Maths Curriculum Statement

INTENT

The development of children’s Mathematical understanding, skill and confidence is a priority at Baguley Hall.

We are committed to ensuring that children are able to recognise the importance of Maths in the wider World and that they are also able to use their Mathematical skills and knowledge confidently in their lives in a range of different contexts, for example, budgeting.

We look for every opportunity to make links with the other subjects taught in school, so the children can apply their Maths knowledge in a different way, for example, Fair Testing in Science, Directions in Geography.

As stated in National Curriculum ‘Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas.’ At Baguley Hall we ensure that all pupils become fluent, reason mathematically and solve problems. We encourage all children to have a ‘CAN DO’ attitude towards mathematics and to think mathematically, enabling them to reason, solve problems and assess risk in a range of contexts.

Pupils:

- Become fluent in the fundamentals in maths... with increasingly complex problems over time.
- Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations and developing an argument, justification or proof using mathematical language.
- Solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication.
- Are confident at understanding the maths vocabulary associated with the maths they are learning and it helps them make connections. As a school we use Rising Stars Mathematical Vocabulary Progression document to support the teaching of vocabulary across school.

IMPLEMENTATION

Baguley Hall Primary school follows the principles underpinning the 2014 Mathematics Mastery Curriculum. Lessons and sequences of lessons develop understanding of key concepts progressively through the use of CONCRETE-PICTORIAL-ABSTRACT representation to ensure children have a deep understanding of each concept.

Concrete – children have the opportunity to use concrete objects and manipulatives to help them understand and explain what they are doing.

Pictorial – children then build on this concrete approach by using pictorial representations, which can then be used to reason and solve problems.

Abstract – With the foundations firmly laid, children can move to an abstract approach using numbers and key concepts with confidence.

National Curriculum lesson objectives underpins planning. Teachers ensure that knowledge, reasoning and problem solving are incorporated in all lesson plans utilising Tara Loughran’s Build a Sequence approach, White Rose and the NCTEM materials. This progressive sequence of lessons ensures that new knowledge and skills build on what has been previously learned. We encourage children to make connections between mathematical concepts all of the time. This enables the children develop a deeper conceptual understanding and become a more confident and resilient learners. Through teaching this way, children become numerate and use knowledge to predict and explain, resulting in the development of critical thinking skills.

Staff across all phases, including EYFS, use our calculation policy which follows the CPA model. This shows a clear progression of strategies to solve calculations. This document is an intrinsic planning tool, annotated to ensure systematic progression and that no steps are missed.

Planning, Teaching and Learning
Maths at Baguley Hall follows the Mastery approach; we ensure that reasoning is at the core of every lesson. The children know they need to explain why their answer is correct and how they worked it out. After we are certain that they have truly mastered a concept, the children then apply their knowledge to problem solving activities. Through teaching this way, it develops a deeper understanding of maths for the children. It utilises a concrete, pictorial, abstract approach so pupils can understand and grasp a concept of what they are doing rather than learning and memorising key facts and procedures.

In Early Years and where appropriate in Year 1 the principles of the EYFS Framework will be followed, and there will be the opportunity to ‘Explore Maths’ and develop their understanding of Mathematical concepts through play especially with patterns, matching and sorting.

**Mastery Teaching and Learning: In every Mathematics lesson you will see the following:**

- ‘Quality first’ teaching; tailored to meet the needs of the learners in each class, and immediate intervention to address gaps in learning where necessary
- Resilient learners with growth mind-sets and a ‘We Can’ attitude to Mathematics, whatever their previous level of attainment,
- Teachers using high-quality questioning to explore children’s understanding and develop it further,
- Teachers making use of misconceptions to further understanding of key concepts,
- Teachers using a range of methods to explore key Mathematical concepts which appeal to pupils’ different styles of learning, employing concrete/pictorial/abstract representations of Mathematical concepts,
- Learners being given the opportunity, through careful planning, to ‘linger longer’ on and ‘go deeper’ in mathematical concepts,
- Pupils learning together
- Development of fluency, reasoning and problem solving.
- Teachers to share and discuss new vocabulary on a daily basis.

**EYFS**

The EYFS learning environment promotes exploration and discovery. It includes visual images, models and number resources to stimulate and interest. We give all the children ample opportunity to develop their understanding of number, measurement, pattern, shape and space, through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics.

