

Philosophy and overarching principles

All children will learn

All children can be successful at mathematics when given high quality instruction and meaningful support.

Collaboration supports mastery

Children learn through collaboration. The opportunity to work with others supports understanding and encourages the development of problem solving and reasoning skills.

Depth is prioritised over breadth

Each topic should be explored in greater depth and in a variety of ways; a topic is only considered to be complete when the children's knowledge is secure.

All children move on together

Children progress through learning at broadly the same pace, with opportunities for faster graspers to deepen their understanding.

Focus on understanding

The ability to solve a calculation is not enough; children must be able to demonstrate and articulate their understanding of the mathematical concept.

Applegarth will support the mastery approach by:

- **Investment in subject knowledge**
 - A clear understanding of what is meant by a 'mastery approach' will be shared along with the pedagogy behind it.
 - Regular CPD sessions will be planned and delivered on all areas of the mathematics curriculum for teachers and TAs.
 - Examples of resources will be provided.
- **Investment in resources**
 - Useful, relevant, concrete and pictorial resources will be made available to each class.
 - Training in the use of resources will be provided.

- **Mathematics support will be readily available from the leadership team**
 - Planning support will be available during PPA.
 - Team teaching of lessons.
 - Professional dialogues about strengths and areas for development.
 - There will be the opportunity to observe other teachers delivering mathematics lessons, e.g. through teacher research groups (TRGs).

Features of a successful mathematics lesson utilising a mastery approach include:

Planning and design

- ✓ **Coherent, carefully sequenced learning steps:** each part of the lesson supports the children accessing the next part.
- ✓ **'Ping Pong' instructional model:** there is a high level of back and forth between teacher instruction and pupil activities, e.g. a six-part lesson.
- ✓ **Conceptual variation:** the mathematical concept is presented in a variety of ways so children are able to discern the essential features.
- ✓ **Multiple representations:** a variety of manipulative and pictorial representations have been used to explain the mathematical concept.
- ✓ **Procedural variation:** questions have been chosen with care to demonstrate a particular concept, ensuring that calculations are more than simply finding an answer, but about understanding patterns and concepts too.
- ✓ **Depth for all:** every child in the lesson has the opportunity to apply their key learning through extension, application, reasoning or problem solving (or a combination).
- ✓ **Scaffolding:** support is available for those who need it (this could be additional concrete resources or further support from the teacher in a focus group).

Delivery

Collaboration	Communication	Curiosity
✓ Talk tasks in groups or pairs to develop understanding	✓ Accurate and appropriate vocabulary is used by all	✓ There is an opportunity to develop mathematical fluency
✓ Transition time between activities used for mathematical chants, rhymes or songs	✓ Stem sentences are available and referred to in order to provide clarity on how to speak mathematically	✓ Children have the opportunity to go from specific examples of concepts to developing these into general rules

*Features of a collaborative approach will be evident, e.g. team cheers, Random Reporter.