



Welcome to Issue 100 of the Secondary Magazine (incorporating FE)

As the summer holidays approach, this may be the season to reflect on your practice and prepare for the next academic year. How do *you* charge your professional mathematical batteries? Here are some suggestions. Enjoy your summer!

Contents

Issue 100 has a golden celebratory feel about it. In this issue our celebration takes the form of a collection of articles and resources from previous issues that you may have missed the first time round. Do take the time to follow some links and explore the extraordinary breadth of the NCETM website.

Some things to think about

The high quality resources focusing on what's called multiplicative reasoning developed by the [ICCAMS project](#) are featured in this issue. Might this be the time of year for your pupils to gain a greater understanding of multiplicative reasoning?

Some key information

CPD takes many forms. Here are some suggestions to provoke thought from the NCETM website. You may like to highlight some of the things that have had an impact on your CPD?

Some nice resources for the classroom

The NCETM website contains a wealth of classroom resources. Here is a selection from our favourites that you may consider including in your scheme of work in the coming year.

Image credits

Page header – [a hundred in the shade](#) by [mark roy](#), some rights reserved



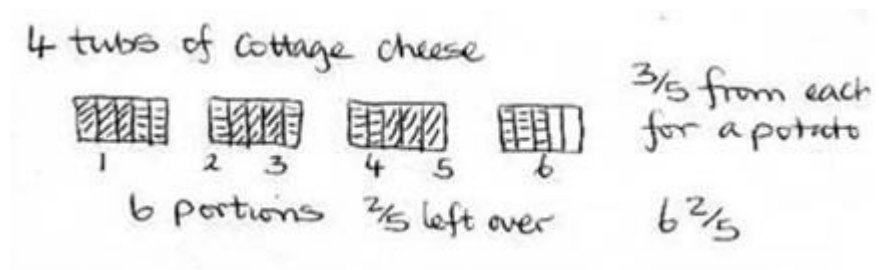
Some things to think about



Perhaps it is sometimes tempting, as a Secondary or FE teacher, not to look at articles about Primary mathematics teaching? The [Teacher as researcher/teaching as researching](#) microsite might convince you otherwise. It features the work of Caroline Ainsworth, a primary school teacher, whose interest in Cuisenaire rods as a tool for teaching and learning mathematics led her to the work of Caleb Gattegno and Madeleine Goutard. This informed a series of investigations into her own teaching, her children's learning and the nature of mathematics. There is a set of video clips of the children talking (you could start by watching [this one](#)) and a filmed discussion between Caroline and NCETM Coordinator Pete Griffin, as well as an article by Caroline and samples of her children's writing (there is a Cuisenaire environment on the [NRICH website](#) if you do not have access to the rods).



You may not have seen the [Primary Online CPD Module](#). This module was designed for teachers who want their pupils to understand the connected nature of mathematics and use this to build their learning. Secondary pupils also need to make connections in mathematics so this module has much to offer us. One part of the module that is often visited is the [cottage cheese problem](#):



Why not spend a few minutes watching and working through this problem? What sort of responses would your pupils give?



[Talking Heads](#) is a microsite which gives teachers (and others involved in mathematical education) the opportunity to talk about professional development and what part this has played in their professional mathematical journey. These short film clips are entertaining and thought-provoking – perfect for the summer break.



If you are an existing or aspiring subject leader, the [Secondary section](#) of the [Excellence in Mathematics Leadership](#) microsite may assist your reflection over the summer. You may like to decide the progress of your department against criteria in four core responsibilities (for example, [Developing a common purpose and a shared culture](#)). There is also a set of six [In-Depth Study Modules](#), such as [Ensure that the pedagogy is suitable and pupils can learn mathematics efficiently and effectively](#). These Modules each take around three hours to complete and cover a wide range of issues.



Some key information



The NCETM ['Essentials' collection](#) has been compiled to draw together sets of resources by theme. You don't need to search the whole site: the main page for each topic links through to other pertinent areas of the NCETM website. To get a flavour of the Essentials collection, why not have a look at the [Secondary NQTs section](#) - that might be topical for September?



The set of [Departmental Workshops](#) may provide some stimulus for your departmental or individual CPD in the coming year. Each workshop contains all the materials needed to work through a mathematical topic or mathematical issue in a group or on your own. As there are a lot of these workshops, you could start by considering:

- [Proportional reasoning](#) includes an [article about proportion](#) in the context of the times-table grid
- [Why do we teach mathematics?](#)
- Problem solving skills are considered in [this Workshop](#), which includes a YouTube video of a problem solving crow.



Some nice resources for the classroom



[What makes a good resource](#) is a source of teacher accounts detailing how they used some first class resources in their classrooms. You may like to read about [Simultaneous Biscuits](#), Trigonometry via Enlargement, or [Braids](#) (conceived as part of the *Researchers in Residence* project) as places to start.



Some other resources you may wish to include in your scheme of work include:

- the [set of cards](#) that form the [Averages multiple representation](#) gives pupils an opportunity to make links between different ways of representing the mean
- [Averages Mystery](#) gives pupils a chance to exercise their problem solving skills whilst reinforcing their understanding of averages
- pupils love [Furbles](#), which can be used to illustrate different aspects of data handling
- the [receipts](#) from the [Norwegian supermarket](#) give a relevance to the idea of rounding in a functional context
- a great example of mathematical modelling can be found in the resource [Modelling the tea cup ride](#) (in the section *Explore a piece of mathematics*). Any dynamic geometry package can be used to model the locus of a person sitting in a teacup on this fairground ride
- [Star Trekkin'](#) comes from the series *It's in the News!* that was featured in earlier issues of the Secondary Magazines. This resource features space travel, mathematical modelling and estimation skills, as well as offering the opportunity of working with very large numbers



'A crease'

- [Money, Money, Money](#) is another resource from this series. It encourages pupils to perform calculations involving large numbers and relate this to the 'worth' of money by asking the question: *'If Bill Gates had dropped some ten dollar bills on the floor, how much money would it have to be for it to be worth him stopping what he was doing and picking up the notes?'*
- [Crop circles](#) makes some suggestions for large scale construction projects: the playing field could also be a mathematical resource?
- [Pints and Schooners](#) sets a practical context for working with fractions

Image credits

Page header - [Non-linear Bloom's Taxonomy](#) by [David Wees](#), [some rights reserved](#)