Applecroft School

Nurturing Potential, Inspiring Minds, Changing Lives

Maths Policy

Review Cycle:	Annual
Committee to Review:	Curriculum & Assessment
Date of Issue:	November 2023
Review Date:	November 2024

Maths Policy

1) **Introduction:**

School Vision:
'To be a positive and inspiring community that nurtures each individual and empowers leaders for life'

School Mission Statement:
'Nurturing Potential, Inspiring Minds, Changing Lives'

School Values:
- Ambition and Leadership
- Kindness and Supportiveness
- Respect and Honesty
- Determination and Resilience

2) **Our aims and objectives including breadth of study:**

Using the objectives from the National Curriculum and Early Years Foundation Stage as our base, it is our aim for children to develop:

√ a positive attitude towards mathematics and an awareness of the fascination of mathematics

√ the right to achieve the very best they can in their mathematics learning.

√ competence and confidence in mathematical knowledge, concepts and skills

√ an ability to solve problems, to reason, to think logically and to work systematically and accurately.

√ initiative and an ability to work both independently and in cooperation with others

√ an ability to communicate mathematics vocabulary

√ an ability to use and apply mathematics across the curriculum and in real life

√ an understanding of mathematics through a process of enquiry and experiment

Maths and the National Curriculum:

Teachers in the Nursery use the EYFS curriculum document, Herts for Learning (HfL) 'Essential Foundations for Counting' and in Reception HfL's Essential maths that provides practical suggestions to achieve firmly embedded pre-counting skills in pattern, comparison, classification and group recognition. These four skills continue to develop throughout Reception and remain the foundation of mathematical learning.

Teachers in Key Stages 1 and 2 use the National Curriculum objectives, Herts for Learning's Essential Maths planning and the maths curriculum map. These provide access to resources and guidance on pedagogy and good practice. The curriculum introduces some mathematical concepts at an earlier age and expectations of attainment at each key stage are high. Applecroft pupils have consistently attained above the national expectation in maths at both KS1 and KS2 and all children will be supported and challenged to make progress and gain confidence whatever their stage of learning.

Mathematics is a tool for everyday life. It is a whole network of concepts and relationships which provide a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real-life problems. It also provides the materials and means for creating new imaginative worlds to explore.

Breadth of Study:

Through careful planning and preparation, we aim to ensure that children are given opportunities for:

√ practical activities and mathematical games

√ problem solving

√ individual, group and whole class discussions and activities

√ open and closed tasks

√ exploring how maths is used globally

√ a range of methods of calculating e.g. mental, pencil and paper and using a calculator

√ working with technology, e.g. chrome books as a mathematical tool

√ working with mathematical concepts in a cross curricular way e.g. through

science topics or history

√ taking a creative approach to mathematical learning particular involving problem solving.

3) Maths Curriculum Intent

Mathematics is an important creative discipline that helps us to understand and change the world. We want all pupils at Applecroft School to experience the enjoyment of mathematics and develop a sense of curiosity about the subject with a clear understanding. The maths curriculum is coherently planned and sequenced and is designed and developed for pupils with SEND.

We foster a positive 'can do' attitude and we promote the fact that 'we can all do maths!' We believe all children can achieve in mathematics, there is no ceiling to learning, and teach for secure and deep understanding of mathematical concepts through manageable steps. We use mistakes and misconceptions as an essential part of learning and provide challenge through a broad range of activities and problems. The children will be taught the content from their year group only. They will be given opportunities to reason and prove.

We aim for all pupils to:

- become **fluent** in the fundamentals of mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- be able to **solve problems** by applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios
- **reason mathematically** by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.
- have an appreciation of number and number operations, which enables mental calculations and written procedures to be performed efficiently, fluently and accurately to be successful in mathematics.

4) Maths Curriculum Implementation

Our whole curriculum is shaped by our school vision which aims to nurture and develop children's individual talents regardless of background and ability.
We teach the National Curriculum through Herts for Learning's Essential Maths scheme. Essential Maths sequences have been designed to benefit our teachers and pupils to deliver carefully planned progression that ensures consistency. Teachers also use Nrich, White Rose and NCETM to support planning. Use of

destination questions allow teachers to keep assessing and informing the children's learning against age related expectations.

