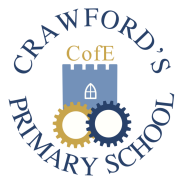


# Mathematics Curriculum

*'Following Jesus, together we care, inspire and achieve.'*

*'Pure mathematics is, in its way, the poetry of logical ideas.'*

Einstein



## 1. Aims and objectives

- 1.1 Mathematics teaches children how to make sense of the world around them by developing their ability to calculate, reason and solve problems. It enables children to understand and appreciate relationships and patterns in both numbers and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.
- 1.2 The aims of teaching mathematics are:
- to promote the enjoyment of learning through practical activity, exploration and discussion;
  - to promote confidence and competence with numbers and the number system;
  - to develop the ability to solve problems through decision-making and reasoning in a range of contexts;
  - to develop a practical understanding of the ways in which information is gathered and presented;
  - to explore the features of shape and space, and develop measuring skills in a range of contexts;
  - to understand the importance of mathematics in everyday life
  - to 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.
  - to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
  - to solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

## 2. Teaching and learning

### 2.1 Programme of study

#### Key Stage 1

Number - number and place value  
Number - addition and subtraction  
Number - multiplication and division  
Number - fractions  
Measurement  
Geometry - properties of shapes  
Geometry - position and direction

#### Lower Key Stage 2

Number - number and place value  
Number - addition and subtraction  
Number - multiplication and division  
Number - fractions  
Measurement



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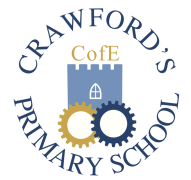
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Geometry - properties of shapes  
Geometry - position and direction  
Statistics

## Upper Key Stage 2

Number - number and place value  
Number - addition and subtraction  
Number - multiplication and division  
Number - fractions(including decimals and percentages)  
Ratio and proportion  
Algebra  
Geometry - properties of shapes  
Geometry - position and direction

2.2 The school uses a variety of teaching and learning styles in mathematics lessons. Our principal aim is to develop children's knowledge, skills and understanding in mathematics. We do this through daily lessons that have a high proportion of whole-class and group-direct teaching. During these lessons, we encourage children to ask as well as answer mathematical questions. They have the opportunity to use a wide range of resources. Children use ICT in mathematics lessons which will enhance their learning. Wherever possible, we encourage the children to apply their learning to everyday situations.

2.3 Our classes have mixed-age children who have a wide range of mathematical abilities. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies – in some lessons through differentiated group work and in other lessons by organising the children in different groups or together on open-ended problems or games. We use teaching assistants to support some children and to ensure that work is matched to the needs of individuals.

## 2.4 **Calculation – See [Calculation Policy](#)**

We introduce the children to the processes of calculation through practical, oral and mental activities. We consider a secure knowledge of number facts to be essential to all future learning in mathematics. Therefore we place great importance on the mental and oral aspects of our lessons and on the learning of multiplication tables. We try to practice consistency in our approach to calculation strategies at each Key Stage, see calculation policy.

## 3. **Mathematics curriculum planning**

3.1 Mathematics is a core subject in the National Curriculum

3.2 We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term).

3.3 Our medium-term mathematics plans, which are adopted from the programmes of study, and give details of the main teaching objectives for each term, define what we teach. They ensure an appropriate balance and distribution of work across each term. These plans are reviewed by the subject leader.

3.4 It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives and expected outcomes for each lesson, and give details of how the lessons are to be taught.



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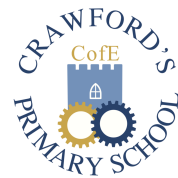
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## 4. The Foundation Stage

4.1 Maths is delivered to reception children through the Early Years Foundation Stage curriculum. We relate the mathematical aspects of the children's work to the objectives of problem-solving, reasoning and numeracy as set out in the EYFSP assessment scales, which underpin the curriculum planning for children aged three to five. We give all the children ample opportunity to develop their understanding of numbers, measurements, patterns, shapes and space, through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics.



