Subject Vision

At Crooksbarn, we believe that every child has the right to the best education. We aim to prepare every child for future study, for society and to fulfil their professional ambitions. It is our belief that the better the education, the more empowered the individual is to walk their own path.

Throughout history, maths has been proven to be a hugely valuable subject and we aim for the children to recognise this. Pupils should enjoy maths, see maths as something to be explored and relate it to the world around them.

It is vital that children are exposed to mathematical thinking. Children will focus on gaining a solid understanding of the fundamentals of the mathematics curriculum – with emphasis on number and calculation - and begin to reason and solve increasingly challenging problems. A good maths curriculum helps create resilient, critical-thinking individuals. These skills are both invaluable and timeless. We recognise their importance in helping pupils navigate the challenges - in education and life - that they will face in an ever-changing world.

Foundation Stage

Our Foundation Stage children will access the EYFS framework. The learning objectives for Foundation Stage are organised in the following areas:

~ Number

~ Numerical Patterns

KS1 and KS2

Both KS1 and KS2 pupils will follow the objectives given in the National Curriculum. The learning objectives are organised into four main areas:

- Number
- Measurement
- Geometry
- Statistics

Planning

- Long term planning – White Rose schemes are followed throughout school. EYFS and KS1 combine White Rose resources with NCETM materials.
- Medium term plans – White Rose medium term planning will be followed. The planning ensures children access the correct content and vocabulary for their year group. The small steps will be transferred to the assessment document, to help ensure coverage of the curriculum. It may be necessary to move some units, due to the school having mixed-age classes. Teachers should use their professional judgement when doing this, ensuring depth, coverage and the progression of knowledge, are taken into consideration.
- Daily fluency-based maths tasks will take place on a morning. This should progress throughout school, with counting and number recognition in EYFS, moving to Flashback 4 fluency activities in Year 1 through to Year 6.
- Children will be given frequent opportunities to apply their mathematical learning to a range of concepts.

Having all planning uploaded online, enables SLT and subject leaders to access planning for scrutiny at any time, but is also there if a member of staff is absent for a couple of days, which ensures continuity for pupils learning.

Lessons should be planned with easy access, high ceiling in mind. Tasks should progress in difficulty through the lesson. Appropriate support should be given to any children who require it. Be this through intervention, pre-teaching or scaffolding strategies.

Assessment

Assessment is an integral part of the teaching process and should be carried out in order to monitor progress and achievements.

In reception, the children will be assessed within the EYFS framework.

In Years 1-6 children's progress will be monitored by individual teachers, in line with the assessment criteria provided. These objectives are being used in other Ad Astra schools and the TAF will provide a helpful benchmark, via cross-school moderation.

To help teachers with this assessment, White Rose end of block assessments will be completed by Y2 - Y6 pupils. It is not recommended that Y1 teachers use these as a set, independent assessment, but the materials may be used to help inform judgements.

Children's arithmetic will be assessed on a half-termly basis.

- Year 6, pupils will take national SAT assessments.
- In line with the rest of the trust, each group will also carry out their own assessments during three assessment points throughout the year.
- Year 2 children will take the non-statutory SAT assessments.
- Year 4 children will take the statutory MTC (Multiplication and Tables Check)

Formative Assessment

- Teachers should use a range of assessment for learning strategies.
- Mini whiteboards should be utilised during maths lessons.
- We have flexible groupings at Crooksbarn and children may be moved groups/tables/partners to better cater for their needs following formative assessment.
- Formative assessment should inform next steps and future practice,
- Ongoing assessment will be monitored using the maths assessment record. This is a working document and can be used to dictate the teacher's next steps. This can also be used to aid judgements at the end of term.

Lesson design

Teachers should be aware of following the **concrete, visual, abstract progression** to help embed mathematical concepts. The relationship between these three can often be fluid and it is up to teachers to utilise tools to best suit their class.

The need for concrete resources, should lessen as pupils become more able with maths, with the abstract being the aim. However, some scaffolds or manipulatives may still be needed to support learners or introduce new concepts. Our end goal is that pupils can choose resources or methods themselves, when needed, to solve a problem.

