



## Cledford Primary School

George VI Avenue, Middlewich, Cheshire, CW10 0DD  
Telephone: 01606 663667  
E mail: [admin@aledford.cheshire.sch.uk](mailto:admin@aledford.cheshire.sch.uk)  
Website: [www.cledford.cheshire.sch.uk](http://www.cledford.cheshire.sch.uk)

Local Authority Code: 895  
Establishment Number: 3821

School Principal: Mr C Adlington

Federation Headteacher: Mrs A J Booth

Local Authority Code: 895  
Establishment Number: 3810

School Principal: Mrs J Nurse

## Gainsborough Primary & Nursery School

Belgrave Road, Crewe, Cheshire, CW2 7NH  
Telephone: 01270 696810  
E mail: [admin@gainsborough.cheshire.sch.uk](mailto:admin@gainsborough.cheshire.sch.uk)  
Website: [www.gainsboroughschool.co.uk](http://www.gainsboroughschool.co.uk)

# Federation Curriculum Policy

## Mathematics

Reviewed: October 2022

### Signed:

**Mrs J Sercombe** (Chair of Governing Board) .....

**Mrs AJ Booth** (Federation Headteacher) .....

**Mrs J Nurse** (School Principal GPNS) .....

**Mr C Adlington** (School Principal CPS) .....

Next Review Date: October 2024

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## **Statement of Intent, Implementation and Impact**

At Cledford Primary School and Gainsborough Primary and Nursery School, we believe, as with all learning, that maths is an exciting journey. We provide high quality mathematics education using a mastery approach. Integrating Power Maths, a high quality and DfE approved curriculum into our bespoke, spiral curriculum, we are building a culture of deep understanding, confidence, resilience and competency in maths – a culture that produces strong, secure learning and real progress. Everyone can achieve excellence!

### **Intent**

We aim to provide a high-quality mathematics education with a mastery approach. We encourage pupils to see mathematics as an interconnecting subject, linking all areas of the curriculum together. Our maths lessons are rich in opportunities to reason and problem solve and support all children in:

- gaining fluency in the fundamentals of mathematics
- reasoning mathematically using appropriate mathematical vocabulary
- becoming confident, competent and independent mathematicians
- solving problems and apply their mathematical skills
- making progress and achieve in line with their age

### **Implementation**

Our EYFS focus on Development Matters, and maths is an integral part of their day to day learning and ensures our pupils work in small steps to secure understanding of concepts and skills. To ensure a deepening of understanding we have incorporated a bridging document so our children are Year 1 ready. This feeds in to Power Maths by using images and vocabulary the children will be familiar with.

Power Maths incorporates the statutory requirements of the National Curriculum 2014. Pupils in Year 1 to 6 continue on this journey of a mastery approach by following Power Maths. Power Maths supports and challenges all pupils and is built on the belief that EVERYONE can.

We recognise the value of making a coherent journey through the national curriculum and each year group follow a medium-term plan where small, cumulative steps build a solid foundation of deep mathematical understanding. Formative assessment is threaded throughout each lesson and unit of work; and appropriate revisions to planning are made by the class teacher to ensure all lessons are tailored to best meet the needs of their children.

When introduced to a new concept, pupils have opportunities to build competency by being encouraged to physically and visually represent their mathematics. Objects and pictures are used to demonstrate and visualise abstract ideas, alongside numbers and symbols.

**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.

During our Maths lessons you will see:

- Collaboration and opportunity for partner talk
- Consistency in routines and the delivery of Maths.
- Opportunities for children to work independently, applying their learning.
- Vocabulary and correct mathematical terminology used in all year groups.
- Working walls may be used to model and scaffold learning.
- Concrete manipulatives are accessible to children to select to support their Mathematical Understanding.

## **Daily Dashboard**

All pupils also have Daily Dashboard sessions every morning. These sessions secure learning and provide opportunities for practice and application of new skills.

## **Times Tables Rock Stars**

We know that confidence and fluency in times tables opens up all areas of mathematics so we make use of a fun and challenging online programme called Times Tables Rock Stars. You can find out more about TTRS in the files below.