Children are taught Mathematics daily up to 1 hour, less time in the early years. Wave 1 teaching challenges all learners. Support is provided during each lesson by LSAs to ensure secure understanding based on the needs of the child.

5) **Maths Curriculum Impact**

By the end of KS2 we aim for children to be **fluent** in the fundamentals of mathematics with a conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
They should have the skills and the resilience 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 will be able to **reason mathematically** by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.

6) **Learning and Teaching Styles (including approaches for disadvantaged children including SEND)**

Both Key Stage 1 and Key Stage 2 use the National Curriculum, to ensure progress and continuity with "Working Mathematically" underpinning the children's learning The Foundation Stage curriculum is based on practical activities. Both in Key Stage 1 and Key Stage 2 maths is taught as a discrete subject.

A variety of teaching and learning styles is used in our maths lessons. The lessons offer opportunities for children to learn in different ways. These include:

- Whole class teaching
- Group work
- Paired work
- Independent work
- Use of ICT resources such as chrome books
- Tactile and visual approaches
- Problem-solving learning
- Asking and answering mathematical questions
- Deployment of teachers and LSAs to support the work of individual children and targeted groups, as well as to monitor the progress of disadvantaged children

At Applecroft we teach maths to all of the children. We set high expectations and provide the opportunity for all children to succeed, taking account of pupils

with SEND and pupils from all social, cultural and linguistic backgrounds. We challenge the more able pupils with stimulating extension work and **'Higher Order'** thinking to enable them to further apply their mathematical knowledge.

At Applecroft School we ensure that our maths curriculum is accessible for all pupils. We do this by:

- Recognising and celebrating small steps in progress
- Ensuring key vocabulary is on display in each classroom on a maths working wall
- Carefully considering grouping in classrooms to ensure the best outcomes
- Carefully targeted questioning to extend children's understanding
- Providing alternative methods of recording, voice recorders and chrome books

We all want our pupils to succeed in maths. It is important that teachers 'raise the bar' and hold high expectations for all children. Teachers observe, modify and re-evaluate the learning. The more we show the children how maths is connected to the world around us, the more invested they become. Reading books with maths helps to make connections. We encourage maths talk to help pupils process new learning and build on their thinking. Engaging children during conversations and have them describe why they solved a problem in a certain way.

Essential maths advocates playing games and this encourages pupil engagement and participation. Games are an excellent way to make the learning enjoyable while simultaneously promoting strategic mathematical thinking, computational fluency and understanding of operations. Games also foster a home-school connection and some of these are advertised on our website https://www.applecroft.herts.sch.uk/maths/

Essential maths promotes the concrete, picture and abstract approach. Hands-on learning helps make the conceptual concrete.
Incorporating **manipulatives** whenever possible. The aim of any teaching style is to support **pupils' greater understanding through** meaningful tasks often relating to real life problems.

7) How do we plan and organise our lessons?

Maths is taught in class groups. All teachers are responsible for planning their own maths lessons but follow Herts for Learning's Essential Maths in conjunction with their year group team. The maths leader is available to support this planning as necessary. Planning meetings include discussion with Learning Supports Assistants (LSAs) where possible. Planning is monitored on a termly

basis.

There is no one school wide planning proforma, although teachers annotate Essential Maths plans. If they do not use this we ask every teacher to include a list of 'must haves' in their planning (see Appendix A). Within the maths curriculum Google Drive folders is maths on a page (now the curriculum map) for each year group and statutory statements are objectives, these are highlighted and dated once they have been covered.

Formal lessons last between 20 mins in Foundation Stage to 45 mins in KS1 and 60 mins in KS2 with appropriate transition arrangements in place. The lessons can be divided into 3 parts such as:

- oral/mental starter
- class/group/individual activity
- plenary

We recognise however, that it is more effective to provide 'mini plenaries' throughout the activity, 'the me to you' approach rather than one long session at the end of the lesson in line with Essential Maths planning.

Teachers adapt and scaffold learning with the lowest attainers in mind within the lesson through targeted questioning, activities and/or support.