- **RETRIEVING PRIOR KNOWLEDGE** - Each lesson will include a retrieval-based starter activity. This may be counting, or chanting, or a set of White Rose fluency questions.
- **ACQUIRING NEW KNOWLEDGE -** The main lesson will include explicit modelling of any new concepts being taught. This will follow an "I do, we do, you do" structure.
- **APPLYING NEW KNOWLEDGE** Most lessons will move pupils from a fluency task, towards a reasoning or problem-solving activity.

Teachers will design lessons to be accessible for all pupils, whether this be via support or otherwise. Every pupil should be given the opportunity to achieve the same objectives as their peers when possible. Higher achievers should be suitably challenged – whether this is through task progression or higher-level questioning.

SEND

In most cases, support will be provided by the class teacher through quality first teaching. Appropriate scaffolding should be put in place, to ensure that SEND children can access content covering objectives in their year group.

If this is not possible, teachers will plan to build on the child's mathematical knowledge, in a way that is beneficial to the child. This may involve re-teaching, recapping or mastering objectives from other year groups.

Where there are concerns about a child's achievement, appropriate intervention will be used to support their understanding of mathematics. Where possible, a 'keep up' not 'catch up' approach will be followed. Pupil progress meetings will play a big part in helping to identify and monitor these children. This support will be evident on our provision maps.

We use the EEF 'five-a-day' recommendations to ensure the best outcomes for our children:

- Our approach is teacher-led, with a clear structure and clear expectations.
- Our retrieval and recap activities help manage cognitive load.
- Manipulatives and modelling help to provide a scaffold for learning.
- We do not 'stream' children based on ability, based on the knowledge that flexible groupings give all children their chance to shine and to be included in maths.
- We use technology such as visualisers and interactive whiteboard content to help further support our modelling for pupils.

Cross Curricular Links

Mathematics can often very easily be linked to other subjects and should be carefully planned for wherever possible.

In PE, there are many opportunities to explore time, averages and division into groups.

In Science opportunities arise for children to use a wide range of measuring equipment; this often involves reading a variety of scales and using timing apparatus. Children also develop data handling skills through the collation and presentation of evidence and through the interpretation of results.

In Design and Technology children use measuring to an accurate degree, they also have opportunities to use and adapt recipes to cook for different amounts of people, as well as measuring out ingredients.

Opportunities arise in Geography when developing map skills and in History when using statistical evidence.

Above all else, we promote maths as an integral part of life outside of school, highlighting its importance for future careers and every day living.

Equal Opportunities

Mathematics provision will be accessible to all pupils in the school regardless of race, gender, class, religion and disability.

Progression by key stage (taken from National Curriculum)

KS1

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the 4 operations, including with practical resources [for example, concrete objects and measuring tools].

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Y3/4

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the 4 operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word-reading knowledge and their knowledge of spelling.

Y5/6

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of year 6, pupils should be fluent in written methods for all 4 operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

Monitoring and Evaluation

Monitoring will take place each term and will be led by the Math's Coordinator, with help from the trust School Improvement team. Monitoring may include:

- Book scrutiny
- Planning scrutiny
- Learning walks/observations
- Pupil voice
- Team meetings and discussion

Any issues that have been highlighted will be discussed with teams and actions prioritised.

Health and Safety

Staff will instruct children in the safe transport and storage of small resources around the area and activities which require children to move around or out of the area will be carefully supervised. Large pieces of equipment will generally be used at their place of storage.

Resources

Each class has been provided with their own maths resource trolley. This enables pupils to access resources efficiently when needed.

Co-ordinator's Role

The person with the responsibility for developing mathematics throughout school will ensure that, within budgetary means, resources are readily available. Non-specialists will be offered support from the post holder and made aware of the resources, including courses, to develop their expertise.

The post holder should have an overview of standards, continuity and progression in mathematics throughout school and be aware of new developments and information.

Other important documents to view:

White Rose Ready to Progress Curriculum Map

Crooksbarn Progression of Visual Representations