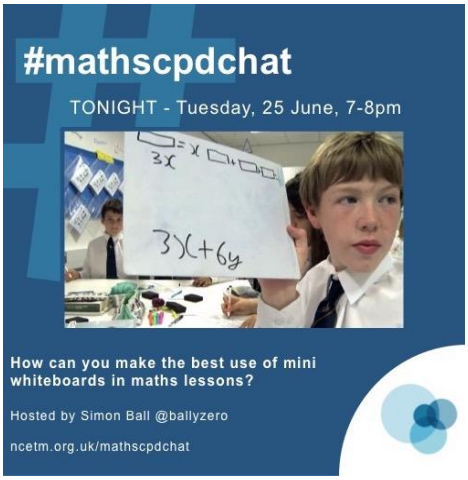
#mathscpdchat 25 June 2019

How can you make the best use of mini whiteboards in maths lessons?
Hosted by Simon Ball

This is a brief summary of the discussion – to see all the tweets, follow the hashtag ***#mathscpdchat*** *in Twitter*



Some of the areas where discussion focussed were:

- the **frequency of maths lessons during which mini whiteboards (MWBs) are used** … every lesson … they are out on the tables at all times (whether pupils can become over-reliant on them) … every other lesson (whether pupils are happy to 'put their whiteboards down', i.e. to move their attention away from them) … going through phases during which they are used in most lessons, and others when their use is rare … never, because the 'logistic hassle' is not worth it;
- **whiteboard work books** … books with plain pages that pupils have out on their tables and use as if they were whiteboards … one book may be used by two pupils who are working together;

- pupils trying to **express their ideas on MWBs** enables them to compare their thoughts and responses with those of other pupils, and may generate (naturally) productive discussion;
- pupils using MWBs for **'jottings' when reasoning and problem-solving**;
- pupils using MWBs to show the teacher/whole-class their **initial responses/ approaches** to a (hard or multi-step) problem … pupils may need to be persuaded to reveal 'incomplete work' (i.e. to reveal their progress, or lack of progress, towards a solution) … that what pupils show on a MWB may reveal where they have 'got stuck';
- that pupils are much **more likely to 'have a go'** if they know that they can easily erase what they write or draw on a MWB;
- pupils **'experimenting', and exploring examples, on a MWB before making any commitment to a 'final response'** … trying-out ideas, discussing, trying again, modifying responses … 'rehearsals' before putting anything permanently in 'exercise books';
- challenging pupils to **articulate verbally their reasoning before trying to express it on their MWBs** … teacher can observe whether what pupils show on their MWBs truly represents the reasoning that the pupils articulated verbally;
- **using MWBs daily in Year 1 during 'developing fluency sessions'** … e.g. 'What number is bigger/smaller than__?', 'number-bond pairs, calculations that total__', 'What is the missing number?', 'write a number that has__', and so on;
- that MWBs on pupils' desks/tables are useful for **jottings that result from teacher-pupil interactions** as the teacher 'circulates' around the classroom;
- that **accepting responses shown on MWBs without comment**, before inviting pupils to justify their responses, helps to prevent pupils erasing their own responses when they see other pupils' responses;
- that the use of MWBs is a 'fit for purpose' issue … useful, for example in response to 'show me a picture of …' … **when it's helpful to make a quick sketch** in response to any question or challenge;
- suggestion that **each pupil makes-up a question, and writes it on their MWB** … when every pupil has done so, all the MWBs are displayed, so comprising a ready-made exercise for the class to work-on/discuss;
- **pairing-up pupils with one MWB between them** to try to solve a problem together, with the constraint that they cannot talk to each-other, and so must **communicate exclusively via marks on the MWB**;
- pupils using MWBs when working on **'less/same/more' 'grid-of-cells' tasks**;

- **using MWBs as an assessment 'aid'** … asking a question, observing every pupil's response, deciding to whom to give **instant support** (and what form that support will take), and what **further challenge** to provide to whom;
- that what pupils show/express ephemerally on a MWB can easily be **made permanent by photocopying or photographing it**;
- having **pupils writing on tables or large-whiteboards-on-the-walls rather than on MWBs** … because 'you can see what they're doing' and 'it doesn't require pupils to hold things up';
- providing a **'safe place for rough jottings' in pupils' exercise books** (for example by ruling a three-inch margin down the right-hand-side of each page) as an alternative to providing MWBs for that purpose;
- **concerns that over-use of MWBs during earlier years may:** result in KS4/5-students becoming reluctant to write anything in their books unless they are 'certain that it's right' … hinder the development of pupils' abilities to construct coherent solutions to multi-step problems … send the message to pupils that some of their maths is 'so unimportant that it doesn't deserve to be recorded permanently in their books';
- teachers acting in a way that encourages pupils to have **the same 'lack-of-worry' about making mistakes when working in their books as when working on MWBs**;
- that **maintenance of 'all the MWB kit' may be an issue** … e.g. how frequently new pens need to be provided (bought) … storing pens carefully … establishing a 'care-for-MWBs routine', keeping MWBs in folders, and expecting pupils to look after them;
- **making your own 'DIY' specialised MWBs** using pieces of card placed in poly-pockets … e.g. MWB coordinate grids, MWB number lines, MWB fraction walls, MWB place value charts, and so on.

