



In this edition, as the NCETM and Maths Hubs begin recruiting primary schools for 2018-2019 teaching for mastery Work Groups, we take a peek inside one of these groups and find out what a gap task is, and how it supports effective professional development. Also, we launch our *Numberblocks* support materials, designed to assist teachers in using the CBeebies series to effectively lay the foundations of mathematics in Early Years and KS1.

Don't forget all previous issues are available in the [Archive](#).

This issue's featured articles



[Gap Tasks: maximising the impact of Work Groups](#)

A recent Maths Hub Work Group meeting at Gorse Hill Primary School, Swindon, brought together teachers from seven schools and, led by Mastery Specialist Suzanne Mathews, generated some lively discussion when feedback from the most recent gap tasks started the day...



[Introducing our new Numberblocks Support Materials](#)

Debbie Morgan, NCETM Director for Primary, who advised on the mathematical content of CBeebies' *Numberblocks*, explains the thinking and pedagogy behind the series. She also introduces our new *Numberblocks* support materials, with some detail of how they are intended to be used.

And here are some other things for your attention:

- Is your school thinking about teaching for mastery? Or have you already started and would like more support? Maths Hubs are recruiting more than 2000 primary schools to join a programme of professional development in 2018-2019, led by local classroom-based Mastery Specialists. Two teachers from each school join a Work Group of six or seven schools that together explore approaches to teaching for mastery. To find out more, visit our [recruitment page](#).
- Year 2 of the Addition and Subtraction strand of our [Mastery PD Materials](#) is now complete, and is also available to download in a single zip file. The materials are broken down into small steps, with a detailed explanation of the pedagogy, and images and ideas for use in the classroom.

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Gap Tasks: maximising the impact of Work Groups

Teaching for mastery Work Groups (run by Mastery Specialists and also known as Teacher Research Groups or TRGs) have enabled the principles and practices of mastery to spread through primary schools across the country. In between each Work Group meeting, participants engage in 'gap tasks' – classroom-based activities designed so that teachers' professional development continues and is developed in the 'gap' between face-to-face Work Group meetings.

A recent Work Group at Gorse Hill Primary School in Swindon, Wiltshire generated some lively discussion during feedback from the most recent gap tasks...

Gap tasks – what, why, how?

The Work Group's meeting begins with an excited buzz as the teachers involved start by sharing how the gap tasks they have been trialling have impacted on their own pupils. All the teachers involved have spent the previous half term focusing on a particular aspect of teaching for mastery, and the first session of the meeting is dedicated to a detailed evaluation of how these foci have impacted on teachers' practice. Tasks are varied and innovative: using a puppet with whom to disagree or agree to foster an environment of useful mistakes; generalising from words into equations using stem sentences; focusing mathematical vocabulary through verbal rather than written generalisations. The sense of achieving something through a gap task is clear for all participants, but the discussion's power to multiply this through sharing makes the session come alive. Calum Boothroyd, Y5 teacher at Swindon Academy (Primary Phase) is inspired by the morning's discussion:



"As an NQT, it has been so useful for me to speak to other teachers at the Work Group about how they teach maths. In an hour and a half this morning, I've already got so many ideas to take back. I feel like it has been a springboard for me."

Classroom outcomes

The gap tasks, the group agree, have a tangible impact in their classrooms. Teachers observe a range of changes, all of which prove positive in creating confident and passionate mathematicians out of their pupils. Features of lessons as a result of gap tasks include:

- **Engaged classrooms!**
 - Maths lessons feature more talk, and therefore more explicit reasoning and understanding
- **Colourful classrooms!**
 - Displays mean that classrooms themselves become a resource and enhance learning
- **Upturned classrooms!**
 - Previous ideas about 'high ability' or 'low ability' pupils are being challenged, and all pupils are capable of improved progress and attainment

Where to go next?

The rest of the morning is spent co-planning, with the teachers working jointly on S-plans* to generate a lesson on long multiplication. The lesson, which is part of a longer sequence, will later be taught by Amy Benfield, Y5 teacher at East Wichel Community Primary School and a member of the Work Group – the rest of the group will observe the lesson, and all will discuss it after. This powerful model of professional development enables the whole Work Group to learn and explore the principles of mastery practically and collaboratively. By the end of the morning, each teacher, with support from Work Group lead and Mastery Specialist Suzanne Mathews, has also devised a new gap task to focus on over the coming half term. The feedback from these tasks at the next meeting will no doubt spark another lively discussion and enable everyone involved in the Work Group to take back a plethora of new strategies to use in their own classroom.



