# KAPSH Mathematics Policy

## Ethos

At Krishna Avanti Primary School we believe that mathematics is a tool that equips the children to understand and change the world. To be fully integrated into society we all need to be able to communicate mathematically, which includes being able to reason, solve problems, and to think abstractly. We must ensure that the children in our school develop the skills, strategies and knowledge through the curriculum that we deliver and develop a positive and enthusiastic attitude towards mathematics that will stay with them for life. We also believe that children should develop resilience and self-confidence in applying their learning skills. This will also reflect children's learning on values such as self-discipline and courage, as they can apply this to their mathematical learning.

## Aims and Objectives

The study of mathematics develops children's abilities to work with numbers, shapes, measures, data and to develop their problem-solving skills. A 'mastery' approach has been adapted and implemented at Krishna Avanti Primary School for the planning, delivery and engagement with mathematics. Children learn how to use accurate and efficient methods of mental and written calculation. They are encouraged to explain their methods and reasoning using the correct mathematical vocabulary. We are committed to ensuring that all pupils achieve mastery in the key concepts of mathematics, appropriate for their age group, in order that they make genuine progress and avoid gaps in their understanding that provide barriers to learning as they move through education.

**The aims of mathematics are:**

- To encourage an enjoyment and love of mathematics
- To enable children to become fluent by acquiring and consolidating knowledge and skills and to encourage a deepening understanding of underlying concepts
- To provide differentiated activities which encourage fascination, curiosity, questioning and the desire to challenge and be challenged
- To develop a sense of enjoyment and satisfaction in the learning of mathematics, enabling all children to apply their skills with confidence and accuracy
- To provide opportunities for children to behave as a mathematician
- To introduce and encourage the correct use of mathematical vocabulary
- To develop and enhance children's facility for logical, reasoned and independent thinking
- To provide activities which foster an awareness of the place mathematics has in everyday life
- To provide resources and foster an environment which reflects the school ethos of equal opportunities
- Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
- Problem- solve by applying knowledge to a variety of routine and non-routine problems. Breaking down problems into simpler steps and persevering in answering.

## Time Allocation

At Krishna Avanti Maths lessons will include discrete lessons while drawing on their application of mathematical skills and reasoning which is integrated into other subject areas such as Geography, Science and PE.

## Teaching and Learning

A 'mastery' approach has been adapted and implemented at Krishna Avanti Primary School for the planning, delivery and engagement with mathematics. Review and feedback following the implementation of units as repeated blocks is carried out over the academic year. Units of the National Curriculum are taught progressively, drawing on resources such as the White rose schemes of work. When planning for objective coverage, teachers are expected to take the following mastery strategies into account:

- Small steps
- Ping pong style of delivery
- Mathematical talk
- Implementing the Concrete, Pictorial and Abstract (CPA) approach to introducing, exploring and applying mathematical concepts
- Considering key questions and mathematical vocabulary at the point of unit planning
- Multiple opportunities for verbal and written/drawn reasoning
- Inclusion of relevant problem-solving opportunities, where children are expected to draw on and apply multiple concepts to address or approach a challenge
- Modelling of all skills and approaches for e.g. bar modelling
- Opportunities to explore maths concepts/objectives at 'greater depth'
- Inclusive of all learners, providing relevant support for those with additional needs
- Formative and summative assessments take place within each unit.

In all classes children are taught in mixed ability groups for most mathematics. Within group work, all children are challenged regardless of their gender, race or ability. Split teaching sessions are used to meet the needs of various learners within the class.
We place a strong emphasis on children learning through practical activities and concrete experiences. Time for discussion and reflection is regarded as essential to children deepening their understanding.

**EYFS National Curriculum**
In EYFS teachers plan activities that cover the objectives in the Maths section of the Revised Early Years Foundation Stage Framework. Through careful assessment, planning and preparation, we aim to ensure that children are given opportunities for:

- practical activities and mathematical games
- problem solving
- individual, small group and whole class discussions
- working with ICT
- outdoor learning

Teachers and practitioners support children in developing their understanding of mathematics in a broad range of contexts in which they can explore, enjoy, learn, practise and talk about their developing understanding. This area of development includes seeking patterns, making connections, recognising relationships, working with numbers, shapes and measures, and counting, sorting and matching. Children in the EYFS learn by playing and exploring, being active, and through creative and critical thinking which takes place both indoors and outside. We recognise that children learn through routine, continuous provision and incidental learning opportunities, as well as planned sessions and activities. Mathematical understanding can be developed through stories, songs, games, routine, questioning, imaginative play, child-initiated learning and structured teaching. Overall these lessons include a good balance between whole-class work, group teaching and individual practice.

