



## 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, now and in the future, in a range of different contexts, at work and at home.

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 to make connections

### IMPLEMENTATION

Baguley Hall Primary school uses the Power Maths scheme which is aligned with the National Curriculum. Power Maths is a whole-class, textbook-based mastery resource that empowers every child to understand and succeed. Power Maths rejects the notion that some people simply 'can't' do maths. Instead, it develops growth mind-sets and encourages hard work, practice and a willingness to see mistakes as learning tools.

Lessons and sequences of lessons develop understanding of key concepts through the use of the CONCRETE-PICTORIAL- ABSTRACT approach. By taking a Concrete-Pictorial-Abstract (C-P-A) approach, Power Maths allows children to tackle concepts in a tangible and more comfortable way. This approach can be used at any time and with any age to support understanding. The C-P-A approach is not linear, and children may need different types of models at different times. However, when a child demonstrates with concrete models and pictorial representations that they have grasped a concept, we can be confident that they are ready to explore or model it with abstract signs such as numbers and notation.

**Concrete** – children have the opportunity to use concrete objects and manipulatives to help them understand and explain what they are doing. Eg, things that the children can manipulate.

**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.

Power maths enables children to master concepts a step at a time in lessons that embrace a Concrete-Pictorial-Abstract approach building on prior learning to help children see patterns and connections.

## **Planning, Teaching and Learning**

The lesson sequence ensures that there is an opportunity for all children to use their problem solving and reasoning skills to give detailed explanations using mathematical vocabulary. Through learning this way, children develop a deep understanding of maths.

Power Maths' mastery approach values real understanding and richer, deeper learning above speed. It sees all children learning the same concept in small, cumulative steps, each finding and mastering challenge at their own level. Those who grasp a concept easily have time to explore and understand that concept at a deeper level. Similarly, those who need further support with concepts are given the opportunity to strengthen their skills.

The whole class therefore moves through the curriculum at broadly the same pace via individual learning journeys. This enables the children to develop a deeper conceptual understanding and become more confident and resilient learners. Through learning this way, children become numerate, use their knowledge to predict and explain and develop their critical thinking skills.

Staff across all phases, including EYFS, use the Power Maths calculation policy, which has been adapted to fit our school, following 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.

### **Power Maths 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 sharing and discussing new vocabulary on a daily basis.

## **EYFS**

The statutory framework for EYFS underpins all of the learning in EYFS as well as using Power Maths in our Reception classes.

The EYFS learning environment promotes exploration and discovery. It includes visual images, models and number resources to stimulate and interest. All children have ample opportunity to develop their understanding of number, measurement, pattern, shape and space through a variety of carefully planned experiential and concrete adult led activities, reinforced through targeted activities in the continuous provision, to allow them to enjoy, explore, practise and talk confidently about mathematics.

The 2 strands of Mathematics taught in the EYFS are Numbers and Numerical Patterns

Nursery follows a long term plan, outlining the yearly objectives The National Curriculum Framework. The 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 and creating patterns. Mathematical resources are readily available both indoors and in the outside learning environment to enable children to develop a secure base of knowledge and vocabulary to master these skills. Mathematical opportunities are incorporated into our daily practice, additional to the daily maths sessions. Children are taught these concepts using physical resources, pictorial resources, songs, games and role-play. At Baguley Hall we believe it is essential that the children have a secure understanding of the counting skills and mathematical concepts taught in Nursery before moving on.

Reception follows the Power Maths scheme of learning which is aligned to the Early Learning Goals 2020:

- **ELG: Number** : Children gradually know and use numbers to ten , counting in play and eventually recognising and utilising numbers reliably, to develop mathematical ideas and problem solving. Staff also continue to build counting into everyday routines such as lining up, tallies on the weather chart and counting out pieces of fruit at snack time. Children explore number bonds to ten through a range of techniques such as play, song and varied representations.
- **ELG: Numerical Patterns:** Children develop an awareness of the relationship between numbers and amounts , knowing that numbers can be combined to be 'added together' or separated by 'taking away'. Staff begin to explore different vocabulary to ensure children have a thorough understanding of add, subtract and equals. Children are provided a range of visual models of numbers, for example, six as double three on dice, or the fingers on the hand and one more, or as four and two with ten-frame models. The children also develop their spatial awareness skills by exploring shapes and quantities. The children develop appropriate vocabulary and then 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 taught 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 from earlier and current units 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 using the Power Maths scheme which follows the statutory guidance in the Mathematics Curriculum. Maths is taught daily and includes an additional counting focus at the start of the lesson. Throughout each week, lessons begin with a starter to address prior learning or misconceptions or a Power up activity from the Power Maths scheme of learning. These tasks are matched to the National Curriculum objectives, which promote and reinforce key number facts. This allows children to develop their fluency with number bonds, times tables facts and place value.

Power Maths yearly overviews are used to show the progression of units. These units align with the objectives outlined in The National Curriculum.

- Number and Place Value
- Number - Addition and Subtraction
- Number- Multiplication and Division

- Number- Fractions (including decimals and percentages)
- Ratio and Proportion
- Measurement
- Geometry - properties of shapes
- Geometry - position and direction
- Statistics
- Algebra

Power Maths lessons are underpinned by immediate intervention. During a lesson teachers use responsive teaching to identify those children needing further support and work with these children as a guided group. Lessons are differentiated by outcome, support and the use of concrete resources. 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 it is the intention that any misconceptions are addressed during the same afternoon or the following morning (where possible), providing children with immediate feedback to move learning on.

In addition to the daily maths lessons, each class will have arithmetic lessons on a weekly basis. These lessons are planned using the analysis from the most recent assessment, which are conducted fortnightly. Within arithmetic lessons, children are given the opportunity to make connections with previous knowledge and explore the most efficient methods to answer questions. The arithmetic lessons follow the same approach as Power Maths using I do, we do, you do.

All children from year 2 to year 6 use TT Rock stars to practise their recall of times tables. Times tables are reinforced at times through daily counting focus and often reinforced with the use of Power Ups. Children from Y2 onwards are given a paper format of TT Rock stars' tests up to four times a week. These are timed tests of three minutes to promote fluency and speed. Within school, children have 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 Rock Stars. Children complete the games and teachers use the heatmaps to analyse the questions the children have answered. This is then used to inform planning and allows teachers to target individuals.

### Inclusion

Taking a **Mastery approach** to the curriculum, differentiation occurs through 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 practise, 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.' Teaching groups and activities are differentiated to ensure all children's 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 subject lead and class teacher. Specific arrangements for the provision of children with SEND will be communicated to parents and carers during SEND review.

## 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.
- Are confident at understanding the maths vocabulary associated with the maths they are learning and it helps them to make connections

Children at Baguley Hall develop the skills to **solve problems** by applying their mathematics to a variety of situations with increasing sophistication, including in unfamiliar contexts and model real-life scenarios. Children learn to **reason mathematically** by following a line of enquiry and to **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 are encouraged to lead their own learning and develop their mathematical independence.

### Assessment

Assessment for learning is continuous throughout the planning, teaching and learning cycle. The structure of the teaching sequence ensures that children know how to be successful in their independent work. Guided practise, 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 immediate intervention. Children receive effective oral and written feedback and evaluation of the learning which has taken place informs the planning of future lessons. At the end of the lesson, the children review their work and self and peer assessments are used as outlined by the schools 'Presentation, Marking and Feedback Policy'.

At the end of each Power Maths unit, a check is completed. This allows teachers to identify those children who need to strengthen their skills with further intervention or deepen their learning with further challenge. Any gaps in learning are identified and those individuals or groups of children are given starter activities relating to those objectives. Any children who are secure within a unit will be challenged further. Summative termly assessments are administered using the Rising Star PUMA tests. The results of the 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. Teachers use these assessments to inform future planning and target lessons to consolidate learning or address misconceptions. Assessment data in maths is reviewed and analysed throughout the year to inform interventions and 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 of the 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. book 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 2021**

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