You can read the full case study, and hear more from the teachers involved, [here](#).

Maths Hubs and the NCETM are currently welcoming applications from schools interested in becoming involved in a Work Group similar to the one at Gorse Hill. There's more information, including case studies and a short video, as well as full details of the programme and how to apply to take part, [here](#).

** S-plans are a method of lesson planning that allows teachers to plan for the full development of a topic with consideration of the key learning points, likely difficulty points, a range of representations and examples, associated language and stem sentences and opportunities for greater depth and problem-solving. Mastery specialists are encouraged to use this form of planning with their Work Groups.*



Introducing our new Numberblocks Support Materials

[Numberblocks](#): designed to entertain and delight pre-school children whilst also building a mathematically robust concept of number.

[NCETM Numberblocks Support Materials](#): designed to develop, reinforce and embed the concepts in ways appropriate to Early Years and KS1 settings. The first five have just been published, to be followed by support materials for the other episodes in Series 1.



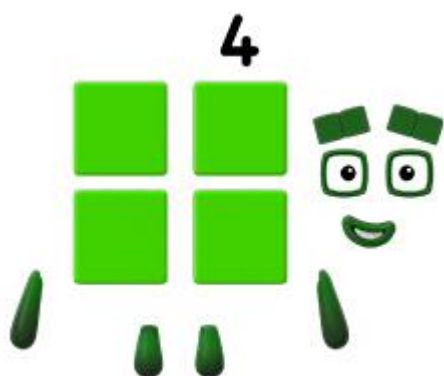
Numberblocks, first broadcast in January 2017, is a BBC pre-school television programme aimed at introducing children to early number. Snappy animation and loveable characters combine with engaging storylines to gently introduce concepts of number to support early mathematical understanding. Using each episode as a launch pad, our new [support materials](#) are designed to assist Early Years practitioners to confidently move on from the television programme, helping children to bring the numbers and ideas to life in the world around them.

Blue Zoo, the team behind *Numberblocks*, engaged our Director for Primary, Debbie Morgan in a consulting role, to ensure that the stories and ideas were best designed to help children build structural understanding of number, ready for school (Debbie wrote [a blog](#) about her experience at the time). The result is a series of 30 five-minute programmes in which the stories and adventures of the *Numberblocks* characters are carefully crafted to expose the structure of the numbers and the relationships between them. Debbie says:

"The programmes are a unique and rich resource to stimulate and support children's development of early mathematical concepts. The Numberblocks are not just characters who engage in mathematics and solve problems, but they are the mathematics! Each character represents a number and behaves like that number with the same properties. The character Five for example, can partition and become Three and Two to squeeze through a small opening or combine with Three to reach the handle to pull down the drawbridge at Numberblock castle. Four likes to be square and is very excited when he meets Nine for the first time.

"The attention to mathematical structure is strong – drawing out properties and relationships within number. An understanding of the part-part whole relationship for example is exemplified in how the Numberblocks partition and combine with each other. Each character has their own personality and children get to know them and often have a favourite, supporting their engagement with maths."

Following the success of the CBeebies series, we are putting together support materials to draw attention to the maths within each episode and stimulate discussion and activity in Early Years and KS1 settings. It is recognised that the pedagogy will be different within these two settings and hence there are separate sections within the materials to reflect this. For ease of access, the materials are presented in the form of PowerPoint slides, some of which are designed to be used with children. These can be used with a whole class, or with small groups. The early slides are designed to stimulate discussion and for children to share what they noticed and talk about what interests them, gradually drawing their attention to the mathematical aspects. The slides will remind children of key events within the story episode and can be thought of as a big book which is shared.



As well as some slides for use with children, the materials include teacher slides comprising a short explanation of the mathematical concepts and pedagogy as well as suggestions for the development of mathematical language.

There is a recognition of the importance of enabling environments for supporting and extending children's development and learning of mathematics in Early Years. The materials include ideas for each episode to support children in their play, engage them in active learning, and develop their ability to be creative and think critically.

For example, in the episode where the 'twoness' of two is explored, children are encouraged to notice and talk about what they have two of, find pairs of things, print patterns using two of something, and count to 2.

Debbie Morgan says:

"The materials should not be thought of as a scheme of work but simply as additional resources that can be integrated into existing good practice to support the building of firm mathematical foundations for mastery in Early Years settings and teaching for mastery in KS1. They are designed to be used following the viewing of a CBeebies episode to enrich the mathematical experience, drawing attention to key aspects relevant to the age of the children and supporting the subject knowledge of practitioners."

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