## 5. Contribution of mathematics to teaching in other curriculum areas

### 5.1 Literacy

Mathematics contributes significantly to the teaching of Literacy in our school by actively promoting the skills of reading, writing, speaking and listening. For example, we encourage children to read and interpret problems, in order to identify the mathematics involved. The children explain and present their work to others during plenary sessions. Younger children enjoy stories and rhymes that rely on counting and sequencing. Older children encounter mathematical vocabulary, graphs and charts when reading non-fiction texts.

### 5.2 Computing

Children use and apply mathematics in a variety of ways when solving problems using IT. The Computing curriculum also provides opportunities to use maths e.g. controlling bee bots on a maze or logic statements when programming using Scratch.

Younger children use ICT to communicate results with appropriate mathematical symbols. Older children use it to produce graphs and tables when explaining their results or when creating repeating patterns, such as tessellations. When working on control, children use standard and non-standard measures for distance and angle. They use simulations to identify patterns and relationships.

### 5.3 Science

In science, pupils apply their mathematical skills in a meaningful context as they decide which evidence to collect and what equipment to use. Children collect and handle real data as they make and record observations and measurements, identify patterns and make comparisons. Pupils also need to communicate their findings in a variety of ways and this relates directly to their mathematical skills. They draw and interpret tables, graphs and pictograms and they use ICT to record and manipulate their data.

### 5.4 Physical Education

High-quality PE activities require measurements of distance, time and force; skills involving shape and space; directional work and the use of mathematical language are also encouraged.

### 5.5 Humanities

In our cross-curricular work mathematics is used, for example, to produce timelines, and handle historical dates and it is very much part of our map work including the use of grid



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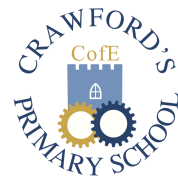
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references and drawing plans.

- 5.6 We believe that mathematics also has a part to play in our other subject areas, particularly DT.

## 6. Teaching Mathematics to children with special needs

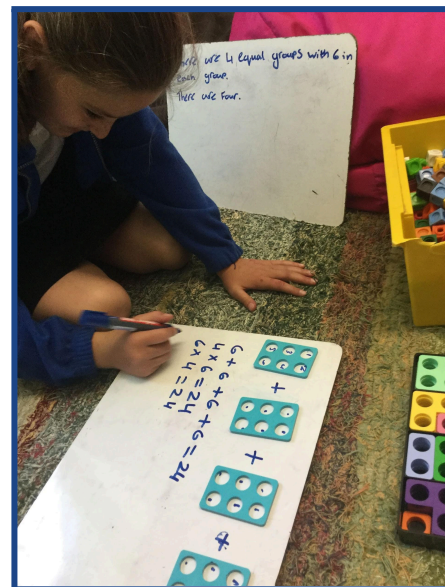
- 6.1 We teach mathematics to all children, whatever their ability. It is part of the school curriculum policy to provide a broad and balanced education to all children. We provide learning opportunities that are matched to the needs of children with learning difficulties. Work in mathematics takes into account the targets set for individual children in their Individual Education Plans (IEPs).

We use a range of intervention resources as appropriate.

## 7. Assessment and recording

### 7.1 AFL (Assessment for Learning)

Assessment of mathematics is an ongoing process. Assessment for Learning is woven into everyday lessons through pupil feedback, teacher/ TA observation and marking of pupil's work. This is used to inform and adapt planning, and to set group and individual targets.



### 7.2 Assessment

In each class, the teacher assesses pupil attainment in order to plan the next steps of learning.

- 7.3 We make long-term assessments towards the end of the school year, and we use these to assess progress against the school and national targets. We can then set targets for the next school year and make a summary of each child's progress before discussing it with parents. We pass this information on to the next teacher at the end of the year, so that s/he can plan for the new school year. We make long-term assessments with the help of end-of-year tests and teacher assessments. We use the national tests for children in Year 2 and Year 6, plus the optional national tests for children at the end of Years 3, 4 and 5. We also make annual assessments of children's progress measured against the level descriptions of the National Curriculum.

## 8. Monitoring and review

- 8.1 Monitoring of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the mathematics subject leader. 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. The mathematics subject leader gives the headteacher an annual summary in which s/he evaluates strengths and weaknesses in the subject, and indicates areas for further improvement. The headteacher allocates regular management time to the mathematics subject leaders so that they can plan and review mathematics teaching across the school.



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