



Maths at Holywell - Teaching and Learning Profile 2018-2019

The road to mastery

At Holywell our journey towards developing a new Maths Mastery curriculum began in September 2016 and since then, we have invested a lot of resources in developing staff CPD to support this shift of teaching and learning. In 2016, the Year 4 maths coordinator and Year 2 class teacher became part of the NCETM Mastery Specialist Teacher Research Groups as part of the Maths Hub National Programme to support mastery in primary schools. As part of this they had the opportunity to work alongside the maths mastery leads from North Tyneside schools and observe teaching.

The first whole school focus was on the introduction of the key mastery principle of 'representation' and through this the use of manipulatives such as Numicon, Place Value Counters, Cuisenaire Rods etc. All members of staff attended an INSET day on Numicon and the school purchased Numicon resources for every class from Nursery to Year 4. Throughout the year, staff training focussed on the key principles of fluency and mathematical thinking and how children's learning could be deepened through problem solving and reasoning activities. As a result of this, the school has introduced 'greater depth' problems which are based on problem solving skills and a 'Captain Challenge' problem which develops children's reasoning skills. There is an expectation that all children, regardless of ability, will have the opportunity to have a go at these problems throughout a unit of work.

All teachers from Year One to Four had the opportunity to observe a Shanghai teacher teach a 'mastery lesson' and reflect on this style of teaching with other practitioners who are introducing a mastery approach.

Last academic year (2017-2018), pre and post assessments were introduced from Years 1 -4 and were used to inform planning and teaching. Lesson design was also incorporated into this and the Maths coordinator, with input from the staff, devised a new unit overview proforma which identified how teaching should be planned and a long term overview which follows the White Rose Maths Hub scheme. The mathematics coordinator completed her mastery maths lead training with the NCETM Primary Mastery Specialist Programme and led a pilot TRG with three local schools and is currently supporting five schools. Staff also participated in training on the use of bar models and images from Years 1 – 4.

The focus in school for 2018/2019 is redesigning the calculation policy so that it matches the mastery principles and the use of a concrete, pictorial and abstract (CPA) approach. The use of precise vocabulary and Stem sentences will also be a priority and training on this will be delivered. In Year 4, a system for identifying how children who are 'quick graspers' are being challenged will also be developed and introduced to Year 3. The impact of these developments will be monitored through lesson observations throughout the year. See School Improvement Plan for more information.

What Maths lessons look like at Holywell

At Holywell, children receive input from their teacher to match their needs. We teach mathematics to whole classes and do not label children (this includes within the classroom). Lessons are planned based on formative assessment (pre assessments) of what students already know and we include all children in learning mathematical concepts.

At the planning stage, teachers consider what scaffolding may be required for children who may struggle to grasp concepts in the lesson and suitable challenge questions for those who may grasp the concepts rapidly. Decisions are not made about who these children may be prior to the lesson. Children are sat in mixed ability groupings and these seating's change on a regular basis depending on the children's needs and content of the lesson.

We follow a lesson design of teacher input, fluency activity, then application through a greater depth problem (Problem solving) and/or a captain Challenge problem (conjecturing). Where some children are already fluent in a skill, they may begin on the greater depth or Captain Challenge problem which allows them to reason, make connections and think mathematically. They may work on these activities with the class teacher or independently, whilst the teacher and support staff deliver specific interventions to children. Lessons are designed on the principle of 'concrete, pictorial to abstract' and where applicable, a

range of manipulatives are used across the school to support children secure key concepts, and to become fluent in methods of calculation. Careful questioning is also used to probe the pupil's understanding throughout a lesson and responses are expected in full sentences, using precise mathematical vocabulary.

There is a daily 15 minute Hi 5 Maths session from Years 1 to 4 which focuses on the practise of basic key skills per session. The session is quick paced and interactive. All children should be actively involved in the session and included through differentiated questioning, challenge tasks and support.

In order to address the aims of the NC, our long/medium term plans have been adjusted to allow longer on topics. Each lesson focus is on one key conceptual idea and connections are made across mathematical topics. To outsiders it may appear that the pace of the lesson is slower, but progress and understanding is enhanced. Our assessment procedures recognise that the aims of the curriculum cannot be assessed through coverage (ticking many objectives off a list) but through depth within a topic.

Tracking attainment and progress

The school has introduced the 'Small Steps Progression' document which they have taken from the White Rose Maths Hub and adapted it as an assessment tool for mathematics. Staff use these small steps and assess children's progress against these as they are taught. At the end of each maths unit, teachers indicate which children are not working at the expected level and working at a greater depth. This data is collected in by the SLT (Maths coordinator) and children who have not yet made the expected progress, or children who are working behind the expectations for their year group are identified. Pupil Progress meetings are then held to review the successes of the term, and to identify next steps for those vulnerable children identified. The information from these meetings is used to plan support timetables and further CPD for staff. The data analysis is supported by lesson observations, planning and book scrutinies and small step progression monitoring which are carried out termly.