

# Clee Hill Community Academy: Mathematics policy

Policy Written: January 2022

Review Date: January 2023

## Intent

Mathematics teaches children how to make sense of the world around them through developing their ability to calculate, reason and solve problems. It enables children to understand relationships and patterns in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics. At Clee Hill Community Academy, we use our understanding of the current and prior attainment of pupils to build on and deepen their understanding of mathematics; embedding key concepts and challenging all learners.

### Maths reasoning

We encourage pupils to use and explain their choices of strategies whilst continuing to deepen their number sense. Through increased opportunities for reasoning, pupils articulate 'why' and 'how' and are encouraged, through questioning, to explain their ideas further. They are encouraged to ask questions; developing a curiosity for number and enjoyment of maths.

### Mathematical mindset

We promote a good mathematical mind set amongst staff and pupils within a mastery approach to mathematical understanding where all pupils can achieve and a ceiling is not placed upon learning. At all stages, pupils are able to select manipulatives to support and deepen their learning and are encouraged to take an increasing responsibility for their learning. Expectations for progression in calculation are clearly shown in the calculation policy which is shared with parents on the school's website.

## Aims

The aims of teaching mathematics are:-

- To promote enjoyment of learning through practical activity, exploration and discussion;
- To promote confidence and competence with numbers and the number system;
- To develop the ability to solve problems through decision-making and reasoning in a range of contexts;
- To develop a practical understanding of the ways in which information is gathered and presented;
- To explore features of shape and space, and develop measuring skills in a range of contexts;
- To understand the importance of mathematics in everyday life.

## Curriculum and Planning

What planning and curriculum normally looks like at CHCA

- Medium term planning is responsive: using ongoing informal assessment, staff identify additional misconceptions or areas that require additional input; informing their daily planning with the class, identified groups or individuals to support further during lessons or interventions.
- Progression in calculation is clearly set out in the school's calculation policy which has been shared with all staff and parents. Video clips give clear additional guidance.

2021-22 Adaptations

- Planning for maths 'post-covid' is based on our assessments of pupils' gaps and misconceptions and is guided by NCETM materials including 'Ready to Progress' and Curriculum Prioritisation materials. Focus on secure development of a smaller

<ul style="list-style-type: none"> <li>• Planned opportunities to use maths within the context of other curriculum areas including guidance in Science for maths applications.</li> <li>• Pupils' spiritual, moral, social and cultural skills and wider British values are developed through taking turns, questionnaires, acceptance of others and their methods, awareness of word derivation and different systems of measurement.</li> <li>• KS1/KS2: <ul style="list-style-type: none"> <li>○ Coverage of 2014 national curriculum for each year group in KS1 and KS2.</li> <li>○ Mastery for Maths approach</li> <li>○ Learning focuses on development of Fluency, Reasoning and Problem Solving.</li> <li>○ NCETM PD spine materials; planning responsively based on where our children are.</li> <li>○ Adapted White Rose used as framework for long-term planning.</li> <li>○ Morning maths activities focus on development of arithmetic skills.</li> <li>○ Planned opportunities to revisit and consolidate; making links within maths</li> <li>○ Weekly homework</li> </ul> </li> </ul> <p>EYFS:</p> <ul style="list-style-type: none"> <li>○ Use of ELG and our own maths curriculum's steps and goals.</li> <li>○ Numbers and Patterns and White Rose</li> </ul> <p>KS1:</p> <ul style="list-style-type: none"> <li>○ Daily Mastering Number sessions</li> </ul> <p>KS2:</p> <ul style="list-style-type: none"> <li>○ Weekly Assertive maths sessions</li> <li>○ Weekly Singapore maths fluency sessions</li> <li>○ Weekly Times Tables sessions</li> </ul>	<p>range of key skills and facts that will allow for progression.</p> <ul style="list-style-type: none"> <li>• Alterations to long-term planning with clear communication of this to the next class teacher.</li> <li>• More flexible approach to interventions to quickly respond to identified misconceptions.</li> <li>• Small group tutoring opportunities for identified groups of pupils including those who are approaching transition.</li> </ul>
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**National Curriculum**

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

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

**Challenge**

- Maths sessions are pitched to provide challenge for the pupils.
- Within lessons, pupils work within a shared learning objective, giving all pupils the opportunity to progress mathematically at their level.
- Through development of teacher and pupil mind-set, pupils are increasingly able to challenge themselves.

