MATHS IS SPECIAL IN THE NORTH WEST

Joe Murray

Photos for this article were taken by Dave Carden, consultant with Liverpool LEA.

The first North West conference for mathematics at KS3 in SEN settings took place in June 2004 at the Woodlands Conference Centre in Chorley, Lancashire. Over 100 school mathematics co-ordinators from special schools in every type of setting across the North West region attended this one-day conference, which was arranged and presented by KS3 mathematics consultants from the region.

Our keynote address was given by Susan Slater, mathematics regional director, who reminded delegates of the materials and training the Key Stage 3 Strategy, has provided to support the teaching of mathematics at KS3. Delegates then attended three mathematics workshops, themed to the SEN setting of their schools: SLD (severe learning difficulties), MLD (moderate learning difficulties) and EBD (emotionally & behaviourally disturbed).

The SLD schools had a presentation on 3D shape from Lucy Twigger (Warrington LEA). Several solids and posters of 2D shapes, as well as the key vocabulary, were displayed prominently round the room as Lucy asked teachers to consider objectives for the session: engagement of children in shape activities, progression of concepts and learning strategies to support the teaching of shape and space. The emphasis was very much multi-sensory, including music and song and began with teachers joining in with the song 'Shapes are in the air' to the tune of 'Love is in the air'. Activities included 'hiding and revealing' a 3D or 2D shape; selecting shapes from a feely bag, describing properties and naming the shape selected. As this activity progressed they sang;

Mystery bag, what's inside?
What's the shape you're trying to hide?
Cube or cone, pyramid or sphere?
What's the shape we have in here?
(to the tune of 'This Old Man')

The session continued with teachers looking at the cuboid shape as represented by an Oxo box; counting faces edges and corners. Nets were made using Polydron. These were opened up and re-folded. Nets for other shapes were made. Returning to the full set of solids, Lucy asked teachers to think of other ways of classifying (by rolling, stacking, round faces, etc). In the plenary, teachers shared ideas they had written on post-its at the start, and were reminded of the need for breadth in the curriculum and for progression, linking their teaching with other teachers in their school.

Andrew Chinn (Salford LEA) led a workshop on algebra for the MLD schools. The session objectives reminded teachers of their pupils' entitlement to a broad curriculum in KS3. If schools were planning from the primary framework, opportunities to generalise and see pattern should be provided in number work. Teachers were led through a 'tracking back' activity from Y7 algebra objectives from the KS3 national strategy, in order that ideas of pattern, structure and generalisation could be included in planning.

A loop game, 'Pass the expression' provided a lively starter, before teachers sampled a range of algebra (and pre-algebra) activities from the QCA algebra publication [1] Andrew made the point that function machines, while providing essential number skills practise, do also allow children to solve problems of missing number (input or output), whereas linked machines might offer as a useful beginning for equations or formulae.

Teachers also tried some of the activities for developing algebra from practical situations (borders, flowerbeds, counter steps) and were encouraged to use these in school.

Finally, some time was given to the use of symbols and expressions for those children who may progress to an understanding of symbolic algebra. The final message was that by providing work like this, teachers are meeting their children's entitlement to the increased breadth in the curriculum provided by algebra as they moved from KS2 to KS3.

Ann Russell (Wirral LEA) and I presented a workshop on the theme of ratio and proportion to teachers from EBD settings. We began with a lively starter about 'perfect custard', developed from an idea of David Ross, a teacher in Wiltshire. Ann told the teachers that her mum used to make perfect custard using ten fluid ounces of milk to four spoonfuls of custard powder. She remembered this because her mum's birthday was 10 April. At Christmas, however, she needed to double the amount of custard. What would this need? Which birthday would help now? (20 August). Ann asked if anyone could give another birthday that was good for perfect custard (5 February, 15 June, 25 October, 30 December) and why? Individuals were asked their birthdays and whether these would make runny or stodgy custard. Finally the group was asked which birthday would lead to the runniest and which to the stodgiest custard. Teachers considered similar ideas including mixing fruit cordial or shandy.

We gave further suggestions, including 'Crazy concrete' and 'Groovy gravy'.

Having set the scene for proportion, we used elements of the ***Enhancing proportional reasoning pack*** [2] to explore simple ideas of ratio and proportion. Teachers liked the interactive teaching programme, 'Ratio strips' [3] and used this with the problem cards (adapted and simplified for this setting) to solve a range of problems successfully. The idea of visual images was especially pleasing. Many felt that this theme, previously difficult to access with their children, was one that they might now teach more confidently.

Other workshops at the conference were aimed at wider aspects of co-ordinator's work. These included 'Assessment for learning in SEN settings' and 'Planning and the leadership role of a school co-ordinator'. These sessions focused on discussion and networking between schools. Key issues again were entitlement and inclusion. A number of planning models was offered and teachers shared their own successes with colleagues.

Evaluations of the day suggest it was a big success. Teachers were pleased with the way we arranged and themed the workshops and with the opportunities to talk with colleagues across the region. Plans are already under way for a second conference next year and the Woodlands Centre will again be our venue.

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For information about Conference 05, contact Lancashire Mathematics Centre, Southport Road, Chorley PR7 1NG. (Telephone 01257 516102 e-mail LPDS.Numeracy@ed.lancscc.gov.uk)

References

1 QCA: ***Bridging units in mathematics: algebra: introducing symbols***; QCA Publications, 2000

2 DfES: ***Key Stage 3 national strategy, interacting with mathematics at Key Stage 3: Enhancing proportional reasoning***; DfES, 0094/2003

3 DfES: ***Key stage 3 national strategy: interactive teaching programme*** CD-ROM; DfES, 0096/2003

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