



**Abacus Primary School**

# **Maths Policy**

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**Written by: K. Hodkin and H. Head**

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**Future Review date: December 2024**



# Mathematics:

## Concrete, Pictorial and Abstract (CPA) Method

A fundamental method for teaching and learning mathematics is through the (1) concrete, (2) pictorial and (3) abstract approach.

### Build it, draw it, write it:

1. This is the '**doing stage**' where learners are encouraged to manipulate hands-on concrete materials building, counting and ordering objects.
2. This is the '**seeing stage**' where visual representations of concrete objects are used to model problems. This helps learners to visualise mathematics.
3. This is the '**symbolic stage**'. Finally, having gained experience of the concrete and pictorial manipulatives, learners can develop more formal written methods, including using symbols to represent mathematics.

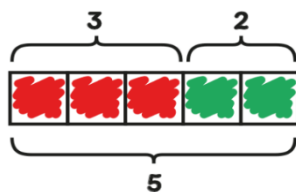
A skilled practitioner will go between each stage to strengthen and reinforce key mathematical concepts.

### Concrete, Pictorial and Abstract Approach

**Concrete:**



**Pictorial:**



**Abstract:**

$$3 + 2 = \boxed{5}$$

## **Intent:**

### **Communication**

At Abacus, our Maths curriculum ensures all children build communication skills through collaborative work between teachers and students, but also peer feedback. We use a variety of ways to ensure that all members of the classroom work collaboratively to give reasons, be inquisitive and question answers when working through a problem. We encourage students to use taught and learnt vocabulary to help notice patterns and ask for help when needed, either from a teacher or a peer.

### **Independence**

We promote independence in Maths at Abacus by ensuring that all children challenge themselves when attempting a problem by attempting a question before asking for help. This will be developed by children understanding what strategies can be used in order to tackle a challenge. Children will be prepared for lessons with the appropriate equipment. Resilience will be built as they work through difficult tasks and thus they will feel proud when accomplishments are made.

### **Engagement**

Maths lessons at Abacus ensure that all pupils are engaged throughout and that children have a thirst for learning outside of the lesson. Pupils will have the opportunity to take part in Active Learning techniques, such as Kagan Structures. This will ensure that pupils are engaged in all parts of the lessons and will get the most out of their learning. Pupils can also further their learning at home, independently, by using Timestable Rockstars. Furthermore, pupils will be exposed to many different styles of activities and challenges. Competitive elements encourage greater interaction and mutual respect is at the forefront of this. Through this active approach to learning, children will recognise success and continue to celebrate their achievements.

### **Wellbeing**

Children and adults at Abacus recognise the importance of the wellbeing of an individual and through the Maths curriculum we promote an understanding of how to take care of ourselves. Pupils learn in a variety of supportive ways which will help all children succeed. Support is given through Working Walls, understanding that it is okay to ask for help, asking for help, knowing that not understanding is allowed and that we are not a failure if we struggle with something.

Pupils and teachers know the impact that recognising achievements can have on their mental health and therefore ensure that this takes place in every lesson. As well as this, pupils understand that sometimes they may not achieve their own desired outcome in Maths and are taught to look for the success, no matter how small.

## **The purpose of this policy**

The aim of the maths policy is to ensure that children will leave Abacus Primary School as mathematically literate individuals who enjoy mathematics. It has also been written to ensure consistency and progression throughout the school and they include the following aims:

- a positive attitude towards mathematics and an awareness of the fascination of mathematics
- competence and confidence in mathematical knowledge, concepts and skills
- an ability to solve problems, to reason, to think logically and to work systematically and accurately.
- initiative and an ability to work both independently and in cooperation with others
- an ability to communicate mathematics and mathematically
- an ability to use and apply mathematics across the curriculum and in real life
- an understanding of mathematics through a process of enquiry and experiment

## **Roles and responsibilities**

Every member of the school community has a responsibility to ensure that maths is being taught and monitored in conjunction with the policy.

