Teaching for Mastery Lesson Design at

Radcliffe-on-Trent Infants and Nursery School

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

I am currently maths and Key stage 1 leader in a growing village infant school based in the South of Nottinghamshire. I have held this position for the past 3 years. Presently I am teaching in year 1, having previously taught in year 2 for the past ten years. Having overseen the implementation of the 2014 New curriculum it was now my responsibility to ensure that a whole school approach to teaching for Mastery was implemented and overseen. Over the past year as a school, we have been looking at introducing the White Rose approach to mathematics as a reference for teaching Mastery. It was at this time that the opportunity to take part in the Maths Hub **lesson design project** presented itself. I personally considered this a chance to really consolidate my understanding of what teaching for mastery really means and how best to implement it in an infant setting.

What we did at Radcliffe-on-Trent Infant and Nursery School

As mentioned in the previous paragraph as a school we were looking for an approach to mastery that could be implemented across both key stages. With no budget available for a published math scheme it was going to be a huge project to undertake. This being understood, I decided to focus upon the year I was currently teaching in, as it had been an area identified for development in school.

The White Rose maths planning had been given to all year groups, however the teachers in Year 2 felt that as the children had not been exposed to the White Rose planning previously and were unfamiliar with the terminology, there was a need to diagnostically teach the children in order to ensure coverage and understanding from the point at which they were currently at. Being a year 2 teacher for the last 9 years I understood their concern and having worked within that team I trusted their professional judgement. I was also happy to focus on one year group which enabled me to work closely with the other year 1 teachers and to experiment with a number of different aspects.

The opportunity to work on the **lesson design project** enabled me to get involved in discussions with other professionals, about maths pedagogy and teaching styles, it allowed all of the participants to explore mastery and to get an insight into the lesson format that encourages both mastery of maths and also an increased focus on talking and reasoning which was another area for development identified through lesson observations and book scrutiny undertaken by myself as maths lead.

Previous to the **lesson design project** I had implemented a system with the assistance of another colleague which used a colour coded system of graduated maths tasks that were composed by the teachers with the previous day's lesson in mind. The planning focus for the week was identified and then each lesson was planned to move on from the next, using marking and AFL as an indicator. We had previously trialled maths ability groups, group interventions and even single sex maths clubs to encourage reluctant girls all of which had contributed to a successful rise in maths data over the years. However a definite approach to mastery was not embedded across school and teachers were a little bit reticent to define what they understood teaching for Mastery to be.

Areas for development

After attending the **Lesson design group** I decided the first thing that I wanted to trial were **maths jotters**. The children across school were completing some really good maths work which was often lost on white boards, trying to photocopy or photograph all this for evidence was too time consuming so I decided that using a maths jotter might help. I began my trial by using paper identified as 'scrap paper'. I then bulk hole punched holes in the paper so that the children could get their own supply and file it when needed.

Even dating work still caused the problem of relating the workings out to the current days lesson, if it was kept in a separate file to the maths books. So I then needed to find a resolution to this.

The second thing I decided to trial from speaking to others on this course was **sitting the children in rows**. This was in attempt to focus those children who had a tendency to find concentration challenging during the input. After effectively training the year 1 children into assembling the tables and chairs into rows in a record breaking 5 minutes I was informed by a colleague that this was a 25 minute lapse in teaching time during a whole week. It was a definite improvement sitting the children at desks rather than on the carpet but moving the classroom round together with a sudden imposed reduction of tables meant that this was not quite the answer I was looking for.

In my most recent book scrutiny, I had assessed that although I knew the teaching that was taking place during lessons was excellent, the books did not show the total amount of progress that each child had made during that lesson. I needed to provide a solution to this also.

Focus

During discussions on the **lesson design project** with other practitioners, I was overwhelmed by the amount of planning that was expected for what was perceived to be an effective lesson in Mastery; hours spent on producing detailed power points seemed to me to be an ineffective use of my time and I also doubted that would be an enticing prospect to other practitioners to adopt. The other element I found frustrating were the majority of examples that were given were aimed at Key stage 2. I had to further think of how to change and apply these elements to fit the attention span and knowledge of key stage 1 children, and specifically year 1.

I studied the lesson design format and then looked at how I could make this work for the children that were in my class, but also how I could create a user friendly format in both the planning and delivery process for other practitioners.