- Through questioning from staff and sentence stems, pupils are encouraged to deepen their mathematical thinking.
- Pupils are regularly given opportunities to select from a choice of activities and are encouraged to challenge themselves.
- Pupils are involved actively in marking and feedback.

### Monitoring and Evaluation

Learning in Mathematics is monitored by:

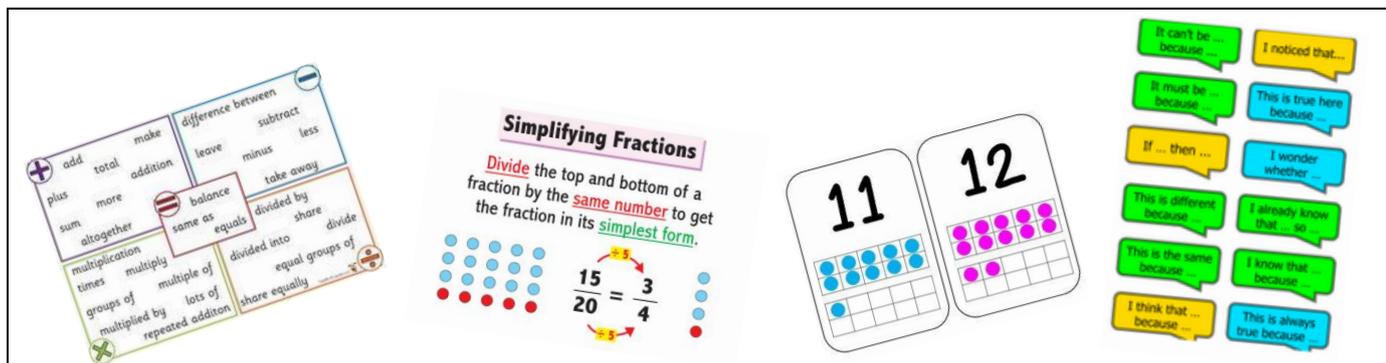
- Termly book trawls
- Termly lesson observations; linked to performance management with actions followed up.
- Learning walks monitoring whole school focus and identifying trends.
- Monitoring of maths achievement across whole school and identified groups of pupils.
- Results of monitoring and evaluation used to inform action planning.
- Identification of groups of pupils and individuals to target for further input, i.e., 1:1 support or interventions.
- Benchmarking Case studies for targeted pupils (moderated with staff).
- Monitoring of Pupil Premium using individual PP passports.
- Marking and feedback involving pupils in marking and responding to marking.
- Pupil progress meetings with Headteacher.
- Meetings with SENCo to monitor progress of children towards targets set.
- Targets and progress tracked termly using OTrack.
- Triangulation of evidence through performance management and monitoring by head teacher and maths coordinator.

### Assessment

- Ongoing assessment during lessons to enable lessons tailored to meet pupils' needs. Each lesson thereafter is planned in response to pupils' progress.
- Pupils complete SATs tests at the end of each Key Stage.
- Weekly times tables tests in classes 3,4 and 5.
- Half termly assessment test in KS2 to inform tracking of progress.
- Otrack used to monitor progress across school.
- Individual tracking sheets for all pupils.
- Use of eYlog to record observations in Early Years and Reception classes.
- Regular moderation of work at Staff meetings.
- Scribing of pupils' oral comments between speech marks in their own maths books.
- Feedback, where possible, to be given to pupils during lessons during conversations or written feedback using pink and green marking.
- Involvement of pupils in marking through response to feedback. Pupils encouraged to 'Turn pink to green' with support as necessary.