In addition to formal lessons, we value the opportunities there are to learn mathematics in a creative and/or cross curricular way. This is especially evident in the Foundation Stage where problem solving, reasoning and numeracy are clearly reflected in the team's outdoor and indoor 'child-initiated learning' or CIL plans.

Are there any specific agreements in relation to calculations?

We have a separate Written Calculation policy which is in line with Essential Maths. This is designed to give the children a consistent and smooth transition of learning calculation across the school.

8) How do we make our maths inclusive?

Children with SEND are taught within the daily mathematics lesson with teaching resources and activities adapted as necessary. Lessons are scaffolded with lower attainers in mind and will record this on a scaffolding triangle. Where applicable, children's ILPs incorporate suitable objectives from the maths curriculum and teachers keep these objectives in mind when planning learning. A wide range of resources are available to support all of our children. These include materials for our lower attainer pupils. Sometimes early morning interventions are run throughout the year to support children. These are

monitored closely and their impact measured. The composition of these groups may alter during the year. Master classes and additional extension and enhancement classes are also run for our most able pupils. When additional support staff are available to support groups or individual children, they work collaboratively with the class teacher and the subject leader. Higher attaining pupils are provided with an opportunity to take part in national maths challenges such as the PMC (Primary Maths Challenge) and (First Maths Challenge).

9) Contribution of maths to teaching in other curriculum areas:

Mathematics provides **an effective way of building mental discipline and encourages logical reasoning**. In addition, mathematical knowledge plays a crucial role in understanding the contents of other school subjects such as science, music and art. Maths forms part of a STEM faculty, which includes Science, D.T and Computing.
The integration of maths into other subjects makes **pupils think about the "real world"**. It also makes children start to think about why things happen, giving them a practical approach to learning and using mathematics. Learning experiences for children that reflect the application of mathematics to other curriculum areas could include, for example: collecting, organising, representing and interpreting data arising in science experiments or in enquiries related to historical, geographical and social understanding; drawing up plans and meeting the demands for accurate measurement in design technology; using mathematical concepts to stimulate and support the exploration of pattern in art, dance and music.

10) What is our approach to equal opportunities?

We incorporate mathematics into a wide range of cross-curricular subjects and seek to take advantage of multi-cultural aspects of mathematics.

In the daily mathematics lesson, we support children with English as an additional language in a variety of ways:

- repeating instructions,
- speaking clearly,
- emphasising and pre-teaching key words,
- using picture cues,
- playing mathematical games,
- encouraging children to join in counting rhymes and chanting

Pupil Premium / Disadvantaged Children

Disadvantaged children are supported in the lesson through quality first teaching, scaffolding planning and LSA support. There may be additional support provided by our pupil premium funding such as tutoring.

11) How do children record their work?

It is our belief that recording work in books should not be an end in itself but that learning can occur in other situations e.g. a game or class discussion and that evidence of this learning can be sought in other ways e.g. photographs, teacher or learning support assistant observations.
When children do record in their books they follow a format as shown in Appendix B.

12) How do we use feedback to support children's progress?

Maths is marked in conjunction with the school's Feedback Policy. The vast majority of feedback takes place in class. We use next step marking to move the children's learning on further and provide appropriate challenge.

13) How do we assess and report children's progress in maths?

The assessment and reporting of maths is part of a wider school approach and can be seen in the school's Assessment Policy. The school uses its own assessment based on previous models such as HfL's Steps approach.
The use of **Assessment for Learning,** both formally and informally, ensures that we are able to assess pupils' understanding of mathematical concepts.

A child's progress in maths is indicated every year in an individual annual report and comments are made on their mathematical knowledge and application.

We are always interested in what our pupils think about their maths learning. We regularly monitor the children's enjoyment and understanding of the subject using pupil interviews. Children are also encouraged to respond to the marking in their books and regularly self assess their own work.

14) How do we set home learning?

Maths Home Learning is set on a weekly basis in every class in KS2. In KS1 Maths Home Learning is set regularly to run alongside the learning which is taking place in school. The school uses My Maths and this is posted on Google Classroom.

15) How do we monitor maths across the school?

