|  |
| --- |
|  |
|  |
|  |

**Enhancing Mathematical Learning Through Talk : Follow up Tasks for October 2014-February 2015**

**Connecting the threads**

Many of the following tasks will already feel familiar to you as they are a continuous development from the tasks that you have already worked on with your previous class. The aim is for you to engage in a cycle of **action-observations-reflections-action** keeping in mind the Framework for Reflection hexagons. You have between **now and the end of February** to continue to extend your teaching repertoire for talk:

1. to plan a range of challenging opportunities to engage children’s attention and prompt children to think-talk-maths (talk-maths-talk)
2. to explore different approaches to your own interactions with the children to support more think-talk-maths (talk-maths-talk) from the children

Wherever possible, make some notes or, if you can, audio- or video- record the children’s maths talk, conversations and discussions.

**Task 1**

**Get started** on your action plan (from CPD day 3) as soon as possible by integrating maths talk opportunities into your maths planning. You could identify one lesson per week or three consecutive lessons in one week or one lesson every other day – whichever is best for you in your school setting. Where possible, **invite a colleague to join you** in planning for talk opportunities so that you can begin the process of not only sharing some of the ideas and practices that you have been exploring but also reflecting together on the children’s mathematical thinking. You can work with a colleague in a parallel class or in the year group above or below – whichever is best for you in your school setting.

Plan to work with **‘guided’ small groups** of six children to give opportunities for the children to work and **talk in trios** and for you to listen to their thinking before interacting to support the development of their ideas or to demonstrate a skill or to model a particular approach.

As you plan, **revisit and continue to explore** the different kinds of activities for talk that we have worked on. Be mindful of ***anticipating complexity*** (Rowland et al 2007) in order to utilise or ***capture the complexity for challenge*** (Mitchell 2014).

* playful practice activities to support early **fluency** and use of **mathematical vocabulary**
* logical thinking or **reasoning** activities or games
* co-operative **problem solving** activities (e.g. pieces of the puzzle)
* think-talk-maths box or props activities **(problem solving, using and applying, reasoning)**
* activities linked to children’s literature **(problem solving, using and applying, reasoning)**
* mathematical role-play scenarios **(problem solving, reasoning, using and applying)**

As you plan opportunities for mathematical talk, be mindful of Mason’s (2010) article in particular:

*“Teaching is a caring profession: caring for both learners and mathematics, and it is maintaining a balance that can be difficult. It is all too easy to simplify questions and tasks so that everyone can succeed without being significantly challenged… and equally easy to go over their heads with excessive challenge and sophistication.”*

Your own role will differ depending on your choice of activity but try to create as much space as possible for the children to talk – let them know that you would like to listen to their thinking. Be mindful of Mason’s (2010) *being genuinely interested:*

*“The secret of effective questioning is to be genuinely interested not only in what learners are thinking but in how they are thinking, in what connections they are making and not making. Genuine interest in the learners produces a positive effect on learners, for in addition to feeling that they are receiving genuine attention, you can escape the use of questions to control and disturb negatively.”*

**Continue to extend your own repertoire** in your interactions with the children – either linked to the different kinds of talk activities above or at other times in your mathematics teaching (or both!)

* **re-proposing** where you can capture something that a child has said in order to re-propose it to them either there and then or, on another occasion. You may want to write it down and share it the next day. You may want to video a group and share the film back with the group or class for discussion.
* **adopt a phrase to encourage children to think and think in different ways, use questions that invite more than simple recall, build upon children’s responses, give feedback that informs and prompts children to take the next step (and also encourages!)** Some examples:

tell me more about that… I’m wondering why… can you compare…. teach me how to do that… oh…. and so…? Is there another way of saying that…?

how do you know? What happens if? what do you mean by…? Does it always work like

that…? What’s a different way of thinking about that…? is there a different way of going

about this…? What’s happening here…? How does that work….?

that idea seems to link with what we/you were saying about…and so now…. we can think

about….. you’ve made those numbers / this problem really manageable because…

and so could you think about this…? your solution helps us to think about… so now…..

yes, those two examples are the same (different) and so… we can look for ….. work

out…. that’s good thinking because…

great, I can see where your idea / thinking has come from because… and now…

brilliant examples… can you think of an example that doesn’t work/fit?

that’s a great connection that you’ve made with… can anyone else make a connection….?

that’s a very clear (helpful) explanation and so what’s the next question that we/you could

ask…? that’s good thinking because… and so….

good pattern spotting – compare with your partner /trio and agree a final answer…

* + - * **adapted version of ‘pose, pause, pounce and bounce’ (**Ross Morrison McGill)

Reflect on the process of planning for talk and working with small ‘guided’ groups: what you have noticed about children’s thinking/conversations? What you have noticed about yourself? What have you noticed about this particular activity? Where next? Make links with the Framework for Reflections hexagons where appropriate.

**Task 2**

Complete two or more readings and take some time to reflect in your journal on the issues arising using the Framework for Reflection prompts as appropriate.

John Mason’s article is rich with challenge and so dip into a section or two at a time.

**Task 3**

Continue to refresh your mathematics subject knowledge using Derek Haylock’s *Mathematics Explained for Primary Teachers* as support. Contact Sally Paggetti if you would like some one-to one subject knowledge support: [sally.paggetti@tesco.net](mailto:sally.paggetti@tesco.net)

**Put dates for Hub meetings in your diary.**

Take some time to reflect in your journal on the subject knowledge issues arising for you using the Framework for Reflection as appropriate.

**Task 4**

Upload to the website a photograph of the materials for one activity that you have tried with your children that you would recommend to the rest of the group to try with their children. Remember to specify the year group and the maths focus and provide any other *short* explanation that would help others to get started on the activity.

**Task 5**

Bring a copy of one example of your reflections on a maths talk activity that you have tried to the first Hub meeting. Please use the attached proforma which links to the action-observations-reflections-action cycle.

**References**

Exeter University (2002) *Talking Counts Project pdf at* [*www.talkmathstalkco.uk*](http://www.talkmathstalkco.uk)

Mason, J (2010) Effective Questioning and Responding in the Mathematics Classroom pdf

Mercer., N and Dawes, L., *The Value of Exploratory Talk in* Mercer, N. and Hodgkinson, S. (2008) *Exploring Talk in Schools* London: SAGE

**References for activities**

Refer back to the reference list for activities for CPD day 2 and also:

ATM (2007) *Thinking FOR Ourselves* Derby: ATM [www.atm.org.uk](http://www.atm.org.uk) ISBN 978-1-898611-46-2

Nrich http://nrich.maths.org/public/

BEAM Free resources online (http://www.beam.co.uk/freeresources.php BEAM To buy resources online http://www.beam.co.uk/buyonline.php

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