## **Impact**

Our maths curriculum design ensures that the needs of all learners are met with high quality first wave teaching, supported by targeted, proven interventions where appropriate. Every academic year we begin with number and place value units – children revisit and consolidate the relevant material required to access the age appropriate learning. Children will deepen their mathematical understanding, year on year while also applying their reasoning skills to understand the prevalence of Maths in ‘real-life’. Children will become independent mathematicians and develop a confidence to use both concrete and pictorial scaffolds to support them in their learning.

- The maths curriculum design ensures that the needs of all learners in this particular community are met with high quality first wave teaching, supported by targeted, proven interventions where appropriate.
- Enjoyment of the maths curriculum promotes achievement, confidence, fluency and basic skills.
- Resilience and recognition that mistakes lead to learning.
- Readiness for the next phase of learning and an ability to apply their learning to a wide range of problems in real life.
- Application of learned skills in a range of contexts including reasoning.

**Disadvantaged pupils or pupils with SEND are supported to access the same mastery curriculum as all pupils.**

Teachers have **expert knowledge** of mathematics and, where they do not, they are supported to address any gaps so that pupils are not disadvantaged.

Teachers enable pupils to understand and embed in long term memory, **key concepts** in mathematics, presenting information clearly and promoting appropriate discussion. Teachers check pupils' **understanding** effectively, identifying and correcting misunderstandings.

Teachers use **assessment** effectively to check pupils' understanding in order to inform their teaching and further planning; this helps pupils to **embed and connect** knowledge fluently and to further develop their learning and skills.

## **1. Legal Framework**

- 1.1.** This policy has due regard to all relevant legislation and statutory guidance including, but not limited to, the following:

DFE (2013) 'National curriculum in England: mathematics programmes of study'

DFE (2017) 'Statutory framework for the early years foundation stage'

## **2. Roles and Responsibilities**

- 2.1.** The mathematics coordinator is responsible for:

- Preparing policy documents, curriculum plans and schemes of work for the subject.
- Reviewing changes to the national curriculum and advising on their implementation.
- Monitoring the learning and teaching of mathematics, providing support for staff where necessary.
- Ensuring the continuity and progression from year group to year group.
- Encouraging staff to provide effective learning opportunities for pupils.
- Helping to develop colleagues' expertise in the subject.
- Organising the deployment of resources and carrying out an annual audit of all mathematics resources.
- Liaising with teachers across all phases.
- Communicating developments in the subject to all teaching staff.
- Leading staff meetings and providing staff members with the appropriate training.
- Organising, providing and monitoring CPD opportunities in the subject.
- Ensuring common standards are met for recording and assessment.
- Advising on the contribution of mathematics to other curriculum areas, including cross-curricular and extra-curricular activities.
- Collating assessment data and setting new priorities for the development of mathematics in subsequent years.

- 2.2.** Classroom teachers are responsible for:

- Acting in accordance with this policy.
  - Ensuring progression of pupils' mathematical skills, with due regard to the national curriculum.
  - Planning lessons effectively, ensuring a range of teaching methods are used to cover the content of the national curriculum.
  - Liaising with the mathematics coordinator about key topics, resources and supporting individual pupils.
  - Monitoring the progress of pupils in their class and reporting this on an annual basis.
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- Reporting any concerns regarding the teaching of the subject to the mathematics coordinator or a member of the SLT.
  - Undertaking any training that is necessary in order to effectively teach the subject.

## **3. Early Years Provision**

- 3.1.** Activities and experiences for pupils will be based on the seven areas of learning and development, as outlined in the DfE's 'Statutory framework for the early years foundation stage'.

**3.2.** Provision for early years pupils focuses on four specific areas:

- Literacy
- Maths
- Understanding the world
- Expressive arts and design

**3.3.** All activities will adhere to the objectives set out in the framework.

**3.4.** In particular, mathematics-based activities will be used to develop pupils' understanding of number and shape, space and measure. Understanding in the areas of mathematics are deepened by the federation, bespoke bridging document which ensures our pupils are Year 1 ready.

## **4. The National Curriculum**

**4.1.** The national curriculum provides a full breakdown of the statutory content to be taught within each unit of mathematics.

**4.2.** Each unit is matched to the Power Maths Units for each year group. See Appendix for DfE Programme of study and Power Maths matching.

