of children are on track or above. Our school standards are high, we moderate our books both internally and externally and children are achieving well.

Assessment

Assessment is integrated throughout the Power Maths lessons and unit structure. This helps teachers to make regular assessments of children's understanding to inform teaching and measure progress. For children, assessment is a chance for them to review key concepts and reflect on their learning.

Opportunities for assessment include:

- Formative assessment within every lesson
- Summative assessment at the end of each unit, half-term and year
- Teacher notes that help you identify and address misconceptions
- Unit assessment grids to help you to track progress

What does greater depth look like in Maths?

Any discussions about what greater depth looks like in maths must consider the three R's of maths: **reflecting, representing and reporting**, and they are:

Reflecting: Children need the breathing space to reflect on an experience when deepening their knowledge and understanding. Pausing, probing and pondering all happen when children are not rushed or pressured. Slowing down allows children to take control of their learning and become aware of their own learning too.

Representing*:* Children need plenty of opportunities to represent their learning in an active way so deepening becomes memorable. This might be constructing a model, drawing a mathematical picture, using manipulatives or writing down their thoughts.

Reporting*:* Children must engage in meaningful maths talk with others – maths must involve lots of verbal back and forth. Pupils refine, consolidate and develop their understanding by entering learning conversations with their peers and teacher(s). This type of reporting helps children to realise that their thoughts are valuable and by talking together they can clarify their understanding.

These 3 R's feed into depth and understanding and classroom activities must integrate them.

2. LONG TERM PLAN

EYFS

Strand	Unit		Week	Weekly title	Early Learning Goal
Number – number and place value	Unit 1	Numbers to 5	1	Counting to 1, 2 and 3	Children count reliably with numbers from 1 to 20, place them in order.
			2	Counting to 4	
			3	Counting to 5	
Number – addition and subtraction	Unit 2	Sorting	4	Sorting into 2 groups	Children explore characteristics of everyday objects.
Number – number and place value	Unit 3	Comparing groups within 5	5	Comparing quantities of identical objects	Pre-requisite to: Using quantities and objects, they add and subtract 2 single-digit numbers and count on or back to find the answer.
			6	Comparing quantities of non-identical objects	
Number – addition and subtraction	Unit 4	Change within 5	7	One more	Say which number is one more or one less than a given number.
			8	One less	
Measurement	Unit 5	Time	9	My day	Children use everyday language to talk about time to solve problems.

Strand	Unit		Week	Weekly title	Early Learning Goal
Number – addition and subtraction	Unit 6	Number bonds within 5	1	Introducing the part-whole model	Pre-requisite to: Using quantities and objects, they add and subtract 2 single-digit numbers and count on or back to find the answer.
Number – number and place value	Unit 7	Numbers to 10	2	Counting to 6, 7 and 8	Children count reliably with numbers from 1 to 20, place them in order.
			3	Counting to 9 and 10	
Number – number and place value	Unit 8	Comparing numbers within 10	4	Comparing groups up to 10	Children explore characteristics of everyday objects.
Number – addition and subtraction	Unit 9	Addition to 10	5	Combining 2 groups to find the whole	Using quantities and objects, they add and subtract 2 single-digit numbers and count on or back to find the answer.
Number – addition and subtraction	Unit 10	Number bonds to 10	6	Using a ten frame	Pre-requisite to: Using quantities and objects, they add and subtract 2 single-digit numbers and count on or back to find the answer.
			7	The part-whole model to 10	
Geometry – properties of shape	Unit 11	Shape and space	8	Spacial awareness	Children explore characteristics of everyday objects and shapes and use mathematical language to describe them.
			9	3D shapes	
			10	2D shapes	

Strand	Unit		Week	Weekly title	Early Learning Goal
Geometry – properties of shape	Unit 12	Exploring patterns	1	Making simple patterns	Children recognise, create and describe patterns.
			2	Exploring more complex patterns	
Number – addition and subtraction	Unit 13	Counting on and counting back	3	Adding by counting on	Using quantities and objects, they add and subtract 2 single-digit numbers and count on or back to find the answer.
			4	Taking away by counting back	
Number – number and place value	Unit 14	Numbers to 20	5	Counting to 20	Children count reliably with numbers from 1 to 20, place them in order.
Number – multiplication and division	Unit 15	Numerical patterns	6	Doubling	They solve problems, including doubling, halving and sharing.
			7	Halving and sharing	
			8	Odds and evens	
Number – number and place value	Unit 16	Measure	9	Length, height and distance	Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems.
			10	Weight	
			11	Volume and capacity	

