



# *Mathematics Policy*

*Review Date - January 2020*

*Every Child, Every Chance, Every Day, Working Together*





# Mathematics Policy

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## 1. **What is Maths?**

- 1.1 Numeracy is ranked by society as second only to literacy, and as such is a fundamental and essential part of everyday life.
- 1.2 Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many people to the development and application of mathematics.

## 2. **Aims**

At Crabtree Farm Primary School we aim

- 2.1 To promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion
- 2.2 To develop logical thinking and reasoning skills through a natural curiosity and investigative approach
- 2.3 To promote confidence and competence so that children are 'proud to shine' about their achievements
- 2.4 To develop fluency of key skills through a deep understanding of numbers and the number system
- 2.5 To develop the ability to solve problems through decision-making and reasoning in a range of contexts
- 2.6 To develop a practical understanding of the ways in which information is gathered and presented
- 2.7 To explore features of shape and space, and develop measuring skills in a range of contexts
- 2.8 To understand the importance of mathematical skills in everyday life.

### 3. **Teacher Guidelines**

#### Scheme of work – Early Years Foundation Stage (EYFS)

3.1 Mathematics within the Early Years is taught through the guiding principles of the EYFS Curriculum and the EYFS Profile Early Learning Goals.

The areas include:

- Early number sense
- Counting
- Matching and sorting
- Patterns
- Making connections
- Recognising relationships
- Working with numbers
- Shape, space and measures
- Problem solving
- Calculating

3.2 Mathematics in EYFS is planned for in several ways:

- A range of child initiated activities, planned activities and continuous provision over a twelve week cycle, ensuring all areas of learning within mathematics are covered.
- Direct teaching sessions, which follow a mastery approach.
- Assessed adult led activities, where children work in small groups with an adult, following the principles of the EYFS curriculum or a development of the direct teaching session.
- Frequently in other areas of the setting, for example sand, water, ICT, outdoors
- At times during the daily routine when there are practical opportunities for counting and calculating.
- Opportunities for writing numerals such as in ‘role play’ and the more formal teaching of writing numerals.

3.3 Within direct teaching sessions, in both F1 and F2, the children are taught through a Mastery approach programme. The programmes were created and are being developed as part of a research project by the Early Years Team at Nottingham City Council, in partnership with East Midlands South Maths Hub, Nottingham University and selected City Schools – funded by Nottingham City Education Improvement Board (F2 Mastery Group 2016-17 and F1 Mastery Group 2017-18; with ongoing professional working groups). The session’s revisit prior learning and teach all areas of mathematics, allowing children to

*apply the direct teaching with a hands-on approach. In F1 there is a particular focus to pattern work and in F1 and F2 a particular focus on early number sense.*

- 3.4 *Activities are planned to support children's developing communication skills and understanding of Mathematical language.*
- 3.5 *Progress is recorded in the classroom through ongoing assessments during direct teaching, adult-led activity trackers and any child initiated evidence (recorded through observations and photographs). Termly assessments are completed for all children on SIMS, which feed into the Early Years Foundation Stage Profile at the end of F2.*
- 3.6 *Homework is set weekly in F2 and are practical activities for the children to complete at home, to help them consolidate the learning taking place that week. In F1 there are weekly handouts that children can choose to take home, again to consolidate the week's learning.*
- 3.7 *The teaching and learning takes place through:*
- *Oral starters- the children are involved in fluency activities, games, songs and rhymes. Visual material and active learning are key strategies in these sessions.*
  - *Teacher directed activities- activities and language are modelled after the learning objectives have been shared with the children (using manipulatives to support learning).*
  - *Target activities- children work in small mixed ability groups with the teacher on activities.*
  - *Independent activities- these activities reinforce the learning objectives for that week's work. There are always several independent activities in the inside and outside environment. Support is given to children when necessary.*

#### Scheme of work-Years 1-6

- 3.9 *The White Rose Scheme of work will be followed from Years 1-6 in order for teachers to teach using the Mastery approach. The New Curriculum 2014 for Mathematics must also be referred to regularly to aid planning and teaching.*
- 3.10 *The Maths No Problem text books, the NCETM Mastery documents and the vast selection of resources we have in school will be used to support the teaching and learning of the 2014 National Curriculum for Mathematics using a Mastery approach.*
- 3.11 *The White Rose Scheme of work provides Yearly overviews and structured termly plans. Weekly plans will be completed using the updated (Summer 2018) Crabtree Farm Mathematics weekly planning grid.*