I had ascertained that each lesson could be divided into 7 sections. So I devised my own way of implementing the guidance instructed by the **lesson design project** and implemented this into a way of recording these elements onto a scaffolded sheet and simple powerpoint. The construct of the sheet and powerpoint are as follows

1.) **Rapid recall** a set of confidence building calculations which draw on previous learning but also link to the current aspects being explored in the lesson,

2.) **Anchor task** which I decided would be a related practical investigation,

3, 4 and 5.) **Guided practise 1, 2 and 3** which are a series of related tasks that the children complete independently or in pairs at first, After each one the children are asked to come back together to review and discuss their findings. This gives an opportunity for self assessment and purple polishing pen. It is during these sections that a lot of really impressive discussion and reasoning takes place.

6.) **Independent practise** these are 3 tasks graduating in difficulty. Here children are encouraged (under guidance) to complete to the level that they felt comfortable with after completing the guided practise. Purple for I still feel unsure about this. Aqua for I feel that I can complete a task and have a go at being challenged further and Gold for I feel confident with this concept and can approach it from a different perspective. Children are not restricted to the one coloured section for all sections are on the sheet, it is the starting point which the child is in control of.

7.) **What I have learnt** section which included forming a stem sentence or a generalised statement of learning constructed from the learning that had taken place during the lesson.

The children have really embraced our new way of teaching maths, they sit at their tables and I regularly change who they work with to encourage both reasoning and explanation of concepts and exploration. Working partners is always a work in progress and depending on a task the roles within these partnerships change. The whole aim behind this approach is to remove the glass ceiling of learning that is imposed during more traditional methods of teaching. Everyone approaches the task. We regularly stop and regroup to discuss our findings, children are not waiting to see if they have arrived at the 'right answer' they immediately can see misconceptions and can discuss misunderstandings. They seem to be enjoying the learning journey as much as arriving at the destination.

As a school we have moved to teaching whole subject mornings, which has enabled us to be flexible with how long the lesson takes. In one week we will have three mornings focussed on English and two on maths and the following week this will be reversed. As a class we usually complete the guided practise sections by playtime. Before we approach the independent practise there is further time for reflection or another opportunity to explore any misconceptions before we begin the Independent practise section of the lesson.

Summary and next steps

Impact so far…….
Having trialled this for the past term and a half I have observed a number of improvements in the teaching and learning aspects of mathematics across year 1

On Children
The confidence of the children as math's masters has increased, they are more inclined to 'have a go' at a problem without fear of failure as they know that efforts will be validated during the guided practise sections and they are not completing a whole sheet of calculations with little understanding. The mathematical language the children are using has improved, they are more eager to engage in purposeful discussion about their maths with each other and their teachers.
Children are beginning to be able to realise that they can write in maths lessons as well as in English lessons by producing stem sentences and general statements. Overall due to the fact that the tasks are short and thought provoking and the input is now more interactive, guided and productive the children stay on task for longer. They are achieving more in the independent practise section without needing so much assistance and we now have a record of their progress from the beginning to the end of the lesson, without the need for maths jotters. I have incidentally kept the jotters to record any calculations or maths tasks that the children choose to complete during continuous provision or in a less formal context.

On Staff
Feedback from staff has been encouraging. Although the journey of each lesson is carefully thought through, there is always room for professional discussion and we often talk as a team about any aspects that could be improved or may need tweaking for future use. The rise in confidence of the children is being noted across school and it will be interesting to see if the year two team notice an improvement in the children's understanding and reasoning. It is not only the children's confidence that has improved, the teachers feel that they are delivering a more challenging and engaging maths curriculum which guides them step by step along the learning journey of each mathematical concept.

The planning process is not too intensive, which I believe is very important in order to guarantee the longevity of a trialled system. We are still using the White Rose planning and assessment tool, along with responding to the results of termly assessments. This method of planning will continue into year 2 being supplemented with the White Rose approach.
As I have planned for the Spring and Summer term using this format it will be hopefully embedded for the new staff in September to start using straight away. I have also planned a staff meeting to show our approach to share our findings.

Next Steps
Having successfully trialled this in Year 1, I now plan to focus on implementing a teaching for Mastery approach for Foundation stage. In this I hope to focus on raised expectation, fluency and challenge to ease the transition into Keystage 1.
With a complete staffing restructure being planned the challenge will be overseeing the continuity of these changes and assisting with further developments when not working in a different key stage and building.

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
Follow us on Twitter: EM_MathsHub
Email: mathshub@george-spencer.notts.sch.uk