

# Algebraic Reasoning Syllabus

## Course Description/Goals:

In Algebraic Reasoning, students will build on the knowledge and skills for mathematics in Kindergarten-Grade 8 and Algebra I, continue with the development of mathematical reasoning related to algebraic understandings and processes, and deepen a foundation for studies in subsequent mathematics courses. Students will broaden their knowledge of functions and relationships, including linear, quadratic, square root, rational, cubic, cube root, exponential, absolute value, and logarithmic functions. Students will study these functions through analysis and application that includes explorations of patterns and structure, number and algebraic methods, and modeling from data using tools that build workforce and college readiness such as probes, measurement tools, and software tools, including spreadsheets.

## Course TEKS/Objectives:

The Algebraic Reasoning TEKS (Texas Essential Knowledge and Skills) are organized into reporting categories, each focusing on a specific area of algebra. These categories include: Pattern and Structure; Number and Algebraic Methods; and Modeling from Data. Each category contains specific standards (TEKS) that students are expected to master.

<https://tea.texas.gov/sites/default/files/ch111c.pdf>

## Course Outline:

Semester 1	Semester 2
<ul style="list-style-type: none"><li>-Sequences and Linear Functions</li><li>-Exponential Functions</li><li>-Quadratic and Cubic Functions</li><li>-Transforming Linear, Quadratic, Cubic, and Absolute Value Functions</li><li>-Transforming and Analyzing Rational and Exponential Functions</li><li>-Linear, Quadratic, and Square Root Functions</li><li>-Cube Root and Logarithmic Functions</li></ul>	<ul style="list-style-type: none"><li>-Add, Subtract, Multiply Functions</li><li>-Dividing, Composing, and Multiple Representations</li><li>-Add, Subtract, and Multiply Polynomial Functions</li><li>-Factoring and Dividing Polynomial Functions</li><li>-Add, Subtract, and Scalar Multiplication of Matrices</li><li>- Multiplying Systems of Matrices</li></ul>