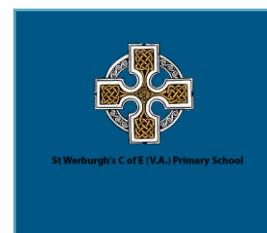


Teaching for Mastery Lesson Design at St Werburgh's C of E Primary A Primary Case Study



Teaching for Mastery Lesson Design Work Group

One of the biggest challenges facing schools as they adopt a teaching for mastery approach is how to design lessons. Working collaboratively with practitioners from across the East Midlands the project, we began by identifying the key features of mastery, before exploring a route through a lesson, that allowed teachers to link these together in a coherent manner. Essentially we were looking at how to turn theory into outstanding classroom practice. Though our research often went much wider what is captured here in these case studies, each participant school was asked to focus in on one aspect of lesson design, how it has been incorporated into classroom practice, and the impact it has had on learners.

Overview

Rachel who is Maths coordinator at St Werburgh's wanted to develop mastery in mathematics by improving the quality of provision. To do this she wanted to ensure key elements of good mastery teaching were considered at the planning stages so that children were better able to articulate their mathematics and deepen their understanding. As a school St Werburgh's found that many children were struggling to tackle problems and explain their thinking without significant amounts of teacher intervention.

What we did at St Werburgh's

As part of the lesson design group we looked at the key elements of good master teaching and unpicked how these supported children on their journey to mastery. We looked at a possible structure to teaching a lesson and what a good lesson would look like and how this would enable all children to be successful. Rachel decided initially to focus on how this might look within her classroom. As an EYFS practitioner the structure and approach needed some adaptation to fit within the continuous provision set up of a foundation unit.

Structure of a Session

Initially Rachel trialled different elements of the suggested structure such as pre loading children, anchor tasks, guided practise and independent task as part of the weekly plan. It quickly became clear that the structure of the lesson within a foundation unit would be similar in aim but may be spread across several days and groups of children so that they all had the opportunity to take part in these elements at different points in the day or week. Rachel found that a short introduction of a simple pre loading task and short guided practise was most effective. Then within the continuous provision provide relevant equipment and challenges to explore and develop the mathematical thinking of the children.

Counting Project

St Werburgh's had been lucky enough to have been part of the counting project, another EM Maths hub working group. Within this group we had explored counting and the different attributes that support children's understanding of cardinality. As part of the project we had decided to focus on subitising, both perceptual and conceptual, and the use of containers, ten frame and pots etc as a way of grouping objects in order to count them more effectively. The children quickly took to this on and rapidly developed a knowledge of breaking numbers up and reconstructing them. Which in turn lead to a firm understanding of simple number bonds up to and including 10.

Lesson Design

Like Many Foundation Teachers and Year 1 teachers Rachel found that children often had difficulties with teen numbers. As part of the lesson design group we looked at the use of stem sentences and variation and how these can develop a child's conceptual understanding. Rachel decided to use stem sentences and variation to support children's understanding of teen numbers and their link to tens and ones. The children spent time focusing on what a ten was using numberblocks clips, ten frames (large and small) and the counting collections provided during the counting project. Children described their group by using the stem sentence I *have/ do not have* ten because my ten frame *is full/ not full*. Over the next few lessons the children made 10 in various ways using a wide variety of everyday objects and mathematical equipment including numicon, deines, cuisenaire and coins. They compared their different representations looking for similarities and differences and pointing out when they had a ten and did not have a ten. The children then went on to explore the difference between a 1 and a 10 again sorting the different representations and grouping them by value. Again the children used stem sentences to describe the representation. I know I have _____ because I have 1 _____. Once the children were clear about the difference between a 1 and a 10 and how they were also alike we look at the number 11 and discuss the features of it using arrow cards to pull the digits apart and reveal the 1 and 10. Again we went through the process of using stem sentences and a variety of representations to deepen the children's understanding of 11. Having spent a week really focused on these 3 numbers we embarked on the remaining numbers 12-19. The children quickly recognised the ten within the number and started to look at numbers saying that a number was 1 ten and 3 ones any making these numbers in a variety of ways. When we ran short of equipment they then used mixed representations such as a ten rod and 3 pennies to make 13. Children then started to look at each other's work and were rapidly saying how much their partner had made. For example 1 child had 1 ten rod and then a ten frame with 2 clear groups of 4 counters on it. His partner looked at it and said you have 18 because you have 1 ten and 4 counters and 4 counters that's 8 so 1 ten and 8 ones is 18. This rapid recognition was noted throughout the class.

Examples of Children's reasoning

Over the next few weeks this wider view of numbers was noticed in other areas of number for example a child was adding 7 and 9 placed objects on 2 separate ten frames and then transferred 1 object and instantly announced he had 16. Another child saw a ten frame with 9 on it and said it is 1 less than 10 it is 9. Within the concept of doubling the children created representations of doubles using numicon and without prompt they created double 6:- using a 2 and 4 piece to make 6 and also a 5 and 1 piece to make the other six. When we examined the children's learning and application there were several aspects that seemed to have had the most significant impact. We taught children simple stem sentences these enabled all the children to explain their reasoning and helped the children to notice and describe key mathematical ideas. Children who struggled with communication were able to articulate their ideas as they had learnt key sentences to describe their work. The second key aspect that we felt contributed to our success was pre-loading key ideas that were needed in the session for example reviewing subitising of numbers to 10 at the beginning of the input so that the children were able to use this when subitising the teen numbers. The final key area that we felt helped our children's reasoning was the continuity throughout the lesson and unit of work that provided the children with small steps in learning and a wide variety of variation. Our next step with these children is to develop their informal recordings.

Summary and next steps

As a result of the "The Lesson Design Working Group" and "The Counting Project" St Werburgh's has noticed that their foundation children have a strong number sense and are confidently breaking numbers up and combining them in a variety of ways. It was also noted that this has happened across all abilities and ages both Autumn and summer born children. When SLT visited they said "The children's reasoning was impressive" after witnessing the children sharing their differing calculation methods for solving the same problem.

At St Werburgh's Rachel is now focusing on transferring this success seen in EYFS to the rest of the school. Initially starting with the use of stem sentences and pre-loading learn and then moving on to develop the continuity of the lesson to ensure all children are not only accessing but achieving the ARE.

More Information

For more information about this project, or other workgroups and opportunities available through the East Midlands West Maths Hub:

Visit our website: <http://www.emwest.co.uk>

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