

Variables Algebraically

Mathematics, Algebra

Year 7

Content Description

Recognise and use variables to represent everyday formulas algebraically and substitute values into formulas to determine an unknown ([AC9M7A01](#))

VR Learning Activities

Listening and Understanding: Students begin their learning journey by entering a stylised virtual world where algebra is brought to life through real-world scenarios. A guided narration introduces the concept of variables as symbols that represent unknown values in everyday formulas. Through examples like calculating the score in a game, students gain a conceptual understanding of how and why variables are used in mathematics. The narration uses clear, student-friendly language and visual cues to explain the meaning of algebraic expressions and how substitution works.

Interactive Exploration: In this hands-on VR experience, students are transported to a variety of everyday environments—such as a school or a shopping center—where they solve practical, real world problems using algebraic formulas. For example, in a VR school, they encounter a problem regarding some new constructions where students will need to fill in variables to solve. By interacting with different scenarios and exploring different variables and how they can be used, students see how substitution is used. They receive instant feedback as they explore how changing variables affects the outcome, solidifying their understanding of both the process and purpose of algebraic reasoning.

Questioning and Critical Thinking: Throughout the virtual experience, students are prompted with scaffolded questions that encourage deeper thinking. They might be asked multi-layered questions that will make them think and help their understanding of variables. These questions are designed to develop fluency in identifying variables, interpreting them within context, and using substitution to calculate unknown values. Some questions offer multiple ways to solve the same problem, helping students build confidence and flexibility in their mathematical thinking.

Key Learning Areas

Understanding Variables: Recognising that variables are symbols used to represent unknown or changeable values in everyday contexts, such as costs, time, distance, and quantities.

Everyday Formulas: Exploring how algebraic formulas are used to model real-life situations, including calculating prices, determining travel time, or finding areas and perimeters.

Substitution into Formulas: Practising the substitution of numerical values into algebraic expressions to solve for unknowns and interpret results in context.

Interpreting Representations: Making sense of algebraic expressions by identifying the meaning of each term and understanding how operations affect the outcome.

Pattern Recognition and Generalisation: Recognising numerical patterns in practical problems and expressing them using variables and formulas to develop general rules.

Problem Solving with Algebra: Applying algebraic thinking to solve practical problems by constructing and manipulating formulas, making predictions, and checking reasonableness.