Year 1 - Term	Unit	Strand
Autumn **Textbook A**	**Unit 1**	Numbers to 10
	Unit 2	Part-whole within 10
	Unit 3	Addition & subtraction within 10 (1)
	Unit 4	Addition & subtraction within10 (2)
	Unit 5	2D & 3D shapes
	Unit 6	Numbers to 20
Spring **Textbook B**	**Unit 7**	Addition within 20
	Unit 8	Subtraction within 20
	Unit 9	Numbers to 50
	Unit 10	Introducing length and height
	Unit 11	Introducing weight and volume
Summer **Textbook C**	**Unit 12**	Multiplication
	Unit 13	Division
	Unit 14	Halves and quarters
	Unit 15	Position and direction
	Unit 16	Numbers to 100
	Unit 17	Time
	Unit 18	Money
Year 2 - Term	**Unit**	**Strand**
	Unit 1	Numbers to 100

Autumn **Textbook A**	**Unit 2**	Addition & subtraction (1)
	Unit 3	Addition & subtraction (2)
	Unit 4	Money
	Unit 5	Multiplication and division (1)
Spring **Textbook B**	**Unit 6**	Multiplication and division (2)
	Unit 7	Statistics
	Unit 8	Length and height
	Unit 9	Properties of shape
	Unit 10	Fractions
Summer **Textbook C**	**Unit 11**	Position and direction
	Unit 12	Problem solving and efficient methods
	Unit 13	Time
	Unit 14	Weight, volume and temperature

Year 3 - Term	**Unit**	**Strand**
Autumn **Textbook A**	**Unit 1**	Place value within 1000
	Unit 2	Addition & subtraction (1)
	Unit 3	Addition & subtraction (2)
	Unit 4	Multiplication & division (1)
Spring **Textbook B**	**Unit 5**	Multiplication & division (2)
	Unit 6	Money
	Unit 7	Statistics
	Unit 8	Length
	Unit 9	Fractions (1)
Summer **Textbook C**	**Unit 10**	Fractions (2)
	Unit 11	Time
	Unit 12	Angles and properties of shapes
	Unit 13	Mass
	Unit 14	Capacity

Year 4 - Term	**Unit**	**Strand**
Autumn **Textbook A**	**Unit 1**	Place value: 4-digit numbers (1)
	Unit 2	Place value: 4-digit numbers (2)
	Unit 3	Addition & subtraction
	Unit 4	Measure: perimeter
	Unit 5	Multiplication & division (1)
Spring	**Unit 6**	Multiplication & division (2)
	Unit 7	Measure: area

Textbook B	**Unit 8**	Fractions (1)
	Unit 9	Fractions (2)
	Unit 10	Decimals (1)
Summer **Textbook C**	**Unit 11**	Decimals (2)
	Unit 12	Money
	Unit 13	Time
	Unit 14	Statistics
	Unit 15	Geometry: Angles and 2D shapes
	Unit 16	Geometry: Position & direction

Year 5 - Term	**Unit**	**Strand**
Autumn **Textbook A**	**Unit 1**	Place value: within 100,000
	Unit 2	Place value: within 100,000
	Unit 3	Addition & subtraction
	Unit 4	Graphs and tables
	Unit 5	Multiplication & division (1)
	Unit 6	Measure: area and perimeter
Spring **Textbook B**	**Unit 7**	Multiplication & division (2)
	Unit 8	Fractions (1)
	Unit 9	Fractions (2)
	Unit 10	Fractions (3)
	Unit 11	Decimals and percentages
Summer **Textbook C**	**Unit 12**	Decimals
	Unit 13	Geometry: properties of shapes (1)
	Unit 14	Geometry: properties of shapes (2)
	Unit 15	Geometry: position and direction
	Unit 16	Measure: converting units
	Unit 17	Measure: volume and capacity

Year 6 - Term	**Unit**	**Strand**
Autumn **Textbook A**	**Unit 1**	Place value within 10, 000, 000
	Unit 2	Four operations (1)
	Unit 3	Four operations (2)
	Unit 4	Fractions (1)
	Unit 5	Fractions (2)

	Unit 6	Geometry: position and direction
Spring **Textbook B**	**Unit 7**	Decimals
	Unit 8	Percentages
	Unit 9	Algebra
	Unit 10	Measure: imperial and metric measures
	Unit 11	Measure: perimeter, area and volume
	Unit 12	Ratio & proportion
Summer **Textbook C**	**Unit 13**	Geometry: properties of shapes
	Unit 14	Problem solving
	Unit 15	Statistics

3. PROGRESSION OF SKILLS

Due to the size of the progression of skills grids for Maths these have been saved as separate documents. Please click on the relevant links below to see each document.

