Resources for Teachers - KS1 Resources Introduction

Introduction

Developing children's mathematical talk and reasoning can be prompted by using games and co-operative tasks (pieces of the puzzle) in a variety of ways: small group, pairs, trios or whole class engagement. Once the game or task has been explored by the children on more than one occasion, small groups or pairs of children may also enjoy re-visiting the game to rehearse key ideas and vocabulary and to support the development of fluency or particular vocabulary. Some games and tasks could form part of a set that is available for parents to use with their children at home. Further materials to support you with engaging parents in working with their children on maths at home can be found under the Resources for parents section of this website (here: http://www.talkmathstalk.co.uk/parent_resources)

It's helpful to have large versions of activities for groups and the whole class as well as table-top size. As with any new starting point, you will need to establish some 'ground rules' for working together and make some choices about mixed ability/'single' ability groupings/pairings/trios. The nrich website www.nrich.maths.org.uk has a background article by Jenni Way exploring co-operative 'pieces of the puzzle' starting points with some organisational suggestions but you will know which approaches suit your class context at any given moment in time. Working with the whole class may mean a change of venue (outdoor or hall space or moving classroom furniture.)

Reasoning tasks and resources reference list

ATM It makes You Think! Mathematical Puzzles and Problems www.atm.org.uk 01332 346599
ATM Little People Big Maths www.atm.org.uk
ATM (2007) Thinking FOR Ourselves Derby: ATM www.atm.org.uk
ATM (new publication Key Stage 2) Talking Maths ww.atm.org.uk
Bob Ansell Numeracy resources www.numeracycd.com
Claire Publications www.clairepublications.com 01206 211020
Exeter University (2002) *Talking Counts Project* www.talkmathstalk.co.uk
Nrich.maths.org.uk – good for KS1 'reasoning and convincing' starting points
www.tts-group.co.uk – 'convince me', talk balls, and problem solving cards.
www.sparklebox.co.uk – useful templates such as money fans, coin dominoes.
www.learning4kids.net – useful recipes for money work
Mathematical Challenges for Able Pupils in Key Stages 1 and 2 (NB this is not just for able pupils)
http://nationalstrategies.standards.dcsf.gov.uk/node/85260

Getting started on talking and reasoning!

Games and co-operative tasks are a focus for developing talk that encourages thinking out loud, giving reasons, practising clear explanations, using vocabulary such as, 'I know this, therefore that', 'and so'. They also provide opportunities for you to listen and observe in order to consider 'where next' with particular children (and to try out different kinds of teacher talk – 'how do you know?' 'can you teach me how to do that', 'can you explain that a different way?'

As well as supporting the development of reasoning skills, the games selected below have been chosen to demonstrate particular underlying principles so that you can adapt and create different content versions to suit the learners in your class. Remember to agree with colleagues in the classes above and below you which activities will be your main focus so that children have fresh experiences as well as meeting some old favourites with you and with other teachers.

Progression in reasoning in number and calculating can be observed on the NCETM dvd: NCETM /Tribal Primary Mathematics Supporting the Implementation of the (new) National Curriculum available from www.ncetm.org

Remember to give children time to think and space to talk as you try the following.

Little People Big Maths ATM

- Principle: reasoning in order to find an 'unknown'; explaining thinking (solution)

p.15 Number Picnic
p.18 Odd one out
p.24 Secret Number
p.30 What's behind me?

Little People Big Maths ATM

- Principle: logical thinking /reasoning according to a 'rule'; explaining thinking (solutions') for positioning/ placing something

p. 28 Solve It
see also the following activities in:
It Makes You Think ATM
p.17 Colour Sudoku 1 (and 2)
and also 3 activities:
Next Door Numbers, Odds and Evens and Constructing Shapes

It Makes You Think ATM

- Principle: each group member has a role to play in solving the problem/puzzle therefore has to follow the thinking (reasoning) of others as well as provide their own reasoned explanation in relation to where they 'fit' in the process.

p. 38 Colours 1
p.39 Colours 2
pp.48/49 Animal watch
pp. 50/51 Faces

Other challenging 'reasoning about number' activities: **Think Boards** Roger Bird, Claire Publications www.clairepublications.com

Also listed on this page are other starting points used by the teachers on the project. Some of the sources of particular starting points are unknown and some were developed by the teachers on the project. We have acknowledged the source of the resources and provided web links where known so that you can explore and purchase other resources available from the same author(s) and publisher(s).