## **5. Cross-curricular links**

**5.1.** Wherever possible, the mathematics curriculum will provide opportunities to establish links with other curriculum areas.

### **5.2. English**

Pupils are encouraged to use their speaking and listening skills to describe their thinking and reasoning.

Pupils' writing skills are developed through explanations, reasoning and reflect element of each lesson.

Pupils' vocabulary is developed through the use and understanding of specialist terminology.

### **5.3. Science**

Pupils' investigative and practical skills are developed through the use of fieldwork and problem-solving activities.

Investigations involving mass, capacity and distance support to secure mathematical understanding.

Data presentation skills are embedded when presenting findings of investigations through the use of charts and graphs.

### **5.4. Computing**

ICT will be used to enhance pupils' learning including through the use of Times Tables Rockstars and Purple Mash

ICT will be used to record findings, using text, data and tables.

### **5.5. Geography**

Pupils' investigative and practical skills are developed through the use of fieldwork and problem-solving activities.

## 5.6. Spiritual development

Power Maths offers some key strategies whilst fostering healthy growth mindset in classrooms.

Learning is richer when pupils and teachers alike, focus on spotting and sharing mistakes as well as solutions.

## 6. Teaching and Learning (Pedagogy)

- 6.1. Pupils will be taught to describe key characteristics and associated processes in common language, as well as understand and use technical terminology and specialist vocabulary.
- 6.2. Pupils will undertake independent work, and have the opportunity to work in groups and discuss work with their peers.
- 6.3. Lessons will allow for a wide range of mathematical concepts and problem-solving based activities, in addition to opportunities to develop fluency.

Questioning, predicting and interpreting

Pattern seeking

Practical experiences

Collaborative work

Discussions

Problem-solving activities

Classifying and grouping

- 6.4. Lessons will involve the use of a variety of opportunities to develop mathematical thinking through the use of concrete resources, pictorial representation and the abstract.

The classroom teacher, in collaboration with the mathematics coordinator, will ensure that the needs of all pupils are met by:

- Following the Power Maths planning progression.
- Following the lesson structure of Power Maths.
- Using pre-teaching, immediate interventions, post-learning checks to ensure understanding is secure.
- Setting tasks, which can have a variety of responses.
- Pupils will be offered concrete resources and pictorial representations to strengthen or deepen their understanding.
- Setting tasks of varying difficulty depending on the ability group.
- Utilising teaching assistants to ensure that pupils are effectively supported and challenged.

## 6.5 Feedback

Feedback should:

- Redirect and focus either the teachers' or the learners' actions to achieve a goal
- Be specific, accurate and clear
- Encourage and support further effort
- Inform future planning, ensuring continuity, progression and appropriate differentiation
- Be given sparingly so that it is meaningful

- Put the onus on pupils to correct their own mistakes, rather than providing correct answers for them
- Alert the teacher to misconceptions, so that the teacher can address these in through daily dashboard, homework, key skills, same day interventions and subsequent lessons.
- Encourage children to take responsibility for improving their own learning by self-assessment and peer assessment
- Ultimately be seen by pupils as a positive approach to improving their learning

## 7. Planning

- 7.1. All relevant staff members are briefed on the school's planning procedures as part of staff training.
- 7.2. Throughout the school, mathematics is taught as a discrete lesson and as part of cross-curricular themes when appropriate.
- 7.3. Teachers will use the key learning content in the DfE's statutory guidance 'National Curriculum in England: mathematics programmes of study'.
- 7.4. Planning follows the Power Maths structure for long term, medium term and daily lessons.
- 7.5. Long-term planning overviews are used to outline the units to be taught within each year group. These are found within Power Maths online and in Teacher Handbooks.
- 7.6. Medium-term planning outlines the structure of the unit and the teacher guide supports this with a training video addressing potential misconceptions and how to overcome them. The teacher guide also highlights the use of key vocabulary for the unit and assessing for mastery.
- 7.7. Differentiation is achieved through level of support and resources and representations. For SEND pupils this may involve matching units from previous year groups.
- 7.8. All lessons will have clear learning objectives, which are shared and reviewed with pupils. This follow a Power Maths structure of power up, discover, share, think together, practice, challenge and reflect.