### Time Allocation

- 3.12 The time allocation for mathematics is 180 hours per year. Lessons are taught daily each lasting between 45-60 minutes depending on the appropriateness. Each session should follow the structure of a Mastery lesson as outlined on the planning grid. This includes previous knowledge, problem of the day, fluency task, reasoning task and extension activity.
- 3.13 Every opportunity should be sought to practise and promote maths throughout the working day. Regular “incidental” maths and “simmering” activities are an extremely powerful method of reinforcing concepts, and for some children, such activities are their main source of internalising information.

### Recording and Presentation

- 3.14 Work may be recorded in the children’s Yellow maths books or maths folder, according to the nature of the activity.
- 3.15 Children will have a daily task sheet which will be stuck into their books and will provide the structure and tasks for the lesson.
- 3.16 Children should be encouraged to take pride in the presentation of their work, which should conform to the school’s policy on presentation.
- 3.17 Titles of work should be written in the form of a learning out-come.
- 3.18 Children should be encouraged to record all informal jottings. This can be in maths books or if preferred, a yellow whiteboard book.

## **4 Teaching Methods**

### Delivery

- 4.1 A variety of methods should be used; however, generally the Singapore Method for teaching Mathematic should be adopted. Each lesson should include a recap of previous knowledge, a problem of the day, a fluency task to teach new skills to solve the problem, a reasoning task to apply their new knowledge and an extension activity. Concrete, Pictorial and Abstract approaches should be utilised. Each lesson should include time for children to discuss problems and use reasoning skills.

### Grouping

- 4.2 From year 3 children will be placed into target groups, depending on ability. These groups should be fluid and children will move groups when appropriate.
- 4.3 A Pre or post teach session will be delivered up to 4 times a week for children who need extra input in order for them to continue to make progress broadly in line with the rest of the group or class.
- 4.4 Children should be given differentiated tasks that are carefully matched to their ability in order to maximise their learning.

### Use of Resources

- 4.4 Effective teaching can be greatly enhanced by the skilful selection of resources that are appropriate to the task and to the child.
- 4.5 At Crabtree Farm Primary School our resources are many and varied and should be utilised to reflect this. Whilst published schemes can, at times, be a valuable resource, they should be used selectively and thoughtfully.
- 4.6 “Where teaching is concerned, better numeracy standards occur when teachers...make judicious use of textbooks, worksheets and ICT resources to support teaching, not to replace it”
- 4.7 Each classroom will have a range of resources appropriate to age and stage. These resources should be displayed and easily accessible for the children to promote independent learning.

### Vocabulary

- 4.8 Opportunities to introduce and reinforce mathematical vocabulary should be sought regularly, either formally within the lesson, or incidentally throughout the day.
- 4.8 Whenever possible, teachers/teaching assistants should echo the mathematical vocabulary used by the children, either to reinforce or to introduce more appropriate terminology. This can be achieved verbally or in written form when marking.
- 4.9 Vocabulary should be displayed on working walls.

### Investigational type activities

- 4.10 Investigational type activities should be a regular feature of a child's mathematical experience. In short-term planning we should be mindful of including this type of activity on a daily basis as a problem of the day or reasoning task.

### Tried and Tested

- 4.11 It is important that the children are allowed to develop their own methods of calculating. They should be taught how to check their result and to consider whether they are reasonable or not. A tried and tested method is more likely to give accurate results owing to a deeper understanding. Please see the Calculations policy.
- 4.12 All pupils should be encouraged and expected to try to tackle a problem with discussion and mental methods before using any other approach.

## **5 Planning**

### Long Term

- 5.1 Mathematics is a core subject in the National Curriculum and we use the New National Curriculum for Mathematic 2014 as the basis for implementing the statutory requirements of the programme of study for mathematics.
- 5.2 An overview for the whole year follows the White Rose Scheme of work.