EYFS

To recognise numbers to 10	To recall some odd/ even numbers
To count beyond 20 verbally	To recall 1 more/ 1 less to describe patterns
To write numbers to 10	To use newly introduced mathematical vocabulary
To subitise to 5	To name some 2D and 3D shapes and comment on their properties (stacking/ rolling)
To add numbers within 10	To compare sizes of objects
To subtract numbers within 10	To continue simple ABAB/ AAB patterns
Know and recall some number bonds to 10	To recognise that we use money to pay for things
To know some double facts	To sequence events in a day beginning to use time conjunctions
To understand how to share equally to different groups.	To use simple positional language to describe location
To understand how to halve an object.	To know how to use 10s frames and part whole models.

Progression in Place Value and Number

Progression in Addition and Subtraction

Progression in Multiplication and Division

Progression in Fractions, Decimals and Percentages

Progression in Ration and Proportion

Progression in Algebra

Progression in Measurement

Progression in Geometry: Properties of Shape

Progression in Geometry: Position and Direction

Progression in Statistics

4. SEND IN MATHS

We teach Maths to all children, whatever their ability.

Curriculum Considerations

Key Stage 1

•Learners should have 1 to 1 correspondence when counting.
•Learners should develop automaticity in addition and subtraction facts to and within 10.
•Ensure learners have a concept of 'more than' and 'less than' and can describe the relative sizing of number.
•Encourage learners to represent numbers in many different ways,in pictures, as a calculation, in words.
•Ensure learners can explain the place value of 10s and 1s.
•Use resources such as tens frames, Numicon and base 10 blocks confidently, to support learning where needed.

Key Stage 2

•Ensure learners are secure with all times tables (by end of Year 4), as this acts as a foundation for other maths concepts.
•Learners should have secure understanding of place value, up to 10,000 and beyond.
•Learners should begin to apply their knowledge of number and written methods to reasoning problems.

Strategies to Scaffold Learning

How can I support learners who struggle to retain vocabulary?

•Be conscious of the range of vocabulary learners are exposed to. There are often several different words for one mathematical concept (e.g.,add, sum, total, plus). Learners will need these words to be defined each time a new one is introduced and may need questions to be rephrased to understand their meaning. Learning should be documented in the classroom and referred to within and across lessons, for example on a working wall.

•Before a concept is introduced to the whole class, take time to familiarise chosen learners with new vocabulary and its meaning. This will give those learners greater confidence, as they feel confident when this same idea is introduced to the whole class.

•Use of visuals and actions can help to remind learners of the meaning of a word, or how it links to a mathematical symbol.

How can I support learners who struggle to access lessons because of literacy difficulties?

•If solving word problems, consider deploying an adult or pairing a learner with a confident peer to read the questions aloud to relieve the pressure of decoding the language.

•Some learners may benefit from 'drawing' the word problem, so that after a question is read, the learner has an image to refer to. This can enable a learner to 'see' the information they are missing, and decide what they need to work out, so that they can solve the word problem.

•Use of concrete resources and visuals is extremely important in helping learners to access questions.

•Ensure worksheets are laid out clearly and learners are not overwhelmed with a page of questions. Some learners may require different resources, which could include plain paper or enlarged square paper, to access set work.

How can I support learners who need additional time to develop conceptual understanding?

•Use intervention time to play games that consolidate a new or tricky concept with an adult.

•Use pre-teaching to give some learners a head-start.

•Have clearly laid out worked examples for these learners to refer to when working independently.

•Ensure tasks are scaffolded so that the learner can focus on the planned objective, for example prewrite information which is non-essential to the learning (date, learning intention), so the learner can focus directly on the skill being taught.