## Teaching of Mathematics

We follow the principles set out in the Learning and Teaching Policy when teaching mathematics. The calculation policy provides reference and guidance on teaching calculation skills for all staff, teaching assistants, parents and family members. See the Calculation Policy.

## Integrated opportunities

'Maths is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas' (NC 2014). The skills that children develop in mathematics are linked to, and applied in, other areas of the curriculum. For example, children's skill in data collection can be used in science when recording the results of an investigation.

## Assessment and Recording

Assessment is an integral part of teaching and learning and is a continuous process. The assessment for learning policy is followed (Link to policy). Teachers make assessments of children daily through.

- regular marking of work
- analysing errors and picking up on misconceptions
- asking questions and listening to answers
- facilitating and listening to discussions
- making observations

These ongoing assessments inform future planning and teaching where lessons are adapted readily, and short-term planning evaluated in light of these assessments.

## Resources

Each classroom has a set of concrete mathematics resources appropriate to the age of the children. Concrete materials such as bead strings, dienes and number lines are expected to be used during most lessons and the children will be trained to independently use the resources as and when needed to support them in their number work. There is also a central store of mathematics resources to be used as required by teachers, which includes resources such as bucket scales and weights. Wider resources are provided through workshops and visits for e.g. Year 6 Metro Bank workshop, Year 3 Trip to Celtic Harmony and Year 2 trip to Kew Gardens.

## Learning Environment

We view our learning environment as the third teacher within the classroom. Each classroom has a working wall in the Maths area which is interactive and encourages children to experiment with mathematical concepts. An agreed set of non-negotiables are displayed which reflects our expectations. These include mathematical vocabulary, children's work, teacher modelling and CPA representations.

## Home Learning

Children are given tasks to complete at home on a regular basis. These support the objectives appropriate to each year group. Home learning is also set to support the mathematics that children are doing in school, such as learning times tables. In addition, the school uses google classroom as a platform for online learning. Children are given a username and password to allow them to log into this from home. For children who do not have access to a computer at home additional provisions are made.

## Equal Opportunities and children with SEND

At Krishna Avanti primary school we provide a broad and balanced Mathematical education for all children irrespective of age, ability, race, gender or special educational needs. This is in line with the school's Equal Opportunities Policy. Our aim is to ensure that everyone makes progress and gains positively from lessons which are differentiated to meet the needs of all learners. Lessons include lots of pictorial, aural and kinaesthetic elements which benefit all children including those for whom English is an additional language (EAL). Those who are not sufficiently fluent with earlier concepts are given consolidation through additional practice before moving on. Mathematical talk is used in lessons to promote thinking and reasoning and teaching assistants are deployed within the classrooms accordingly.

## Maths Curriculum Planning

The programmes of study for mathematics are mapped out year-by-year for key stages 1 and 2. We teach the relevant programme of study as outlined by 'The National Curriculum'. However, there are further provisions for challenge and to enhance children's wider opportunities. At Krishna Avanti, we ensure that Maths is planned in line with The National Curriculum 2014 and is inter-connected within Foundation subjects.

- Short term planning is flexible allowing for assessment of learning after each session/ group of sessions.
- Pupils entitled to Pupil Premium funding and those with EAL/SEND will be given additional English support, which is tracked and monitored termly.

- Medium term plans are documented carefully through curriculum overviews, which outline the knowledge, skills and vocabulary that we expect our children to learn in each Maths genre.
- Curriculum maps outline the longer-term planning goals and cross-curricular learning opportunities.

## Information and Communication Technology (ICT)

At Krishna Avanti Primary school information and communication technology is used to enhance the teaching and learning of mathematics. It supports our core aims which are to ensure children are fluent, can reason and problem solve in Maths. It is also a valuable tool to support topics like, data handling and statistics. All classes are equipped with Interactive Whiteboards, speakers, a class laptop and access to a set of class chrome books weekly. The use of multi-media has been recognised as an effective vehicle for creativity and stimulus within the Maths curriculum.