### **Subject leader:**

The maths subject leader plays a key role in supporting, guiding and motivating teachers of the subject, and other adults. The maths leader evaluates the effectiveness of teaching and learning the subject curriculum and progress towards targets for pupils and staff, to inform future priorities and targets for the subject.

### **Class teachers:**

The role of the class teacher is to support the subject leader ensure that they are following the guidance of the policy to ensure that children receive the best quality teaching to help them achieve their best and become confident mathematicians.

### **Governing Body:**

The overall responsibility for the teaching and learning in Maths is with the School Governing Body. The role of the governing body within Maths at Abacus is to monitor the delivery of the curriculum and to uphold the values and ethos of the school.

## **How Maths is taught across the school**

Mathematics is taught across the school on a daily basis. It is organised in a variety of way to best suit the needs of the children. As of September 2021, we are a 2 form entry school from FS to Year 6; each class is now single year groups and no longer mixed.

## **Organisation**

### **Foundation Stage:**

#### **Early Years and Foundation Stage**

At Abacus, the Early Years Foundation Stage (EYFS) Maths curriculum ensures that children learn and develop well. It promotes teaching and learning to provide children with the broad range of knowledge and skills needed to give them a solid foundation for good future progress throughout both their school journey and beyond as set out in the EYFS Framework 2021, this includes challenging children and extending their understanding beyond the set curriculum when it is deemed appropriate. Lessons are divided up to carpet time learning, explorative learning through play (including outdoor learning opportunities) and 1:1 learning with an adult.

#### **Year 1-6:**

Teaching and Learning follows the National Curriculum alongside White Rose. Each lesson is an hour per day, sometimes with extra time for mental maths sessions. Children are taught within their own classes by their own class teacher.

#### **Planning Maths at Abacus**

Staff use the National Curriculum (Years 1-6) and EYFS Framework 2021 and Development Matters (Foundation) to help plan. Alongside this, White Rose Hub is used to ensure that the correct coverage of the objectives is occurring. In Key Stage 1 and 2, staff are expected to plan five 1-hour lessons for the week which support and challenge children to achieve the best that they can.

Through careful planning and preparation, staff aim to ensure that children are given opportunities for:

- Practical activities and mathematical games
- Problem solving - children are taught and given time to practise the skills for using and applying which involve the organisation of thinking, the selection of ideas and strategies to implement and evaluate these.
- Developing mathematical vocabulary and language through 1:1, group and whole class discussions and activities with peers and adults.
- Open and closed tasks
- Developing a range of methods of calculating (eg. Mental, informal/formal written calculations).
- Working with computing as a mathematical tool (eg. interactive whiteboards, iPads).

Mathematics contributes to many subjects within the primary curriculum and where possible, opportunities will be sought to draw mathematical experience out of a wide range of activities. This will allow and support children to begin to use and apply mathematics in real contexts.

In order to ensure planning is rigorous and thorough, staff have access to planning tools such as:

- White Rose Hub
- Headstart Maths
- Twinkl
- Testbase
- Grammarsaurus
- I See Maths
- NCETM Mastering Number

### **Inclusion in your subject - what provision is there for SEND pupils?**

Children identified with SEND in mathematics are taught within the daily mathematics lesson. Activities are differentiated to ensure that the learning is accessible but challenging and accelerate children's learning. Additional support staff are strategically placed to support groups or individual children. They work collaboratively with the class teacher planning for and assessing pupil's progress; identifying next steps. Additional sessions or intervention programmes will also be delivered to individuals or small groups where appropriate. Any concerns should be raised with the SENCO. See Appendix 1 for more information about SEND in Maths.

In addition to class and school provision, pupils identified as gifted mathematicians may be selected for additional out of class enrichment programmes and opportunities.

### **Resources**

Each classroom has the necessary equipment needed for the teaching of concrete maths. Resources that may be found in classrooms are:

- Base 10
- Place Value Counters
- Cuisenaire rods
- Numicon
- Counting Blocks
- 3D shapes
- Dice
- Money
- Number squares and lines

Any other equipment that is needed for the teaching of other topics in maths can be found on the shelving unit inside the Group Room. Staff are asked to return any resources that are not needed on a daily basis to the maths area.

