



TI-AIE

Learning from misconceptions: algebraic expressions

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What this unit is about

Algebraic expressions are mathematical sentences such as $3x + 4$. They do not have an equals sign ($=$), which makes them different from algebraic equations. Algebraic expressions play an important role in the mathematics curriculum and in mathematics in general. In order to progress and do well in mathematics, students need to be able to read and write expressions, and to be skilled in computations and manipulations of algebraic expressions.

For many students the issue with learning about algebraic expressions is that the work is purely a question of memorising and following algorithms. The power and beauty of algebra to express generality, describe relationships between variables and constants, and explore possibilities in a playful and creative way, is often lost. Algebra and its expressions are considered as the language of mathematics, and are used to describe relationships between people, thoughts, elements and structures. Students often do not experience this in their learning at school and thus cannot see the purpose of learning about algebraic expressions and how they relate to real life, apart from passing mathematics examinations.

This unit will explore some different approaches to teaching algebraic expressions by using and developing contexts to help students see the purpose in algebraic expressions. It will first explore the role of variables and constants in a real-life context; it will then look at the power of substitution and how this can stimulate thinking creatively and learning from misconceptions.

