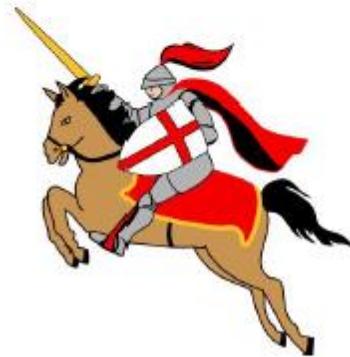


Conisbrough Ivanhoe Primary Academy



Policy for mathematics 2019

Introduction.

Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

The national curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others, and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

Rationale.

This policy describes our values in relation to meeting the needs of all mathematical learners at Conisbrough Ivanhoe Primary Academy. It outlines the framework within which all staff work and gives guidance on planning, teaching and assessment. It is designed to describe how the school intends to meet the needs of mathematics learners of all ages.

In the first instance this will be through working within the Foundation Stage Curriculum using the Early Learning Goals. From Y1 to Y6 statutory requirements of the National Curriculum in Mathematics will be met by fully implementing the New National Curriculum objectives through the use of the White Rose Maths Hub planning documents.

The policy is intended to be read in conjunction with the calculation policy which illustrates strategies and methods outlined in the national curriculum and that are taught from Reception to year 6. It is also important to read the Foundation Curriculum Framework which highlights the Early Learning Goals and the guide of progression in the Reception year.

Mathematics should be taught across the curriculum where possible to develop pupils' mathematical fluency. At Conisbrough Ivanhoe Primary Academy, we want all children to develop into confident and competent mathematical thinkers, who are able to use maths in real life situations.

Aims.

We aim to provide the children with a mathematics curriculum which will allow them to become confident individuals through developing their mathematical skills to their full potential. We also aim to present maths as a challenging, exciting, creative and relevant subject in order to promote a positive and confident attitude.

Conisbrough Ivanhoe Primary Academy values the individuality of all children. We are committed to giving all of our children every opportunity to achieve the highest of standards. We do this by taking account of pupils' varied life experiences and needs. We offer a broad and balanced curriculum and have high expectations for all children. The Inclusion Policy helps to ensure that this school promotes the individuality of all of our children, irrespective of ethnicity, attainment, age, disability, gender or background.

Our school aims to be an inclusive school. We actively seek to remove the barriers to learning and participation that can hinder or exclude pupils. This means that equality of opportunity must be a reality for our children. We make this a reality through the attention we pay to the different individual and groups of children within our school to ensure minimal risk of underachievement. Please refer to the inclusion policy for further details.

All children will be taught to develop their mathematical skills to the best of their ability. This school will aim to provide a high standard of mathematical education and will promote knowledge, skills and understanding at all levels. The target is for all children to reach their age related expectations in numeracy to prepare them for the world around them. In order to achieve this, our aims as teachers are:

- to encourage an enthusiastic and inquisitive attitude to mathematics
- to foster high standards of achievement in mathematics
- to develop pupils' numeracy and mathematical fluency, reasoning and problem solving in all subjects so that they understand and appreciate the importance of mathematics.
- to teach children to apply arithmetic fluently to problems, understand and use measures, make estimates and sense check their work.

- to enable children to apply their geometric and algebraic understanding, and relate their understanding of probability to the notions of risk and uncertainty.
- to help children understand the cycle of collecting, presenting and analysing data.
- to teach children to apply their mathematics to both routine and non-routine problems, including breaking down more complex problems into a series of simpler steps.
- to equip children with strategies to enable them to apply mathematics to real and unfamiliar situations within and beyond the classroom
- to develop an appreciation of the intrinsic value and fascination of mathematics as well as its usefulness in life
- to be fluent mentally at basic 4 operation number sentences

Therefore, children will be able:

- to develop a positive and confident attitude to mathematics
- to make an active contribution to their own learning, by developing the skills of independence and enquiry
- to become confident and competent working with mathematics
- to develop an understanding of the ways in which information is gathered and presented
- to become thinkers and problem solvers
- to develop a clear understanding of the language of mathematics
- to develop logical thinking and reasoning, enabling them to record work clearly and in a variety of ways
- to develop the skills, knowledge and understanding needed in daily life

Objectives.

The national curriculum identifies three main aims in the primary phase:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

The national curriculum states *'Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas.'* Therefore, it is organised into distinct domains. However, pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. The distinct domains highlight the important areas of mathematics children need to learn to make effective progress.

Key Stage 1	Key Stage 2
<ul style="list-style-type: none">• Number and place value• Addition and subtraction• Multiplication and division• Fractions• Measures• Geometry: properties of shape• Geometry: position and direction• Statistics (Year 2)	<ul style="list-style-type: none">• Number and place value• Addition and subtraction• Multiplication and division• Fractions (including decimals and percentages)• Ratio and proportion (Year 6)• Measures• Geometry: properties of shape• Geometry: position and direction• Statistics• Algebra (Year 6)

At Conisbrough Ivanhoe Primary Academy, we ensure:

- A dedicated daily mathematics lesson is planned in each class, which will last for an hour KS1 and KS2. In the Foundation Stage there will be a daily lesson which will last for at least 30 minutes, alongside opportunities for mathematical activities daily through continuous provision.
- Every maths lesson will begin with 'Morning Activity' (KS1) or 'Countdown' (KS2) which aim to consolidate mental recall and informal/written calculations (See Calculation Policy)
- Lessons are well structured, lively and delivered at a good pace.
- Variation will be used to broaden the children's exposure to the learning objectives in a wide range of context to ensure deeper understanding of concepts.
- Teaching, questioning and level of support is differentiated to children so that the children are all working towards the same learning objective appropriate to their age group.
- All children will be exposed to challenge through tasks and questioning including further mastery standard problem solving activities for gifted and talent pupils.
- Time is given in other subjects for pupils to develop and apply their mathematical skills, e.g. Opportunities in Science and the foundation subjects.
- Children will actively take part and are enthusiastic during their maths lessons and will develop an appropriate mathematical vocabulary as modelled by the teachers using guidance from the Vocabulary Policy (See Vocabulary Policy).