## 8. Assessment and Reporting

- 8.1. Pupils will be assessed, and their progression recorded, in line with the school's [Assessment Policy](#).
- 8.2. Assessment for learning takes place in each lesson. This may take the form of a quick oral recap activity (see agreed school pedagogy for teaching and learning) or a short recorded task. All tasks are quick and pacey as new learning is the priority.
- 8.3. At the end of each unit, teachers will plan in the End of Unit Check from Power Maths. These will be followed by half termly assessments to gauge whether pupils have achieved the key learning objectives.
- 8.4. Assessment will be undertaken in various forms, including the following:
  - Talking to pupils and asking questions
  - Discussing pupils' work with them
  - Marking work against the learning objectives

- Specific assignments for individual pupils
  - Observing practical tasks and activities
  - Pupils' self-evaluation of their work
  - Classroom tests and formal exams
- 8.5. Formative assessment, which is carried out informally throughout the year, enables teachers to identify pupils' understanding of concepts and informs their immediate lesson planning.
- 8.6. In terms of summative assessments, the results of end-of-year assessments will be passed to relevant members of staff, such as the pupil's future teacher, in order to demonstrate where learners are at a given point in time.
- 8.7. Parents will be provided with a written report about their child's progress during the Spring term every year. These will include information on the pupil's attainment, progress and attitude towards mathematics.
- 8.8. Verbal reports will be provided at parent-teacher interviews during the Autumn and Summer terms.
- 8.9. Pupils with SEND will be monitored by the SENCO, and the appropriate support will be put in place.

## 9. Resources

- 9.1. There is a range of practical resources to support the teaching of mathematics across the school.
- 9.2. All staff have access to the range of Power Maths interactive resources in addition to printed copies of these.
- 9.3. Children have access to the internet through computers, laptops, i-pads and interactive whiteboards.

## 10. Equal Opportunities & Inclusion

- 10.1 We are committed to giving all of our children every opportunity to achieve excellence. We do this by taking account of pupils' varied life experiences and needs.
- 10.2 Our curriculum is broad and balanced and we have high expectations of all children.
- 10.3 The achievements, attitudes and well-being of all our children matter, regardless of ethnicity, attainment, age, disability, gender or background.
- 10.4 We actively seek to remove barriers to learning and participation that have the potential to hinder or exclude individuals or groups of children.
- 10.5 Equality of opportunity must be a reality for our children and we ensure this through the attention we pay to the different groups of children within our school:
  - girls and boys;
  - minority ethnic and faith groups;
  - children for whom English is an additional language;
  - children with special educational needs and disabilities.

## 11. Staff Development

- 11.1 Teachers are expected to have good, up to date subject knowledge and to use the materials that are available to them in order to promote the best outcomes for children.
- 11.2 Training needs are identified as part of our whole school monitoring and evaluation, performance management/appraisal and induction programmes. These needs are reflected in the School Development Plan.
- 11.3 Ongoing coaching is given, where needed, throughout the year by subject leaders and SLT.
- 11.4 Staff have the opportunity to observe their colleagues teach as part of an informal coaching programme.
- 11.5 Subject leaders arrange for relevant advice, resources and information, for example feedback from training, to be disseminated appropriately with colleagues.
- 11.6 Where necessary, in conjunction with the SLT and in order to secure outstanding subject knowledge, subject leaders lead or organise training for colleagues.

## 12. Monitoring and Review

- 12.1. This policy will be reviewed on an annual basis by the mathematics coordinator.
- 12.2. The mathematics coordinator will monitor teaching and learning in the subject at the school, ensuring that the content of the national curriculum is covered across all phases of pupils' education.
- 12.3. Any changes made to this policy will be communicated to all teaching staff.
- 12.4. The next scheduled review date of this policy is October 2024.

## Appendices

- DfE: Programme of Study for Mathematics KS1 and KS2
- Power Maths National Curriculum matching document

This policy operates in conjunction with the following school policies:

- Calculation Policy
- Special Educational Needs and Disabilities (SEND) Policy
- Feedback and marking Policy
- Assessment Policy
- eSafety Policy
- Equal Opportunities Policy