The mathematics leader works alongside other teachers. The time is used to monitor and evaluate the quality and standards of mathematics throughout the

school and enables the leader to support teachers in their own classrooms. The views of pupils and their parents are sought through questionnaires and interviews. All of this information feeds into a maths SEF completed termly which inform the subject leader's annual action plan.

16) How is the maths curriculum resourced?

The curriculum is resourced through an annual budget bid submitted by the curriculum leader in line with the action plan and whole school improvement plan. Resources are stored both in classrooms and centrally in cupboards within the PPA room. All teachers are asked to organise an area within the classroom dedicated to mathematics resources. This area is easily accessible to all children and allows them to become familiar with all resources.

17) How do we develop staff's CPD?

The curriculum leader seeks to support the professional development of all staff in conjunction with the Senior Leadership Team. INSET is provided in house and through a county provider, Herts for Learning, and is directly linked to both the School Improvement Plan (SIP) and the Maths SIP.

18) How do we involve parents in maths learning?

We recognise parents and carers as key partners in the teaching of their child and work closely with each family to discuss progress and targets. In addition:

* Parents are invited into school twice yearly to discuss their children's work

* Parents are invited to a workshop or Stay and Learn session to learn how they can better support their children in their maths learning

* The class teacher shares the child's targets with parents on a termly basis and provides specific activities to support this at home

* A written report is provided every year.

* Parents are invited into school three afternoons a year to look at the children's learning in their books

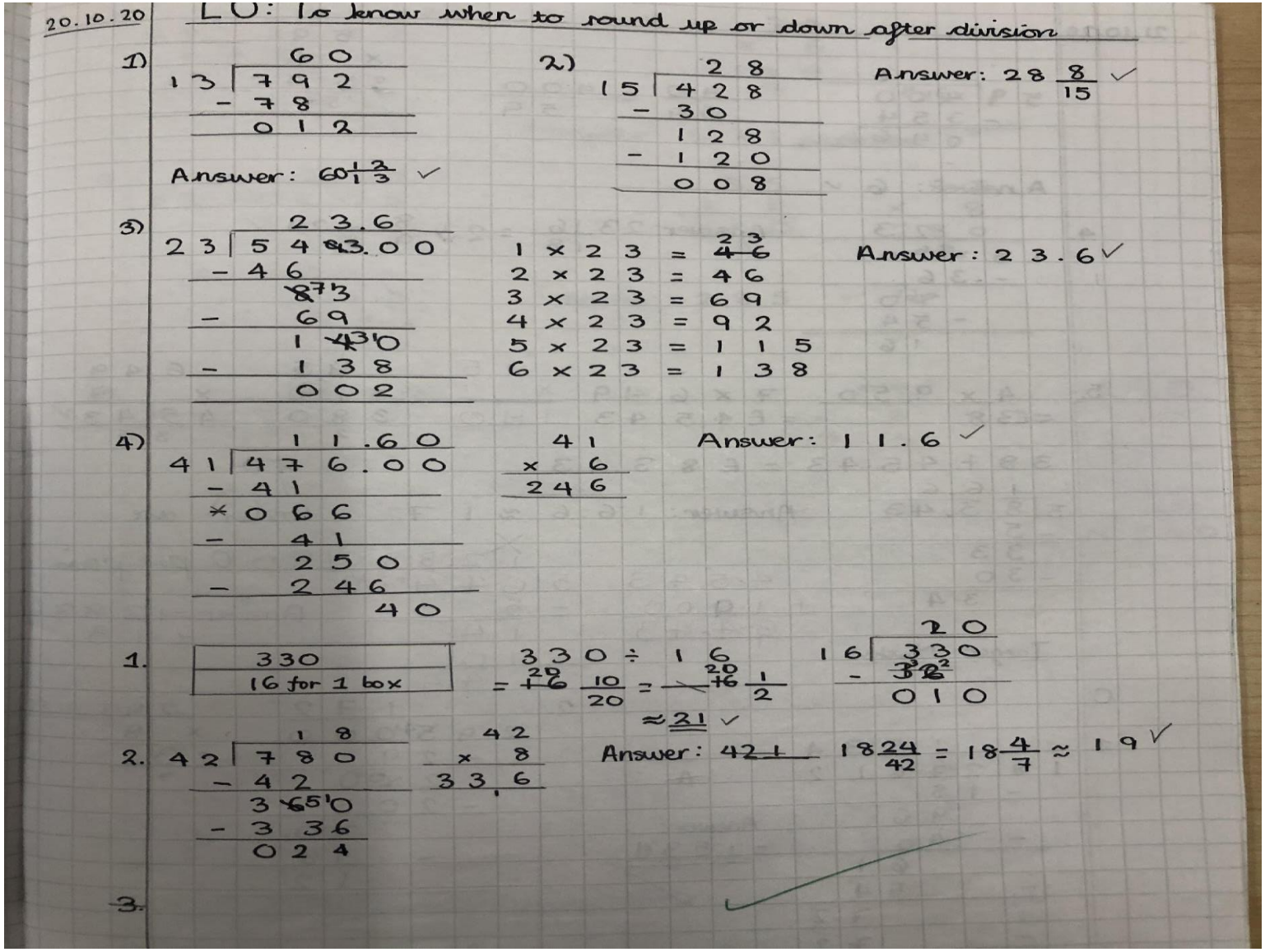
19) **How are the governing board involved?**