In what follows, click on any screenshot-of-a-tweet to go to that actual tweet on Twitter.

This is part of a 'conversation' of tweets, about some advantages for the learning of pupils of the ephemeral nature of pupils' sketches and jottings on MWBs, and how to turn such short-lived 'work' into permanent pupil-products if desired. The conversation was generated by this tweet from Simon Ball:

including these from Martyn Yeo, Susan Whitehouse, Mary Pardoe and Mrs BM:

Martyn @martynyeouk · Jun 25

Replying to @ballyzero

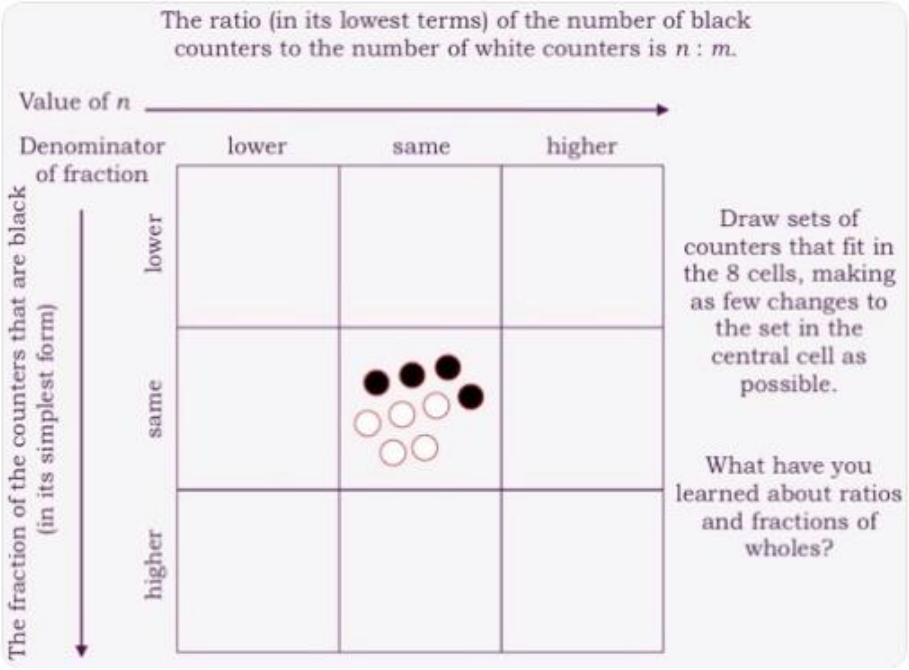
This is the best reason for them - our maths can be messy on our whiteboard work books
#mathscpdchat

Susan Whitehouse @Whitehughes · Jun 25

I'm with @martynyeouk, I love them for that reason. At A-level, I find students are much more willing to have a go on a mwb, and they are much more likely to sketch a graph or draw a diagram. I also find it so useful for me for showing bits of Maths to individuals as I circulate

Mary Pardoe @PardoeMary · Jun 25

I think mini-whiteboards were 'made for' initial 'trying-out-of ideas' about responses to these kinds of challenges ... no commitment ... and can try again ... and discuss, then modify ... #mathscpdchat



Mrs BM @JB_MathsTeacher · Jun 25

Replying to @ballyzero

Yes! Learning can be messy and whiteboards can be a nice place to just let loose and have a go! Though often I just tell pupils to use the back of their books instead #mathscpdchat

these from Year 4 at Broseley and Simon Ball:

Year 4 at Broseley @MrJH_Broseley · Jun 25

Replying to @ballyzero

Yes, almost as a rehearsal to confirm what they're doing before putting in their books. However, I try to get them to do as much as possible in books and not be afraid of making mistakes in their books.

Simon Ball @ballyzero · Jun 25

It's an interesting point - I'd like to see their working and thinking, but the chance to erase that forever... hence the back of the book! #mathscpdchat

these from Lisa and Simon Ball:

and these from me:

(to read the discussion-sequence generated by any tweet look at the 'replies' to that tweet)

Among the links shared was:

NCETM Secondary Magazine 131: It Stands to Reason which is an article that looks at examples of a particular kind of challenging task that pupils might productively tackle by initially making jottings and sketches on mini whiteboards. This task-type (designed by John Mason) uses a two-way-grid-of-cells that can stimulate pupils' deep thought about any pair of related quantifiable concepts that can both be applied to a mathematical object placed in the centre cell. It was shared by Mary Pardoe and Richard Perring