

Professional Knowledge

Standard 2 – Know Content

Significant Episode: A Shift From Comfort

Karen Giles

Noarlunga Downs Primary School
Noarlunga Cluster

Finding 2.2: Curriculum

Know the mathematics curriculum and how each mathematical concept can build on, connect with, and lead to other concepts dynamically, not necessarily vertically.

I recently made a shift from the comfort of teaching middle primary children, for whom I thought I had a strong understanding of the maths curriculum and some creative ways to challenging their learning, to teaching reception /year 1 students. At the time, the implementation of 'Big Ideas in Number' was a priority at our school. I was very grateful for this as it provided me with a sense of the mathematical strategies and thinking that needed to be developed in this very early stage. What I found over time was that the development of this strong sense of number and an understanding of how to manipulate its parts may have been the stumbling block for many of the middle primary students I used to teach.

In my reception/year 1, class students are given many opportunities to model numbers with materials or diagrams and look at how they can be reconfigured. They focus on terms such as 'greater than', 'less than' and use number lines to view numbers in relation to other numbers. Students use class and personal sets of subitising cards, dot dice and pull-down screens to develop their visual memory of small numbers. We build connections between their physical representations and the symbolic form. We focus on verbalising the mathematical thinking that is happening in order to highlight any misunderstandings.

During the course of the year I was working with one of my year one students to determine how well he was using the strategy of 'counting on' to find the total of two sets. I held a numeral card and placed a dot card in front of him. I verbalised my number and asked him to find the total of our two cards together. On most occasions he gave the correct answer but there was a long pause before he counted on using the dot card. When asked what he was thinking about during that pause, he responded that he needed to go back and start his count from one. This activity demonstrated that he knew he needed to count on from my number using the dots on his card, but showed that he didn't trust that the answer would be the same if he didn't go back and start his count from one.

On reflection, I also discovered that I didn't spend enough time deeply exploring the relationships between operations so that students could see why a problem that sounded like addition, needed to be solved using subtraction. Most of the addition problems that I presented to students had an unknown result. It is difficult for students to develop an understanding of these relationships if they are not exposed to problems that help make the connections.

Focusing on 'Trusting the Count' with young children, so they understand and manipulate numbers well, gives an excellent grounding for future work in mathematics and helps students to think about the 'how' and 'why'.

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Some questions to prompt discussion:

1. *What have been the important learnings for Karen about mathematics?*
2. *Why is 'Trusting the Count' so important for developing mathematical understanding?*
3. *What other interesting or important aspects are in this Significant Episode?*

