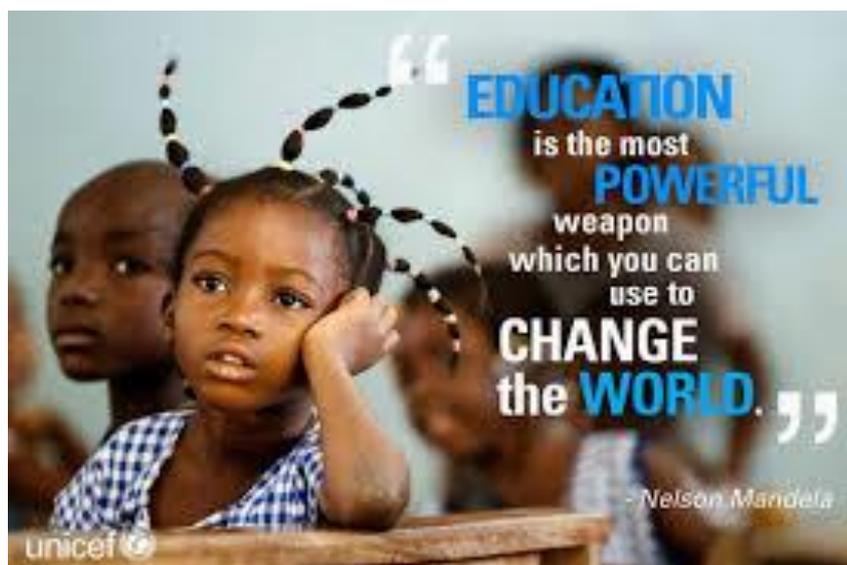


Adderley Primary School

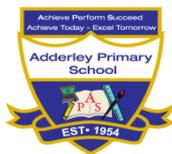
Maths Policy

2019 - 2020

Based on the values and principles of the UN Convention on the Rights of the Child



Agreed by:	Governing Body
Review date:	December 2020



Everyone at Adderley Primary School has the right to an outstanding education. As a Rights Respecting School, our Maths Policy has been developed in line with the articles in the UNCRC.

Mathematics Vision

'Every child a mathematician'

Mathematics is vital for the life opportunities of our children. Our aim is for all children to think mathematically, enabling them to reason and solve problems in a range of contexts. At Adderley Primary School, our Mathematics Mastery curriculum has been developed to ensure every child can achieve excellence in mathematics. Children can experience a sense of awe and wonder as they solve a problem for the first time, discover different solutions and make links between different concepts; providing pupils with a deep understanding of the subject through a concrete, pictorial and abstract approach. This ensures pupils fully understand what they are learning.

Introduction

The National Curriculum for Maths aims to ensure that all pupils:

- Become fluent in the fundamentals of Maths;
 - Reason mathematically;
 - Can solve problems by applying their Maths.
- (National Curriculum 2014)

We acknowledge that children need to learn basic number facts and acquire fluency in procedures, alongside developing conceptual understanding if they are able to solve increasingly complex problems in life and later in the workplace.

Our curriculum- Intent

At Adderley we follow the Maths Mastery approach and the following principles and features characterise our approach:

- Teachers reinforce an expectation that all pupils are capable of achieving high standards in maths.
- Learning Maths using the CPA (concrete, pictorial and abstract) approach and making links between them.
- The large majority of pupils' progress through the curriculum content at the same pace.
- Differentiation is achieved by emphasising depth of knowledge and challenge.
- Teaching is underpinned by carefully chosen representations which expose the structure of the maths and develop deep understanding of concepts.
- Children are taught to think mathematically and reason logically –looking for patterns and relationships.
- Communication – Precise mathematical language is used in oral/written explanations.
- A mathematically rich learning environment supports learning.

- More-able children who grasp the concept rapidly will be challenged through rich and sophisticated problems.
- Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts.
- Teachers use precise questioning in class to test conceptual and procedural knowledge, and assess pupils regularly to identify those requiring intervention so that all pupils keep up. The intention of these approaches is to provide all children with full access to the curriculum, enabling them to achieve confidence and competence – ‘mastery’ – in Maths.

