Appendix 4 Observation Record C: 6th July 2011

Teacher: Claire ***Year group: Y2*** ***Number in class: 28*** *Highlighted text: data extracted for analysis and outcomes*

Context:
Mixed ability class solving missing number problems – properties of the equals sign to recognise that the two sides in an equation are the same. Claire wants them to use a 'finding the difference' strategy to calculate. Two TAs as support

Notes:	Mental maths starter session – shared success criteria: *I know I am successful when I can say:* • *what I notice* • *what is the same* • *what is different* On interactive whiteboard selection of numbers – 76, 55, 70, 111, 6, thirty-five, three hundred, two hundred and two	Children discussing what they notice with numbers – moved on to using calculations	Claire brought the class together to go on to the main part of the lesson – shared success criteria: *Can I solve a missing number problem? Can I use the equals sign?* Written on the board: 5 + [ ] = 17 *How can we do this?*	On the whiteboard Claire wrote examples: 6 + 4 = 3 + [ ] 12 + 8 = 15 + [ ] 20 = 15 + [ ] 9 + [ ] = 2 + 18 Children sat on carpet – still there after 20 minutes – while Claire went through each example
Time:	5 mins	10 mins	15 mins	20 mins

BMK

a) Qualifications				
b) Beliefs	Open question given. *What is the same and what is different about these numbers?* Enthusiastic and excited about maths.	Used open questions: *What do you notice?* *What is the same? What is different?*	Introduced this as an abstract activity – no relation to real-life problem or context. Transmission approach – wanting one method, not	Transmission approach favoured – children not using strategies Claire had hoped for – getting frustrated.

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			valuing other methods given	
c) Confidence	Confident use of language – digit, number, place value used and explained			Good understanding of importance of inverse operations
KTM				
a) Connections	Properties of numbers – even, odd, bigger than 100	Talked about patterns and place value, linked to addition of 222 and 111.	Made a point of linking + and – but didn't build on this	Inverse relationship between + and – emphasised, showed how 5 + [_] = 17 is linked to 17 – 5 = [_] Asked children to rearrange numbers using fact families.
b) Progression		One child worked out that 300 – 78 = 222. Claire interested in how he had worked it out using partitioning: 300-70 = 230 230-8 = 222		Jump too quick on to balanced equations – needed to consolidate inverse operations practically.
c) Representation	Used interactive whiteboard to display numbers. Language used carefully		5 + [_] = 17 Showed 0-20 number line – from 5 counting on to 10 then onto 17. Children struggling with relating to missing number problem. Children used fingers to count on.	Use 100-square next to the list of questions and used it to show counting on. Clear explanations given for two examples – children still counting on their fingers to check answers.

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KLM

a) Concepts	Dealt with confusion between digit and number – 222 as 2 hundreds, 2 tens and 2 units – HTU written to support		Claire not dealing with the different mental methods used. One child knew it was 4 because 6+6 is 12 and 10 is 2 less than this. Not followed up or acknowledged as a useful method.	Reinforcing the = sign as 'is the same as' so that making both sides the same becomes the important concept to focus on
b) Interaction	Whole class starter, then allowed children to work in talk partners and small groups to find similarities and differences. Children on-task.	Allowed children to work together in small groups – Claire moving around and talking to individuals	Children giving different methods. Claire asked them to use the inverse, but children not understanding this.	Teacher led discussion – Claire giving most of the methods.
	Heard a group talking about a	Quick decision to follow up	Responded quickly to lack of	Realised that children were

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Notes:	Children set tasks in ability groups. LA – worked with TA to make two sides of a number balance equal to show, for example 3 + [_] = 9 MA with TA – Using 'finding the difference to find the missing number HA – with Claire, using the inverse to find the missing number	Observed HA group working on sheet – challenging questions such as [_] + 14 = 16 + 16 Needed more consolidation/practice of simpler inverse operations – although worked on this in previous weeks	Claire held up the success criteria – children put smiley face or sad face on their whiteboards to show if they understood.	Children all brought back to the carpet to go through some fact families: [_] + 14 = 16 + 16 [_] + 14 = 32 14 + [_] = 32 32 - [_] = 14 32 – 14 = [_]
Time:	25 mins	30 mins	35 mins	40 mins

BMK

a) Qualifications				
b) Beliefs	Transmission approach - gave one method for 10 + 20. *Hold 10 in your head and count on in tens.*	Non-constructivist – imparting own methods, children not taking ownership of the methods and becoming confused by the use of inverses.		
c) Confidence		Confident approach – knew what she wanted and clear understanding of method – quick with number operations		

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KTM

a) Connections	Inverse relationship between addition and subtraction. 22 + [_] = 30 30 – 22 = [_]	Used counting to add on the 100-square		Linked the equations to fact families
b) Progression		[_] + 14 = 16 + 16 given to HA group – LA group given balances		
c) Representation	Good use made of bucket balances to represent = in equations. Cubes put in either end to balance – LA group 100-square used by HA – for example to work out 11 + 18	LA Group needed balance to make sense of the equations – worked well.		Used 'mum' and 'dad' to represent fact families – not very helpful

KLM

a) Concepts				
b) Interaction	Transmission approach – going through examples showing the method to use.		Used success criteria to check if children understood – very clear explanation of criteria	Children asked to put their thumbs up if they felt confident to work out [_] + 14 = 16 + 16. Only 4 children put their thumbs up.
c) Response	Good follow up question to suggested answer: *How did you know?*			