The governing board are kept up to date with the school's maths curriculum via the Curriculum and Assessment Committee through presentations to the governors either at curriculum committee level or faculty meetings. The agenda of meetings could include: Curriculum Leader Action Plan feedback, quality of learning and teaching, the curriculum, pupil outcomes etc. Link Governors attend faculty meetings each term.

Appendices

Appendix A

Applecroft School  **Planning Expectations**	
Planning 'Must-Haves':	**Planning Considerations:**
• Skill (taken from curriculum map) must be written on plan • Learning objective(s) must be written on plan - (this/these maybe the same as the skill but will need to written in 'child-speak' and be specific, clear and achievable) • Key Vocabulary • Success Criteria for lesson – to be known across school as 'Steps to Success' - (these could be created by the class teacher and pupils in the lesson but must be thought about and included on plan before the lesson) • Deployment of all adults throughout the lesson • Scaffolding and providing challenge for all	• Organisation of lesson - Doesn't have to be a 3 part lesson - Consider if all groups need to be taught all parts • Key questions • Mini plenaries / assessment points throughout the lesson • Impact of all adults on the learning throughout all 'parts' of the session



20.10.20

LO: To know when to round up or down after division

1)
```
      60
13 | 792
   - 78
     012
```
Answer: $60\frac{12}{13}$ ✓

2)
```
      28
15 | 428
   - 30
     128
   - 120
      08
```
Answer: $28\frac{8}{15}$ ✓

3)
```
      23.6
23 | 543.00
   - 46
     873
   -  69
     1430
   - 138
      002
```
1 × 23 = 23
2 × 23 = 46
3 × 23 = 69
4 × 23 = 92
5 × 23 = 115
6 × 23 = 138

Answer: 23.6 ✓

4)
```
      11.60
41 | 476.00
   - 41
     066
   -  41
     250
   - 246
      40
```
```
  41
x  6
246
```
Answer: 11.6 ✓

1.

330
16 for 1 box

330 ÷ 16
$= \frac{20}{16}\frac{10}{20} = \frac{20}{16}\frac{1}{2}$
≈ 21 ✓

```
      20
16 | 330
   - 32
     010
```

2.
```
      18
42 | 780
   - 42
     360
   - 336
      024
```
```
  42
x  8
336
```
Answer: 421

$18\frac{24}{42} = 18\frac{4}{7} \approx 19$ ✓

3.

Appendix C

Maths Expectations - Presentation

All work dated with short date – aligned to the left

- All work must have a LO even if the lesson is practical and there's no recording
- The LO will be written/stuck on the left-hand side of the page
- The date and LO must be underlined with a ruler and a pencil
- New pieces of work should be under the last piece of work where it has been ruled off using a ruler and pencil following feedback and/or marking or on the next page
- Pupils should put 1 digit per square
- A gap of one square should be maintained between question numbers and answers
- Tables, charts and diagrams should be drawn using a pencil and ruler and where applicable coloured in using coloured pencils