

Algebra 1B (9000B) Course Overview Curriculum Document

Course Description

Algebra 1B continues to build on students' use of algebraic symbols to describe mathematical phenomena with an emphasis on developing conceptual understanding leading to procedural fluency and application. This course provides the foundation for the study of higher levels of mathematics along with its integration into other disciplines through foundational algebra and linear, exponential, and quadratic functions. This course is year two of a two year pathway - students should have taken Algebra 1A prior to taking this course.

Credits	Prerequisites
1	Algebra 1A
Board Approved	Revised
April 1998	June 2007, April 2016, June 2022, June 2023

Required Assessments

District-wide, standards-based common summative assessments

Textbooks/Resources

Kennedy, D., Milou, E., Thomas, C. D., Zbiek, R. M., & Cuoco, A. (2024). *enVision Algebra 1*. Paramus, NJ: Savvas Learning Company.

Course Essential Understandings

As a result of successfully completing this course, students will understand that:

- Algebraic symbols are used to describe mathematical phenomena with an emphasis on developing conceptual understanding leading to procedural fluency and application.

Course Relevance Questions

How can we represent patterns and relationships mathematically?

Unit Overviews

Unit Name	Unit Description	Unit Relevance Question	Instructional Standards	Assessed Standards
Unit 0 - Algebra 1B Foundations	This unit reviews essential skills learned in previous class. In order to be successful in Algebra 1B, students need to have strong prior knowledge in multiple concepts. This unit will focus on strengthening the foundational skills of Algebra 1A, which includes manipulating expressions, solving equations and graphing and building linear functions.	<ul style="list-style-type: none"> • How can symbols be used to efficiently communicate a language? • How is the act of simplifying similar to or different than the act of solving? • How do the “slope” and the “y-intercept” help you interpret linear functions? 	Standard 1: Function Analysis M.A.CED.A.4 M.IF.A.1,2 Standard 2: Manipulate Expressions M.N.RN.A.1, 2	Standard 1: Function Analysis M.N.Q.A.1, 2, 3 M.A.CED.A.1, 2, 3 M.F.BF.A.1a M.F.IF.B.4, 5, 6 M.F.IF.C.7a, 9 Standard 2: Manipulate Expressions M.A.SSE.A.1, 2 M.A.APR.A.1 Standard 3: Solve Equations and Inequalities M.A.CED.A.1, 2, 3 M.A.REI.A.1 M.A.REI.B.3
Unit 1 - Linear Inequalities	Students will expand their understanding of functions and function families to investigate linear inequalities and use them in problem solving.	<ul style="list-style-type: none"> • How do solutions for equalities or inequalities differ? 	Standard 1: Function Analysis M.IF.A.1,2 Standard 2: Manipulate Expressions M.A.SSE.A.2	Standard 1: Function Analysis M.N.Q.A.1, 2, 3 Standard 2: Manipulate Expressions M.A.SSE.A.1 M.A.APR.A.1 Standard 3: Solve Equations and Inequalities M.A.CED.A.1, 2, 3 M.A.REI.A.1 M.A.REI.B.3
Unit 2 - Systems of Linear Equations	Students will model more complex situations graphically, numerically, and through equation manipulation and analysis.	<ul style="list-style-type: none"> • How do you determine and interpret the solution(s) to a system of equations? 	Standard 1: Function Analysis M.IF.A.1,2	Standard 1: Function Analysis M.N.Q.A.1, 2, 3 M.A.CED.A.1,2, 3 M.BF.A.1a M.IF.B.4,5,6 M.IF.C.7a,9

				<p>Standard 3: Solve Equations and Inequalities M.A.REI.A.1 M.A.REI.B.3 M.A.REI.C.6 M.A.REI.D.10, 11, 12</p>
Unit 3 - Exponential Functions	Students will continue to expand their understanding of functions and function families to investigate exponential functions, compare them to linear functions, and use them in problem solving. They will develop their knowledge of exponents and apply these skills to rewrite expressions. Students will also model situations and data graphically, numerically, and through equation manipulation and analysis.	<ul style="list-style-type: none"> • Why should I have my money in a bank rather than under my mattress? • How do Exponential and Linear pictures, graphs, tables, and data “paint a thousand words?” • How is it possible to keep getting closer and closer to something without actually touching it? 	<p>Standard 1: Function Analysis M.A.CED.A.3 M.F.IF.A.1,2 M.F.IF.C.8a M.F.BF.B.3 M.F.LE.A.3</p>	<p>Standard 1: Function Analysis M.N.Q.A.1, 2, 3 M.A.CED.A.1,2 M.F.BF.A.1a M.F.IF.B.4,5,6 M.F.IF.C.7a,e,8b,9 M.F.LE.A.1,2 M.F.LE.B.5</p> <p>Standard 2: Manipulate Expressions M.A.SSE.A.1,2</p> <p>Standard 3: Solve Equations and Inequalities M.A.CED.A.1,2,3 M.A.REI.A.1 M.A.REI.D.10,</p>
Unit 4 - Quadratic Functions	Students will further their understanding of functions and function families to investigate quadratic functions and compare them to linear and exponential functions. They will develop the skills to solve quadratic equations efficiently and apply this knowledge in problem solving . Students will also model situations and data graphically, numerically, and through equation manipulation and analysis.	<ul style="list-style-type: none"> • How can we maximize profit or minimize cost? • How can I convince you that my strategy is more effective and efficient than yours? 	<p>Standard 1: Function Analysis M.N.Q.A.1, 2, 3 M.F.BF.B.3 M.F.IF.A.1, 2 M.F.IF.C.7a, 9 M.F.LE.A.1,2,3</p> <p>Standard 2: Manipulate Expressions M.A.APR.B.3 M.N.RN.A.2</p> <p>Standard 3: Solve Equations and Inequalities M.A.CED.A.1, 2</p>	<p>Standard 1: Function Analysis M.F.BF.A.1a M.F.IF.B.4, 5, 6 M.F.IF.C.8a</p> <p>Standard 2: Manipulate Expressions M.A.SSE.A.1, 2 M.A.SSE.B.3a M.A.APR.A.1</p> <p>Standard 3: Solve Equations and Inequalities M.A.REI.A.1 M.A.REI.B.4</p>
Unit 5 - Statistics & Probability	Students will be introduced to the methods used in statistics. It relies on real-world situations, critical analysis, and interpretation of graphs and data. Students will be expected to analyze and interpret graphs and data.	<ul style="list-style-type: none"> • How can data be used to influence/inform others? 		<p>Standard 4: Statistics and Probability M.SP.ID.A.1,2,3 M.SP.ID.B.6.a M.SP.ID.C.7,8</p>
Unit 6 - Intro to Geometry	Students will further their understanding of the basic geometric terms to investigate what makes a triangle, quadrilateral, and other polygons. Students will do calculations of measurements both on and off of the coordinate grid.	<ul style="list-style-type: none"> • How can algebra be used to further shape exploration? • What are the patterns and similarities of shapes in the coordinate plane? • How can you calculate missing parts of shapes? 		<p>Standard 5: Geometry M.G.SRT.C.8 M.G.GPE.B.5 M.G.GPE.B.7 M.G.CO.C.10</p>