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TI-AIE

Using manipulatives: decomposition and regrouping

Elementary Maths

Using manipulatives: de-composition and regrouping

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What this unit is about

Written addition and subtraction algorithms depend on composition and decomposition, and on re-grouping, especially when the numbers are more than single digits. Allowing students to first fully understand the concept of composition – that is, how the number system works in groups of tens, hundreds, tenths and so on – will help when they learn how to subtract.

Your students will take time to develop number concepts. Number is a very abstract concept, even though it is used extensively in society. The ultimate goal is that students will be able to use addition and subtraction algorithms fluently for all types of numbers. However, if students do not understand the meaning behind the algorithms before they start, they may forget what to do and make unnecessary mistakes.

Manipulatives are objects that students can handle for themselves. They offer a concrete representation of abstract mathematical ideas. The manipulatives in this unit have been designed to enable students to actually compose and decompose numbers, feeling and thinking about what they are doing and in the process, building a fundamental understanding of what to do. These activities are about helping students understand the underlying concepts behind manipulatives as effective teaching and learning tools.

What you can learn in this unit

- Some ideas on how best to use manipulatives to allow your students to help them understand the ideas of composition and decomposition.
- Effective ways to teach students to add and subtract numbers with more than one digit.
- How to observe how your students talk about mathematics in order to identify their misconceptions and to help you shape your teaching around their learning.

This unit links to the teaching requirements of the NCF (2005) and NCFTE (2009) outlined in Resource 1.

1 Composition and decomposition