Norfolk County Council at your service

Newsletter No 11 Summer 2011 For Primary Mathematics Subject Leaders



Robots: As part of the **Pick and Mix programme** of

training, a group of teachers worked on creating number robots and function machines. This work related to Block B for the summer term which includes objectives about 2-D and 3-D shape

as well as some relating to number facts and elements of calculation.

The robots and function machines were designed to have an opening at the back. This allows an input number to be 'posted', a calculation to be completed in the gap and an output number generated. For example, if the robot's function is '+7' and an input number of



2 is 'posted', a child would write 9 on an answer card and send it out the other side.

Numbers and Patterns

We have recently completed some training linked to the use of Numbers and Patterns: laving foundations in mathematics; if you were unable to take part we would like to highlight this excellent document.

'These materials comprise ideas and guidance on how to plan, prepare for and support children in their early stages of learning mathematics and on how to assess children's learning to inform next steps in planning.'

The focus is on key aspects of early mathematics- number words and numerals and counting sets.

The document will support EYFS and the transition into KS1. Why not try one of the activities out of the document.

'Handfuls' section 5 page 70 links to children counting reliably, estimating and develops their conservation of number.

"Handfuls": You will need: interesting objects such

as conkers, coloured paper, reusable sticky pads Make available sets of the same object but different sizes. Challenge children to find out who can take the biggest handful. As children take a handful of objects, encourage them to estimate and count the number of objects. Use prompts such as: I managed to pick up six conkers. I wonder if you have more or fewer than six in your hand. What do you think? or You picked up four conkers in your handful; how many marbles do you think you can get in a handful? Observe the strategies they use to count objects accurately. Model strategies where helpful.

Encourage children to record each handful by sticking the objects onto paper, using reusable sticky pads. Children might record their name and the number, using mark making or number stamp cards, or you might scribe for them.

Taking ideas further: Make a display of the 'handfuls' and use it as a basis for further estimation; for example, mix up the labels and ask children questions such as: Do you think there really are only two conkers on that plate? What might have happened to the label?

All About Nothing! Is Zero a number? This question has plagued mathematicians for centuries, so why not see what your children think!! Perhaps you could set your little mathematicians a task to present a reasoned argument as to why zero may or may not be a number. Let us know what they think!

Zero, it seems, can be both a number and also a place holder. It is the integer immediately preceding 1 and is neither positive nor negative and by some definitions is also an even number as it can be divisible by 2. Indian mathematicians first came up with the number idea around 650 AD. Originally, perhaps as early as 200 AD, they used zero as a placeholder in another number.

So, it would seem that zero is a number, but you are not alone if you wonder why!

Zero - The Biography of a Dangerous Idea Charles Seife (ISBN: 978-0-285-63594-4)

Proven positive impact of One-to-One Tuition

DfE 2010 data: KS2 attainment of pupils who were below L2 at KS1



National Impact Data: Latest statistics from the DfE indicate that pupils who received One-to-One Tuition outperformed their peers in Mathematics and in English in terms of both progression and achievement. Overall the impact of Tuition was most significant in improving the performance of FSM pupils with low prior attainment. Evidence also indicates that Tuition has been very effective in narrowing the gaps for SEN, EAL and LAC relative to their peers. In addition tutored children have benefited qualitatively in terms of improved self esteem and confidence.

Funding: In the 2011/12 academic year, schools will continue to receive funding for One-to-One Tuition, ringfence removed within the **Dedicated Schools Grant**. In addition, schools will receive and be accountable for a **Pupil Premium** of £430 per FSM child and LAC.

Intervention Provision: Over the last 2 years, almost all Primary Schools have come to see One-to-One Tuition as an important intervention strategy. Whilst we know that school budgets are under constant pressure, in light of the proven progress evidence above, the continuing focus on the 'Narrowing the Gap Agenda' and the increasing emphasis on school accountability, senior leadership teams will need to think carefully about whether to continue to keep One-to-One Tuition (or a form of One-to-One Tuition) as an integral part of their intervention provision.

Recommended Reading

Below are some suggestions of reading that might be of interest to those of you who show the same 'mathematics anorak' tendencies that the team have!!

Cabinet of Mathematical Curiosities

lan Stewart (ISBN: 978-1-84668-064-9) Find out how to extract a cherry from a cocktail glass and what the deal is with Fermat's last theorem, the Poincare Conjecture, Chaos Theory and Fractals!

A Mathematician Reads the Newspaper

John Allen Paulos (ISBN: 0-14-025181-2) Although a life-long lover of newspapers, the author knows they never give us the truth in black or white. Whatever they tell us about health scares or voting patterns or DNA testing, it is certain to be simplified. In this book, John Allen Paulos continues his liberating campaign against mathematical illiteracy.

More to follow in the next issue!



Homework; is there any point?



This could make for a very interesting and useful discussion as a staff within school.

- Do you know what the value of homework is?
- Do you know what the most effective activities for children to complete at home actually are? And in particular, mathematics activities?
- What should the role of parents be and how could you support them?

You could search in <u>Google</u> for information or articles to share with staff as a way of introducing the topic.

The Norfolk Advisory Service Primary Mathematics Team

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