All children in the Foundation Stage have daily opportunities to develop their mathematical understanding, through carefully planned experiential and concrete activities delivered through focused group sessions and adult led activities, reinforced through targeted activities in the continuous provision. The 2 strands of Mathematics taught in the EYFS are Numbers and Shape, Space and Measure.

Children in Nursery have a daily Maths teaching session, during which time they begin to develop their counting skills such as;

- rote counting,
- 1-1 tagging,
- synchrony
- tracking

Children learn other mathematical concept such as;

- subitising numbers up to 5
- simple addition and subtraction facts up to 5
- recognise and describe simple 2d and 3d shapes

Children will explore early mathematical concepts through developing and continuing to secure pre-counting skills; sorting, matching, creating patterns. Mathematical resources are readily available both indoors and in the outside learning environment to enable children to master these skills. This is Mathematical incorporated into our daily practice, additional to our daily maths sessions. Children are taught these concepts using physical resources,
pictorial resources, songs, games and role-play. It is essential that the children have a secure understanding of the counting skills and mathematical concepts taught in Nursery before moving on.

Maths in Reception is made up of the following aspects:

- **Numbers as labels and for counting** – the children gradually know and use numbers and counting in play and eventually recognise and use numbers, reliably developing mathematical ideas to solve problems.
- **Calculating** – the children develop an awareness of the relationship between numbers and amounts and know that numbers can be combined to be ‘added together’ and can be separated by ‘taking away’. Staff will begin to explore different vocabulary to ensure children have a thorough understanding of add, subtract and equals.
- **Shape, Space and Measures** – through talking about shapes and quantities and developing appropriate vocabulary the children use their knowledge to develop ideas to solve mathematical problems.

Throughout the week a child will work with an adult, on a differentiated task. This activity is completed in 10 - 15 minutes. This structure to the lesson enables teachers to secure a good balance between whole class work, group teaching and individual practice. It also enables teachers to establish regular routines thereby maximising teaching time. It supports assessment on a daily basis, as well as individual feedback to children, ensuring that children receive immediate intervention as required during the supported focus activity.

In both Nursery and Reception, the independent activities in the Continuous Provision link to the focus for the previous week. In addition to these planned independent activities, children also have the opportunity to self-select Maths resources to consolidate their learning during child-initiated activities. Regular observations and assessments help to ensure that children that need additional intervention to consolidate their mathematical understanding are identified and supported by appropriate interventions.

**In Key Stage 1 (KS1) and 2 (KS2)**

KS1 and KS2 teachers plan their lessons following the statutory guidance in the Mathematics Curriculum. Maths is taught daily with a counting focus and a different targeted mental oral starters, which are:
- Monday- Place Value
- Tuesday- Number bonds
- Wednesday- Timetables
- Thursday- Fractions
- Friday- Measures

The progression maps and LTPs are structured using the topic headings as they appear in the National Curriculum:

- Number and Place Value
- Addition and Subtraction
- Multiplication and Division
- Fractions (including decimals and percentages)
- Ratio and Proportion
- Measurement
- Geometry - properties of shapes
- Geometry - position and direction
- Statistics
- Algebra

Each week there are one or two additional arithmetic lessons and a shape, space and measures revision lesson. Resource boxes are rotated to facilitate the teaching of the units and resources are displayed and used in the maths areas in the classroom. The additional arithmetic lessons are planned using the analysis from the most recent assessment. These lessons teach children to make connections with previous knowledge and show them most
efficient methods to answer questions. Throughout all lessons teachers use both conceptual and procedural variation.

**Conceptual variation** means the opportunity to work on different representations of the same mathematical idea. These multiple representations will ‘showcase’ to pupils the different conceptual ideas that underpin a mathematical idea. Mathematical resources are readily available in maths areas to enable children to master these skills.

**Procedural variation** is used to support pupils’ deeper understanding of a mathematical procedure or process. This might be to compare the same procedure used to calculate two different sets of numbers. By asking the pupils to compare two successive procedures where the first is linked to a second. Children can observe relationships, observe the variant and invariant properties of the procedure - i.e. what stays the same and what changes, leading to generalising about the procedure.