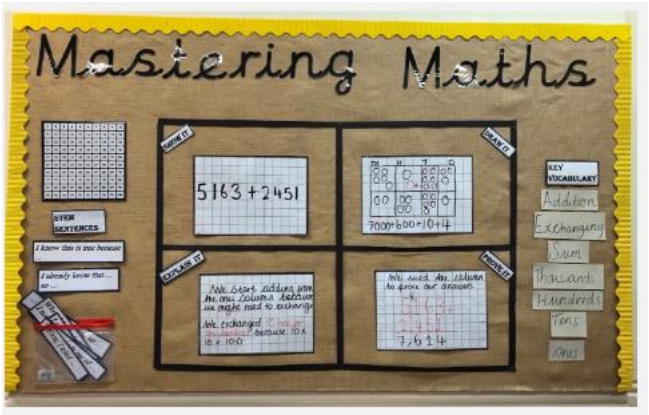
•Use representations learners are familiar with to transfer and connect similar ideas. For example, in Year 1, they use a tens frame that shows ten ones is equal to one 10, and then in Years 4 and 5 a tens frame could be used to show ten tenths is equal to 1.

How can I support learners who struggle with number fluency?

•Help learners to practise fluency outside of maths lessons, e.g.,during transitions the whole class could count in 5s as they move from the carpet to their tables.

•If a particular fluency skill is required in a lesson (e.g.,recalling the 5 times table), ensure learners practise this skill at the start of the lesson. During the retrieval practice, if needed, learners can have concrete resources or visual support, such as a times tables square, to remind them of number facts.

•Use games as part of high-quality teaching, to practise basic number skills and help retain fluency facts.



How can I support learners who struggle with attention?

•When modelling, encourage learners to make jottings, or copy each step out, onto a whiteboard at the same time.

•Be flexible with how you deliver your input. It might not always be necessary to have all learners involved at once. Some learners could be completing an accessible activity independently at tables, whilst others are listening to the teaching input, and then they swap. This helps to keep inputs focused and short, maintaining the attention of those who struggle.

•Give learners a target number of questions to do – when working towards a goal, learners are more likely to be focused.

•Use behaviour-specific praise, where you specifically identify what the learner has done well, to motivate learners and encourage their sustained attention to the task.

•Incorporate some questions which appeal to a learner's interests, for example making questions about a particular character they like. This will help to maximise engagement and motivation.

How can I support learners who struggle with change and transition?

•Establish routines and expectations early in the year, ensuring certain transitions, activities and games are repeated regularly to increase familiarity.

•To inform assessment and planning, ask the learner how they found a concept or lesson, at the end of a session.

•Set a target amount of work to complete and prepare learners by giving a 5-minute warning before the end of the activity. Allow them to take a few extra minutes to finish off if they need it.

How can I support learners who lack confidence in their own mathematical ability?

•Send home photocopies of successful pieces of work to share with parents/carers.

•Pose open-ended questions to the class, which have multiple answers. Ensure all learners have equal opportunities to answer. Being able to give an answer, no matter the complexity, helps to validate all learners.

•Mark learners' work in the moment, rather than at the end of the lesson. If the learner can see they are on track as they are completing a task, this will motivate them to keep going and will boost their confidence. Using this method also means you can correct and explain any mistakes as they happen, helping learners avoid embedding misconceptions.

•Ask learners to be a help in the lesson preparation process, e.g., selecting images which will be used in the maths lesson or asking to set up resources. This will help the learner to feel more comfortable as they begin the lesson.

5. RESOURCES AND WEBSITES

Learning at home
There are lots of different websites and apps available to support with children's numeracy knowledge and providing opportunities to practise key skills.

The White Rose One Minute Maths app matches the methods used in school and is a quick and familiar way for children to carry on their learning at home.

Timestables Rockstars

This is an invaluable resource to get all children fluent in their times tables. All children from Year 2 to Year 6 have a log on for this.

The following link will also allow access to a parent's guide that will give you a bit more information about how it works and how children move up the leader board.
Click here for Times Table Rock Stars Parent Guide

Other pages that would be useful for maths:
https://mathsframe.co.uk/en/resources/category/22/most-popular
http://www.math-exercises-for-kids.com/
https://www.topmarks.co.uk/Search.aspx?Subject=16

Extra Challenge

These documents have a range of questions from all the areas of maths that could provide extra challenge for those that need it.

Year 1 - NCETM Mastery Maths
Year 2 - NCETM Mastery Maths
Year 3 - NCETM Mastery Maths
Year 4 - NCETM Mastery Maths
Year 5 - NCETM Mastery Maths
Year 6 - NCETM Mastery Maths
KS1 - Problem of the Day (all)
KS2 - Problem of the Day (all)
https://whiterosemaths.com/resources/classroom-resources/barvember/