Teaching and learning strategies

- The children are taught in classes dependent on their age and mathematical ability.
- Differentiation is provided with targeted, positive support to help those who have difficulties with mathematics, as well as those who are higher achievers. In line with the aims of the NC2014, differentiation has now moved to focus on all children achieving the same learning outcome and the differentiation is the way that different groups of children are supported to achieve this.
- Work is carried out using a balance of individual, paired and group work.
- A high proportion of lesson time is devoted to direct teaching of methods and vocabulary through modelled examples to ensure that the children are fully confident to tackle independent tasks.
- Teachers demonstrate, explain and illustrate mathematical ideas to fully involve pupils and maintain their interest through appropriately demanding work.
- Teachers use and expect pupils to use correct mathematical notation and vocabulary (See Vocabulary Policy).
- Mathematical errors and misconceptions are dealt with as they are identified in a positive and supportive way, teaching what is right and what is not right.
- The emphasis on pupil's learning begins with practical examples (where necessary) leading onto informal jottings and mental strategies, and finally to formal representations as laid out for year groups in the calculation policy (See Calculation Policy)
- Children are given a variety of mathematical approaches to solving problems. They are encouraged to develop their own mathematical strategies as well as learning standard methods.
- We recognise and help to develop the children's abilities to select methods for problem solving mentally, recognising that these may differ from those used to solve pencil and paper problems.
- A high priority will be placed on children reasoning and explaining their strategies.
- Children in KS1 and KS2 complete a weekly arithmetic test.
- Children have an allocated weekly slot within class to use TTRS (Times Table Rock Stars) in an attempt to improve the rapid recall of multiplication facts.

Curriculum and planning

- The Long Term Plan (LTP) is taken from the White Rose Maths yearly overview and the corresponding termly overviews are used to inform Medium Term Planning (MTP)
- The LTP is used as a guidance tool in order to pace out coverage of the curriculum throughout the year. Teachers are encouraged to use their professional discretion when deciding on how long is needed on each particular curriculum area whilst ensuring all objectives are covered by the end of the academic year. Careful consideration needs to be taken in Y2 and Y6 to ensure all objectives are covered before SATs.
- Short term planning (STP) is recorded each week on standard planning sheets. These plans outline the topic area /focus with specific learning objectives and the associated activities to be taught that week in addition to any support children will be receiving.
- Books are scrutinised by the Maths Subject Leader throughout the school year and feedback is provided.

Assessment.

Assessment for Learning (AFL) is regarded as an essential part of teaching and learning and is a continuous process which is shared with all learners. All class teachers are committed to raising standards of attainment through AFL and are responsible for the assessment of all pupils in their class.

At Conisbrough Ivanhoe Primary Academy, we are continually assessing pupils' progress. We see assessment as an integral part of the teaching process and strive to make our assessment purposeful, allowing us to match the correct level of work to the needs of the pupils, thus benefiting the pupils and ensuring confidence and progress. Information for assessment is gathered in a variety of ways:

- Talking to the children
- Observations of individuals or groups, looking for particular skills or concepts to be demonstrated
- Teacher marking of independent work using the 'star and wish' concept and the identification of next steps
- Self and peer assessment of independent work using traffic lights and the identification of next steps
- Statutory and Non Statutory Assessment tests (Y2-Y6)
- Homework set that is appropriate and relevant to the mathematics curriculum being taught

For each key objective, children undertake an independent piece of work in their Independent Maths Books (roughly every two weeks), which is marked by both the children and teacher against specific learning objectives and feedback is given on an individual basis. Children are regularly given the opportunity to assess their own or peers' progress against specific learning objectives.

Pupils' progress is tracked through Foundation stage, and from Y1 to Y6 is recorded using E-Mag. Half-Termly Teacher Assessments are reviewed by the Assessment coordinator to facilitate tracking and target setting and support the monitoring of children's progress.

Parental Involvement.

At Conisbrough Ivanhoe Primary Academy we encourage parents to be involved by:

- Inviting them into school twice yearly to attend parent consultations which provide an opportunity to discuss the progress of their child in relation to end of year expectations.
- Providing reports in the autumn and spring terms and a full annual report in the summer term.
- Providing weekly homework with explanations of mathematical methods used.
- Providing parent workshops to familiarise parents with current methods and expectations.

Resources.

Each class has a general bank of resources for day-to-day maths lessons. Further shared resources can be found in the Maths resource cupboard located on the junior corridor. Each classroom is equipped with an interactive whiteboard and a range of interactive teaching programmes are available both on teacher and student laptops. Each key stage has an iPad trolley with a selection of Maths apps available for use at the teacher's convenience.