Teaching and Learning- Implementation

EYFS

In the Early Years, mathematical needs of learners are met through working within the Foundation Stage Curriculum using Early Learning Goals. We relate the mathematical aspects of the pupil’s work to the Development Matters statements and the Early Learning Goals (ELG), as set out in the EYFS profile document. Maths development involves providing pupils with opportunities to practise and improve their skills in counting numbers, calculating simple addition and subtraction problems, and to describe shapes, spaces, and measures. The profile for maths areas of learning are Number (ELG11) and shape, space and measures (ELG 12). We continually observe and assess pupils against these areas using their age-related objectives, and plan the next steps in their mathematical development through a topic-based curriculum.

In the Early Years maths lessons are taught following a Five Part Model approach (see below) and all lessons are planned and delivered following this consistently. These stages include Anchor task, Modelling, Application and Challenges. There are opportunities for pupils to do maths activities (both inside and outside)- through both planned activities and the self-selection of easily accessible quality maths resources. Pupils are just as likely to access the maths curriculum through cooking activities in the cooking area, building activities in the construction area in the outdoor area. Where ever possible, pupil’s interests are used as a vehicle for delivering the curriculum. Staff will support pupil’s learning through planned activities but also value and support self-initiated mathematical learning.

Towards the end of EYFS teachers aim to draw the elements of a daily Maths lesson together so that by the time pupils move into Year 1 they are familiar with features of a more structured lesson/activity.

Years 1-6

In Year 1 – 6, maths lessons are also taught following a Five Part Model approach (see below) and all lessons are planned and delivered following this structure. This ensures that there are fluency, reasoning and problem solving activities planned for in each lesson.

The National Curriculum is delivered through the use of Mastery Schemes of Work such as; Maths No Problem and White Rose. The termly White Rose overviews identify objectives for each topic block which are derived directly from the National Curriculum. The objectives in each block are broken down into a series of carefully planned small steps. The content is taught in order as it is designed to gradually develop children’s understanding and show progression.

Lesson Structure

<u>Five Part Lesson</u>	
Mathematical Talk	Mathematical Talk – A thread throughout your lesson. Vocabulary introduced and modelled. Questions and sentence stems (specific to the topic). These would run throughout your lesson. Examples on the WR plans.
1. Anchor Task	Exploring – One problem or stimulus presented to the pupils (based on the lesson) and they are encouraged to explore it. The teacher uses this time to observe responses (AFL) and prompt further exploration with questioning to ensure all children are challenged. In focus task - MNP Examples from Varied Fluency - WRP
2. Modelling	Modelling <ul style="list-style-type: none">- Different representations (using children's examples too).- Procedure / written method (according to the calculation policy).- The solution to the problem.
3. Application	Pupils work through more examples independently with the teacher supporting them if necessary. All questions are typified by their mathematical variation – they are designed to extend pupil's thinking rather than just be lots of examples presented in the same kind of way.
4. Challenge	Problem and solving and reasoning <ul style="list-style-type: none">- Examples in WRP- MNP- Teaching for mastery document
5. Plenary	<ul style="list-style-type: none">• Address misconceptions• Moving the learning on• Pupil Voice- What have we learnt?- Not every lesson; maybe once a week, but definitely at the end of a block unit.

Classroom Environment

Maths Learning Walls should be interactive, clearly visible and represent the 'Five Part Model' with representations to support the learning in the classroom. They should provide the children with key vocabulary, key questions, sentence stems and different representations and models appropriate to the age of the children.

Resources

The use of Maths resources is integral to the **concrete – pictorial – abstract** approach and thus planned into our learning and teaching. We have a wide variety of good quality equipment and resources to support our learning and teaching. These resources are used by our teachers and pupils in a number of ways including:

- Each class has a maths trolley with a wide range of resources appropriate to the year group, such as: dice, counters, multilink cubes, diene, place value counters, tens frames, counting sticks etc. A wide range of additional resources and games are available in the maths cupboards.
- Demonstrating or modelling an idea, an operation or method of calculation e.g using a number line to count on.
- Enabling children to use a calculation strategy or method.

