Appendix 3 Observation Record B: 5th July 2011

Teacher: Beth   **Year group: Y5**   **Number in class: 19**   <mark>*Highlighted text*</mark>*: data extracted for analysis and outcomes*

Context:
This was not Beth's class – she wanted to try this activity with the class she will be getting next year – opportunity to see how they think and work mathematically. After a starter activity the main lesson focussed on the use of Cuisenaire rods to find fractions of quantities.

Notes:	The number 14 was written in the centre of the whiteboard and Beth gave the question: *What do you know about 14?* Children responded by raising hands and giving statements – even number, half of 28, greater than 10, has a factor of 7 etc	Introduced and gave out sets of Cuisenaire rods. Explained the Learning Objective – to find fractions of quantities. After time for them to play with the rods, Beth used the interactive whiteboard to show the 10-rod and two 5-rods lined up underneath.	Children laid out rods to show fractions ½ and 1/5 of the 10-rod. They then tried to find other ways of showing ½ and 1/5 of different rods.	Brought the class together so that they could discuss their findings and show others examples of 1/5 and ½ of different rods.

Time:	5 mins	10 mins	15 mins	20 mins

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BMK

a) Qualifications				
b) Beliefs	Started with an open question – *What do you know about 14?* Enthusiastic start - *Wow me with your knowledge!*	Allowed children to play with the rods while giving them out – time to explore. *Tell me what you can see in front of you?*	Open questions – *What can you tell me?* *See what you can find?*	
c) Confidence	Beth happy and confident to take any question or response and build on it – good basic mathematical knowledge		Confident use of language – explained fractions and division clearly.	

KTM

a) Connections	Beth reinforced the point that each of their statements connected to 14 and picked up connections between multiples, factors and double, half.	Reinforced the meaning of the = sign as equals and balanced	Linked 1/5 to 1÷5 – reinforced the meaning of the 'line' in the fraction. Demonstrated this with the rods – a 5-rod and five 1-rods	Used rods to show 1/12, 2/12, 3/12 etc – can they see the pattern? No link to equivalence at this stage.
b) Progression	Built on statements – language 'more than' so talked about < and > signs,		Adding challenge to the task when necessary as children work in groups – *can you find 1/5 of a different rod?*	Moving it on to use rods to show fractions of quantities. Rod on whiteboard with 30 written in it. Smaller 5-rods lined up under and 1/5 of 30 = 6 shown as example.
c) Representation	< and > symbols to support language	Cuisenaire rods to represent numbers. Asked the question *What do you notice?* Used the interactive whiteboard to represent rods – easy to move.	Emphasising the different colours of the rods to show the fractions	Explanation of fractions of amounts using closed question to model 1/5 of 30. Rods to demonstrate.

KLM

a) Concepts	Dealt with misconception of decimals 14.00 is same as 14.0, 14 is ten times bigger than 1.4.		Dealing well with misconceptions – a group had put different colours of rods in a row which confused their investigation.	Equivalence – decision made to ignore at this stage
b) Interaction	Allowing children to explain and give statements – expects them to talk and then gives positive response related to their statement. *That's good – how could you show that in a different way?*	Allowed children to work together in small groups with rods. Children on task – prompted questions: *What do you notice?*	Gave a closed question with the expected answer in her head – *'Yellows are what?'* repeated a few times. Children spent wasted time working out the answer she was expecting.	No pressure put on children to talk in front of others – no closed questions. *Tell me something about what you have in front of you?*
c) Response	Quick, confident response – enjoys building on statements and ideas		Naturally used questions to respond to children statements to assess their understanding. *How do you know?*	Dealt with 32-rod and two 16-rods drawn on board – *How do you know?*

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Notes:	Continued with whole class mini-plenary, individuals giving a number such as 40 to a rod and then finding different fractions of that amount. Then asked them to choose their own example to draw on their whiteboards for others to see.	Beth gave the class a closed question as a formative assessment of their understanding – 27 written in rod, three rods under – what is the value of one of the smaller rods.	Gave a closed question to check understanding – how many blocks represent 2/3 of 15? Image of 15 in rod with 3 rods under. Followed this up with ¾ of 24 – which is correct answer 6, 8, 18 or 14. Children worked in pairs on this and other examples.	Dealt with an issue that arose from one group – shared with class. A group asked: How can you work out 1/5 of 22? Is it 4 remainder 2, so is that 4.2? Beth went through this, asking questions – able children followed it and then Beth went back to reinforce understanding for whole class with 3/5 of 25 = 15

Time:	25 mins	30 mins	35 mins	40 mins

BMK

a) Qualifications				
b) Beliefs	Open task – children choosing their own starting number – taking ownership of activity	Strong belief in importance of understanding – kept asking if the children understood the process they had gone through	Continued representing ¾ of 24 practically – importance of children connecting the calculation to the visual image – not just learn a rule.	
c) Confidence				Dealt with decimal remainders with confidence – enjoyed the challenge and enthusiastic about group coming up with a problem

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KTM

a) Connections	Explained that 100÷4 can be shown as 25x4 – explicitly linked division, multiplication and fractions		Showed ¼, 2/4 , ¾ and 4/4 of 24. Asked what they notice about 2/4. Linked to equivalent fractions	
b) Progression		Moved on from unitary fractions of amounts to demonstrate that 1/3 of 27 = 9 and 2/3 of 27 = 18	Spent short time on equivalent fractions. 2/4 = ½ *How do you know?*	Good knowledge of curriculum – changing remainders to decimals.
c) Representation	Moving on from using rods to representing rods by drawing them on whiteboards with numbers written in them. Strong visual image.	Used rods and visual image to show 2/3 of 27	Used rods and visual image to show 2/4 of 24 and ½ of 24	Used image of rods to show remainders, also finished with 3/5 of 25 = 15 represented on whiteboard as visual image Used drawing of rods to show that 1/5 of 2 is 0.4

KLM

a) Concepts		Explained that 1/3 is 1÷3 and is known as one-third.		Misconception – 4 remainder 2 is the same as 4.2 – dealt with confidently. *The remainder is shared across the whole number. 1/5 of 22 is 4 and then 1/5 of the remainder 2 is added to it.* Used drawing to show that 1/5 of 2 is 0.4
b) Interaction	Question asked to individuals when walking around: *How could you prove that to me?* Involved children in evaluating others - asked to walk around and look at each	Paired the children – 2/3 of 27 is 18. *How do you know? Tell the person next to you.*	Children explained to each other how they could work out ¾ of 24 and other examples.	Used the expression: *I like your justification* when a child knew an answer because 18 is quite close to 24 in a choice of answers. *Tell your partner why…*
c) Response		Quick confident response to any questions – does 1/3 mean 1 divided by 3?		

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