All children from year 2 to year 6 use TT Rockstars to practice their recall of times tables. Times tables are taught through the daily counting focus and mental and oral starters. Children from Y2 onwards are given weekly timetables tests, as well as the opportunity to achieve a bronze, silver, gold and platinum times table award once every half term. An additional times table slot has been added to the time table to allow children to practice their recall on TT Rockstars. Children complete the games and teachers use the heatmaps to analyse the questions the children have answered. This is then used to informed planning and allows teachers to target individuals.

Throughout the week a child will work with an adult, either a teacher or a supporting adult, on a differentiated task. This structure to the lesson enables teachers to secure a good balance between whole class work, group teaching and individual practice. It also enables teachers to establish regular routines thereby maximising teaching time. It supports assessment on a daily basis, as well as individual feedback to children, ensuring that children receive immediate intervention as required during the supported focus activity. Daily plans are evaluated and any misconceptions dealt with the next day or later on in the week.

**Inclusion**

Taking a **Mastery approach** to the curriculum, differentiation occurs both in the support and intervention provided to different children, as well as through the activity and outcome. The National Curriculum states: ‘Children 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.’

Children are taught the programme of study appropriate to their needs to ensure that there are no gaps in their understanding. Although the expectation is that the majority of children will move through the programmes of study at broadly the same pace, the 2014 National Curriculum states: ‘Decisions about when to progress should always be based on the security of children’s understanding and their readiness to progress to the next stage.’ Activities are differentiated to ensure all children individual needs are met. The questioning and scaffolding individual children receive in class, will differ, with higher attainers challenged through more demanding problems, which deepen their knowledge of the same content before acceleration onto new content.

If a child’s needs are best met by following an alternative plan, including coverage of the content from a previous year, this will be overseen by the SENDCo, in collaboration with the class teacher. Specific arrangements for the provision of children with SEND will be communicated to parents and carers during SEND reviews.

**IMPACT**

At Baguley Hall we expect that by the end of Y6 our children:

- become **fluent** in the fundamentals of mathematics
- **Reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations.
- **Solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication.
Children at Baguley Hall have the skills to **solve problems** by applying their mathematics to a variety of situations with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios. Children are able to **reason mathematically** by following a line of enquiry and develop and present a justification, argument or proof using mathematical language. Children develop key skills such as confidence, cooperation and resilience. The children at Baguley Hall lead their own learning and work to develop their mathematical independence.

**Assessment**

Assessment for learning is continuous throughout the planning, teaching and learning cycle. Mathematical concepts are taught to enable children to become fluent, reason mathematically and solve problems and will equip them to use maths as part of everyday life. Children receive effective feedback through teacher assessment, both orally and through written feedback.

The structure of the teaching sequence ensures that children know how to be successful in their independent work. Guided practice, which takes place within the lesson, provides further preparation for children to be able to apply the skills, knowledge and strategies taught. Common misconceptions are addressed within the teaching sequence and key understanding within each ‘step to success’ is reviewed and checked by the teacher and the children before progression to further depth.

At the end of the lesson, the children review their work and self and peer assessments are used as outlined by the school’s ‘Presentation, Marking and Feedback Policy’. The children then indicate how confident they feel about their learning.

Teachers administer termly assessments using the Rising Star PUMA tests. The results of these papers are used to identify children’s ongoing target areas, which are communicated to the children, as well as to parents and carers at Parents Evening. Assessment data in maths is reviewed and analysed throughout the year to inform interventions and to also ensure that provision remains well-informed to enable optimum progress and achievement. End of year data is used to measure the extent to which attainment gaps for individuals and identified groups of learners are being closed. This data is used to inform whole school and subject development priorities for the next school year.

**Role subject lead**

The Maths team model lessons, as appropriate to new staff, NQTs and peers to support continued professional development. The Maths team have delegated responsibility for the monitoring and review of the Maths curriculum and the standards achieved by the children. Monitoring activities are undertaken half termly by the maths team and include:

1. learning reviews and feedback;
2. learning walks and pupil voice conversations;
3. planning scrutiny followed by support where necessary;
4. work scrutiny on a frequent basis;
5. termly data analysis;
6. moderation within phases and with link schools.

Data is collected termly and reported to the Senior Leadership Team. All teachers contribute to a termly Pupil Progress Meeting where the data is analysed and targets are made by highlighting ‘stuck’ pupils and focusing on next steps.

**Date of Policy:** February 2020

**Policy Review Date:** September 2021