Teachers and Teaching Assistants are to ensure that resources within individual classes are accessible to all pupils who should be encouraged to be responsible for their use.

Times Tables

It is crucial that pupils develop quick recall of multiplication and that all pupils know their times tables to 12x12 by the end of Year 4. Pupils receive daily times tables practice as well as a weekly times tables tasks as homework. Pupils are tested on their times tables every week and their achievement is tracked on the 'Times Tables Record of Achievement' displayed in every classroom. Pupil's progress and achievements are celebrated in fortnightly assemblies and are regularly monitored by the Maths Leads to ensure all pupils are making progress.

Adderley School uses Rockstars Times tables- a web-based programme – to enable children to practise their time tables through an innovative and interesting way. Parents can also get access to this programme at home which enables them to work with their child to support his/her learning. Every child and staff member has been given login details to get access to this web-based programme. There are a range of activities to raise the speed of recalling the times tables and number bonds to promote child's learning through enjoyable and competitive activities.

Cross Curricular Links

Maths is an integral part of our daily lives and therefore manifests itself in many areas of the curriculum. Links with ICT are continually developed through use of laptops, iPads and appropriate software. Cross curricular opportunities are used to draw mathematical experiences out of a range of activities in other subjects, such as in PE, Science and Design and Technology, to enable pupils to apply and use Maths in both real life and academic contexts. At Adderley Primary School we use a creative approach to topic work through a programme called Cornerstones. This offers many opportunities to link maths across the curriculum creatively.

Pupil support and differentiation

Taking a mastery approach, differentiation occurs in the support and intervention provided to different pupils, not in the topics taught, particularly at earlier stages. The National Curriculum states: 'Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.' There is often little differentiation in the content taught but the questioning and scaffolding individual pupils receive in class as they work through

problems will differ, with higher attainers challenged through more demanding problems which deepen their knowledge of the same content.

Pupils' difficulties and misconceptions are identified through immediate formative assessment and addressed with rapid intervention – commonly through individual or small group support. The higher attainers may be set challenges according to their level of completion and ability to provide greater depth to their understanding and learning.

Assessment

Teachers assess pupils on a daily basis using a variety of strategies e.g observation, questioning, and challenge and this informs future planning.

In EYFS, pupils will be assessed and the Foundation profile completed at the end of the Reception year. In KS1 and KS2 pupils are assessed as either emerging, developing or secure in their learning objectives at the end of each unit of work and information is recorded onto the school's tracking system (Educater) once a term. Data is then used to inform future planning and provision, and to identify pupils for intervention and support. The class teacher, Maths Leader, DSEN Leader and the Strategic Leadership Team keep records of assessments. Summative end-of-term/block assessments will take place using Rising Star and previous SATs tests and Collin's Times Table tests. These tests are in line with the expectations of the 2014 curriculum.

These will link to the learning objectives for their year group and allow pupils to understand their next steps in learning. Statutory Assessment Tasks (SATs) will be administered in accordance with the DfE at the end of KS1 and KS2.

Class teachers will be responsible for annually reporting to parents on their children's progress in maths. The Maths Leader will be responsible for monitoring these processes and addressing the training/professional development needs of staff. The Maths Leader will also be responsible for collecting, collating and analysing data in order to report standards to parents, governors and the LA as required.

Parents/Carers

The school aims to engage parents/carers in their children's learning as much as possible and provides a number of opportunities for them to learn about what their child is learning and the way their child is being taught through parent workshops. Maths Workshops for parents take place at least twice a year for each class. During these workshops, parents have an opportunity to work with their children on fun, purposeful maths activities that can be extended into the home. Each workshop is planned and delivered by their children's teacher in collaboration with the maths leader. Parents/carers have the opportunity to meet with child's class teacher at least twice a year at Parents' Afternoon Meetings and receive written reports of their child's progress in Maths during the year. Information about their child's standards, achievements and future targets in maths is shared with parents/carers at these times and also ways that parents/carers may be able to assist with their child's learning.