Should staff find that they require other resources that are not currently available in the school, then they can ask the Subject Leader if it would be possible to purchase it.

## **Assessment arrangements**

Formative teacher assessment and AFL is ongoing and is an integral part of planning, teaching and learning. Regular feedback to children about their progress and next steps is given to children orally and in written form as appropriate. Formal periodic assessments are carried out in line with the school assessment timetable. Evidence of individual assessment and record keeping can be found in:

- Children's books
- Pupil peer marking
- Pupil Progress meeting minutes
- Target Tracker - teacher assessments
- White Rose End of Unit assessments
- Assessments - Autumn, Spring and Summer (PUMA Test)
- End of Key Stage 2 SATs - Year 6
- Baseline for Foundation Stage
- Year 4 Multiplication Tables Check (MTC)

Assessment records and Summer Tests are passed on to the next teacher at the end of the school year and are used to inform provision for the following academic year.

Parents are informed of pupil progress through parent-teacher consultations throughout the year.

## **Home school partnership opportunities**

From Year 2, Children have the opportunity to work on their multiplication fact recall by accessing Times Table Rockstar at home in order to aid them with their learning at school.

White Rose One Minute Maths app is recommended to children to work on a range of mental calculation skills including subitising as well as the 4 operations.

Parents are informed of children's achievements on a regular basis either through formal Family Consultations (held twice a year), end of year report or through messages of encouragement or concern throughout the year. Parents are asked to come and speak to class teachers or make appointments should they have any concerns regarding their child's maths learning.

## **Impact - How will this policy be monitored and reported?**

This policy will be monitored by the subject leaders, SMT and the Governing Body. This monitoring may be via lesson observations, planning and work analysis. There may also be staff and pupil questionnaire. Findings from any monitoring will be reported via Subject Release Forms and/or in staff meetings.



**Policy Review:**

This policy will be reviewed yearly by staff and subject leader. This will ensure a broad and balanced and up to date coverage of the Maths curriculum at Abacus.

Date of next review: December 2024

**Does this policy need to be read in conjunction with any other policy?**

- Calculation Policy
- Curriculum Policy
- Assessment Policy
- Marking and Feedback Policy
- SEND Policy
- Equality Policy

## SEND and Mathematics

### 1. Recommended strategies to support differentiation:

#### a) QFT

- Link new learning to what pupil already knows.
- Specific activities are differentiated appropriately.
- Use a range of manipulatives e.g. base 10, place value counter, Numicon.
- A range of aids and resources is easily accessible to support learning and aid independence.
- Engaging learning strategies e.g. Kagan Structures, cross curricular links
- Schemes and resources to provide high quality mastery opportunities e.g. White Rose and Head Start.
- Varying start points to meet needs and challenge all learners.
- Revising learnt skills through starters to deepen and embed the learning.
- Creating maths opportunities throughout the school day e.g. totalling lunches

#### b) Additional School Intervention and Support

- More time is allowed to enable learning to automaticity before further skills are taught.
- There is increased differentiation of activities and materials at group/individual level.
- Teaching approaches involve visual and practical resources.
- Pre-teaching of vocabulary and key concepts is used.
- Practical maths e.g. games, loop cards
- Maths apps/ websites e.g. TTRS
- Any support provided by an additional adult must continue to be planned and monitored by the teacher.

#### c) High Needs

- Strategies will be followed from within the child's EHCP or from any specialist advice received.

### 2. Recommended Assessment Tools, Resources and Interventions:

- EPS Maths assessment tool
- Plus one/ Power of 2
- Precision teaching
- Self-checking mental maths flash cards

### 3. Monitoring SEND

- SEND will be routinely monitored as part of subject monitoring during the academic year.
- The subject leader will use a checklist of recommended strategies above to identify good practice through their observations, climate walks, conversations with pupils and work scrutiny.
- The subject leader will use Target Tracker data (and One Plan data where relevant) to identify progress of SEND pupils in their subject, as well as evidence from exercise books and other sources.