### The Maths Environment

- All classrooms have working walls for maths. These can include key vocabulary, sentence stems, examples of strategies, question stems and models and images. They provide support for all pupils during lessons.



- Resources selected for use during maths lessons are matched to the learning and planning.
- Resources are accessible in all classes for children to select during maths lessons to support their learning.



- IWB software used during maths lessons where appropriate.
- Where appropriate the range of needs is catered for following consultation with SENCo, Teacher of the Deaf, LSAT and other agencies.

### Presentation

- Maths is recorded in Maths books in all classes.
- In Early Years and Reception, maths completed outside focused activities, i.e., independently chosen maths is recorded as observations by staff using eYlog.
- All worked dated.
- WALT written for or by pupils.
- Reception and KS1 books - plain paper.
- Key stage 2 books - squared paper.
- Year 4, 5, 6 - pupils draw line to split page into two vertical parts where appropriate.
- Ruler and pencil used for drawing lines.
- Year R-Year 3 pencil used.
- Yeas 4,5,6 pen used (pencil for drawing)

### Contribution of mathematics to teaching in other curriculum areas

### English

The teaching of Mathematics contributes significantly to children's understanding of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, in mathematics lessons we expect children to read and interpret problems, in order to identify the mathematics involved. They are also improving their command of English when they explain and present their work to others during plenary sessions.

### Reading Links

Children regularly read questions in maths and, in KS2, are expected to underline key words and useful number facts. Vocabulary is a key focus in maths lessons and pupils are encouraged to explain their understanding in a variety of ways and re-word questions to aid understanding. Throughout school, pupils are asked to interpret mathematical information presented in a variety of ways including physical and written representations as well as data presented on diagrams, graphs and tables. When reading mathematical information, pupils are asked to consider the similarities and differences and explain what it represents.

### Personal, social and health education (PSHE) and citizenship

Mathematics contributes to the teaching of PSHE and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views. We present children with real-life situations in their mathematics work on the spending of money for example. Spiritual, moral, social and cultural development The teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We group children so that they work together, and we give them the chance to discuss their ideas and results.

### Mathematics and Computing

Technology enhances the teaching of mathematics significantly, because computing is particularly useful for mathematical tasks. It also offers ways of impacting on learning which are not possible with conventional methods. Teachers can use software to present information visually, dynamically and interactively, so that children understand concepts more quickly. Younger children use ICT to communicate results with appropriate mathematical symbols. Older children use it to produce graphs and tables when explaining their results, or when creating repeating patterns, such as tessellations. When working on control, children can use both standard and non-standard measures for distance and angle. They can also use simulations to identify patterns and relationships.

## Mathematics and inclusion

At our school we teach mathematics to all children, whatever their ability and individual needs. Mathematics forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our mathematics teaching we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents and those learning English as an additional language, and we take all reasonable steps to achieve this.

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors - classroom organisation, teaching materials, teaching style, differentiation - so that we can take some additional or different action to enable the child to learn more effectively. Additional opportunities may be available for groups of pupils to receive additional tutoring outside of school hours.

Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels. This ensures that our teaching is matched to the child's needs. Intervention may lead to additional provision for children requiring support which may include pre-learning techniques or interventions such as Plus 1 or The Power of 2.

Every Year group has a Provision map that highlights underachieving, special needs and Pupil Premium children. It shows the support children receive and regularly reviewed by the class teacher. We enable all pupils to have access to the full range of activities involved in learning mathematics. Where children are to participate in activities outside the classroom we carry our risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

### Monitoring and review

Monitoring of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the subject leader. The work of the subject leader also involves supporting colleagues in their teaching, being informed about current developments in the subject, and providing a strategic lead and direction for mathematics in the school. The subject leader gives the weaknesses in the subject and indicates areas for further improvement. The headteacher allocates regular management time to the subject leader so that s/he can review samples of children's work and undertake lesson observations of mathematics teaching across the school. This policy will be reviewed at least every two years.

Reviewed January 2022

Next Review January 2023

