TEACHING "FILLING UP THE TENS"

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Extended abstract

"Filling up the tens" is one of the calculation strategies named in the Foundation Phase CAPS. As Grade 2 teachers we find that this strategy is a fundamental idea for young children's number sense and impacts on their ability and confidence in many different aspects of mathematics (including work on number, pattern, measurement and data content areas). In our presentation we will describe our approach to teaching "filling up the tens" in Grade 2 and describe how it has shifted recently with greater emphasis placed on using an empty number line. We share our experiences as well as examples of our learners' work.

One of our goals as teachers is to help learners to develop a solid foundational understanding of numbers. From there, we can guide them towards using efficient strategies when adding or subtracting. One such strategy is "filling up the tens" or "bridging the decade". It involves addition and subtraction of numbers through the ten (for example: 8 + 5 or 12 - 4). When using this strategy learners are required to work flexibly with numbers. They are encouraged to break numbers up in order to reach the nearest decade. This paper aims to "unpack" the teaching of this strategy to learners in an effective and developmentally appropriate way.

Children's understanding of mathematics needs to be appropriately scaffolded by the teacher so that they are encouraged to move on from counting in ones or "counting all." We know that we need to put in place prompts and lines of questioning initially, which are then gradually removed (and asked by the learners of themselves). In this way we scaffold – and deliberately fade this, so that the scaffolding becomes part of the learners' cognitive tools. We want to equip learners with the skills they need to use a variety of effective strategies for calculating. Bridging the decade is a strategy that will benefit learners across any number range.

Although filling up the tens is mentioned as a calculation strategy in the Curriculum and Assessment Policy Statement (CAPS) for foundation phase, very little information is provided on how to do this. Some number sentence formats are provided, but the connection between concrete manipulatives, drawings sketches and representations made by children, and the subsequent number sentences for this strategy are not explained. For this reason we thought it worthwhile to share our approach to this topic in mathematics.

Filling up the tens is a strategy which spans over at least two terms, and cannot be narrowed to a single lesson or series of lessons. In this paper we describe the overall

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approach that is used, making clear the steps we take at each stage. We move children through several stages in developing this concept:

- Counting concrete objects (including estimating, recording, grouping)
- Making groups of ten (estimating, grouping in tens and writing the number symbols and names)
- Working with 10 frames;
- Working with number lines; and
- Working with number sentences.

We discuss each stage in turn and include examples of teacher prompts, photographs of learner work and teacher resources and apparatus.

We have endeavoured to allow our learners to explore filling up the tens using a variety of apparatus. In this way they can build their own "library" of representations, and can draw from those which make the most sense to them. We hope that this paper provides an authentic example of an approach to a calculation strategy at Foundation Phase in a public school in South Africa.

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