Drove Primary School Maths Policy

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National curriculum emphasises the importance of all pupils mastering the content taught each year and discourages the acceleration of pupils into content from subsequent years.

The current National curriculum document says:

'The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils 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, this maybe through additional practice, before moving on.' (National curriculum page 3)

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 develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- 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.'

At Drove we feel the best way to achieve the aims set out by the National Curriculum is a Mastery Approach

What do we mean by Mastery?

The essential idea behind mastery is that all children need a deep understanding of the mathematics they are learning so that:

- Future mathematical learning is built on solid foundations which do not need to be re-taught;
- There is no need for separate catch-up programmes due to some children falling behind;
- Children who, under other teaching approaches, can often fall a long way behind, are better able to keep up with their peers, so that gaps in attainment are narrowed while the attainment of all is raised.

At Drove we view the Mastery approach as a set of principles and beliefs. This includes a belief that all pupils are capable of understanding and doing mathematics, given sufficient time. Pupils are neither 'born with the math gene' nor 'just no good at math'. With good teaching, appropriate resources, effort and a 'can do' attitude all children can achieve in and enjoy mathematics.

Mastery and Mastery with greater depth

Integral to mastery of the curriculum is the development of deep rather than superficial conceptual understanding. 'The research for the review of the National Curriculum showed that it should focus on "fewer things in greater depth", in secure learning which persists, rather than relentless, over-rapid progression.' It is inevitable that some pupils will grasp concepts more rapidly than others and will need to be stimulated and challenged to ensure continued progression. However, research indicates that these pupils benefit more from enrichment and deepening of content, rather than acceleration into new content. Acceleration is likely to promote superficial understanding, rather than the true depth and rigour of knowledge that is a foundation for higher mathematics.

At Drove we believe mastery and mastery with greater depth are used to acknowledge that all pupils require depth in their learning, but some pupils will go deeper still in their learning and understanding.

We feel Mastery of the curriculum requires that all pupils:

- Use mathematical concepts, facts and procedures appropriately, flexibly and fluently;
- Recall key number facts with speed and accuracy and use them to calculate and work out unknown facts;
- Have sufficient depth of knowledge and understanding to reason and explain mathematical concepts and procedures and use them to solve a variety of problems.

To support this we believe that if a pupil really understands a mathematical concept, idea or technique he or she can:

- Describe it in his or her own words;
- Represent it in a variety of ways (e.g. using concrete materials, pictures and symbols
- Explain it to someone else;
- Make up his or her own examples (and no examples) of it;
- See connections between it and other facts or ideas;
- Recognise it in new situations and contexts;
- Make use of it in various ways, including in new situations.

The Most Able children

Although we encourage challenge for all through the mastery approach, we ensure that "Rapid Grasping" children are given the opportunity to master at a greater depth within the lesson. We also recognise that ability is not fixed and that all children should have the opportunity to deepen their understanding in all lessons.

We believe if a child is developing mastery with greater depth the child can:

- Solve problems of greater complexity (i.e. where the approach is not immediately obvious), demonstrating creativity and imagination;
- Independently explore and investigate mathematical contexts and structures, communicate results clearly and systematically explain and generalise the mathematics.

These children are given the opportunity to show a greater depth of mastery through daily 'Challenge' tasks which are set throughout the lesson.

What a Maths lesson looks like at Drove

To ensure coverage and progression across year groups; at Drove we follow the White Rose Maths Hub Schemes of Learning and the Kangaroo maths scheme of work. Each scheme of learning follows the Mastery approach and allows opportunity for deeper understanding.

The schemes believe that all students, when introduced to a key new concept, should have the opportunity to build competency in this topic by taking this approach.

Concrete – students should have the opportunity to use concrete objects and manipulatives to help them understand what they are doing.

Pictorial – students should then build on this concrete approach by using pictorial representations. These representations can then be used to reason and solve problems.

Abstract – with the foundations firmly laid, students should be able to move to an abstract approach using numbers and key concepts with confidence.

This belief is reflected in lessons across the school and teachers will use a range of resources to scaffold learning.

Maths lessons have:

- A hook or a 'teach it'session – the teacher will scaffold the learning for the class, so children can look at examples of the process (e.g. Show me one, show me another, and another.)
- Children will "Do it" using fluency of that concept, this can be by using manipulatives to support that concept. This explores the 'what it is' and the conceptual understanding or procedural understanding.
- The lesson will enable children to secure understanding by "Stretch it". Children look at 'what it is not', looking at mathematical reasoning (e.g. True or false, do you agree? Prove it.)
- Children then have the opportunity to deepen their understanding with "Solve it" problems.

To support this approach, Math lessons are split into small steps of learning with the emphasis that learning is at a measured pace. This will better ensure that children "keep up" rather than "catch up" and will also provide a deeper and richer experiences for children who are above the national expectation for their age. We focus on the majority of children achieving what is expected of their age group and not going beyond this.

At our school, the majority of children will be taught the content from their year group only. They will spend time becoming true masters of content, applying and being creative with new knowledge in multiple ways.

All this means that there is a new way we teach and assess pupils – most notably how we organise pupils' learning and what we use/how we report their progress.

We will be doing more of this:

- Teaching all pupils in class, together, most of the time

- Verbal feedback during lessons and more ticking of correct concepts
- Spending longer on one idea
- Giving pupils who need it additional support over shorter more intense timescales – ideally same/next day - to prevent gaps in learning occurring
- Regular assessments

And less of this:

- Formal marking with lots of feedback and 'next steps'
- Covering lots of ideas in one week
- Formal, long term interventions to boost pupils out of class
- Separating in to ability groups
- Formal testing of pupils termly

Alongside our Schemes of Learning (provided by White Rose Maths Hub), we also have a Calculation policy which follows the ethos of the Mastery Approach. This ensures there is a consistent approach to the teaching of concepts at the school and that there is clear progression between Key Phases.

Marking of maths in outlined in more detail in our School marking policy however we ensure that the marking and evidence-recording strategies should be efficient, so that they do not steal time that would be better spent on lesson design and preparation. Neither should they result in an excessive workload for teachers.

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