### Medium Term

- 5.3 Our medium-term mathematics plans, which are adopted from the White Rose Small Steps Scheme of work 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 kept by both the class teachers and the subject leader.

### Short Term

- 5.5 It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives for each lesson and give details of how the lessons are to be taught. The class teacher keeps these individual plans, and the class teacher and subject leader can discuss these on an informal basis.

- 5.6 *If planning is not carried out in conjunction with the parallel teacher, close consultation must take place to ensure continuity and progress between the classes.*
- 5.7 *Short term planning will be reviewed in the same way as the medium term planning.*
- 5.8 *One piece of Numeracy Homework should be given to the children once a week and kept together in a folder.*

## 6. **Assessment**

- 6.1 *Assessment is a part of everyday classroom activity. It is a continuous process carried out by observation, listening, talking and marking.*
- 6.2 *We assess children's work in mathematics from three aspects (long-term, short-term and medium-term). We make short-term assessments which we use to help us adjust our daily plans. These short-term assessments are closely matched to the teaching objectives.*
- 6.3 *We make medium-term assessments to measure progress against the key objectives, and to help us plan the next unit of work. We use termly assessments as a way of recording. Each child has a Primary Impact Framework sheet which is kept in teachers' assessment folders on which achieved objectives can be highlighted.*
- 6.4 *We make long-term assessments towards the end of the school year, and we use these to assess progress against 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, and complete assessment grids, so that s/he can plan for the new school year. We make the long-term assessments with the help of term Puma tests and teacher assessments. We also make annual assessments of children's progress measured against the level descriptions of the National Curriculum.*
- 6.5 *Teachers meet to review individual examples of work against the national exemplification material.*

## 7. **Special Educational Needs**

### Lower Attaining Children

- 7.1 *Children have a wide range of abilities. In their planning teachers must plan for differentiated activities to ensure that the work is matched to the needs of the individual and to groups of children.*



- 7.2 Lower attaining children should have access to a broad and balanced curriculum at a level that is appropriate to their ability often working in small groups.
- 7.3 Children should be taught how to use a range of apparatus and equipment to support their learning.

#### Higher Attaining Children

- 7.4 Higher attaining children should not be allowed to become complacent. They should be continually stretched. This can be achieved through:
- (a) Providing additional tasks to embed concepts at a greater depth by giving children the opportunity to make decisions and choices about what they do and how they do it.
  - (b) Providing activities that are staged to become increasingly challenging.
  - (c) Asking children to devise their own problems to solve.

### **8. Equal Opportunities**

- 8.1 Equal opportunities should be provided for all children in the learning of mathematics.
- 8.2 All children should have equal access to resources, including the human resource of teachers and teaching assistants.
- 8.3 Teachers should be mindful of the potential under performance of particular groups of children in the class.
- 8.4 All children should be allowed the opportunity to explain their methods and share their strategies.

### **9. Information and Communication Technology**

- 9.1 Teachers should ensure that appropriate and regular use is made of I.C.T in mathematics for all children.
- 9.2 Children in year 1-6 all have access to Mathletics and this can be used during whole class sessions on the computers/IPads or for the children individually, both in school and at home.

## 10 **Resources**

- 10.1 The majority of resources are stored within each classroom although larger items are stored centrally. Practical resources are stored in large plastic boxes, labelled according to topic area. Teacher resources are stored and labelled according to topic area.
- 10.2 Published schemes are generally situated in or near the classrooms of the relevant year group.
- 10.3 A budget will be set each year for year groups to enhance their resources depending on the needs of the cohort, requests to purchase further maths resources should be made via the maths coordinator.

## 11. **Displays**

- 11.1 It is an expectation that each classroom will have a Mathematical working wall. The display(s) should reflect the current teaching within the room and act as an aid to learning. Children's work should also (where appropriate) be displayed to show expectations of learning.

## 12. **Targets**

- 12.1 National Average at the end of each year
  - Year 1 – 1S
  - Year 2 – 2S
  - Year 3 – 3S
  - Year 4 – 4S
  - Year 5 – 5S
  - Year 6 – 6S

## 13. **Review**

- 13.1 Acceptance of the mathematics policy implies commitment to it.
- 13.2 The mathematics policy will be evaluated and reviewed on a regular basis.

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