

Foundations of Algebra

Mathematics

Key Instructional Activities

Foundations of Algebra is a remedial education program course that is not available to all students. Only students whose Georgia Milestones results were below grade level (“Beginning Learner,” or Level 1) on two of the last three administrations. Foundations of Algebra was designed to strengthen readiness for Algebra 1 before entering Algebra I. Taking Foundations of Algebra in 9th grade will increase the likelihood of Algebra I success in 10th grade for students who have struggled.

Here is some basic information about this course:

- **What is different about Foundations of Algebra?** This course uses hands-on math, manipulatives, and applied mathematical strategies to give qualifying students a firm foundation of math,.
- **Was your student recommended for Foundations of Algebra?** Foundations of Algebra is a course offered to only rising 9th grade students who need it. The classes will be small. The course is designed for students to give them a full tool belt of mathematical strategies and techniques to prevent early failure in Algebra I. This course was created to qualifying students a new perspective and deep understanding of numbers, algebra, and mathematics in general.
- **Why is it important to consider Foundations of Algebra if you were recommended?** If your student qualified, you should know that your child’s performance shows that he or she is not yet ready for Algebra 1. Ninety-five percent of students who are advised to take Foundations of Algebra yet decline this recommendation end up failing one or both parts of Algebra 1. This is why we strongly advise that qualifying students take Foundations of Algebra in 9th grade, to get a solid high school math foundation.
- **What about your post-secondary plans?** For admissions or NCAA purposes, competitive colleges/universities and the NCAA for D1 sports generally require Algebra, Geometry, Algebra II, and some require PreCalculus for admissions. NCAA requires four math units at Algebra I level or above, and Foundations of Algebra is not considered at or above Algebra 1 level.



What resources are available for students and parents?

<https://hcbemath.weebly.com/>



- ✓ Online Math Textbook
- ✓ Parent Portal
- ✓ Overview of Units and Pacing
- ✓ The Learn Button!
- ✓ Use 6th, 7th, and 8th grade Weebly sites for Foundations of Algebra – search for the topics for which your child needs help.



What is the Learn Button on the Weebly Site? *Link to Georgia Virtual School Modules for instructional videos, examples, and practice by unit.*

Foundations of Algebra Course Overview

Note: Foundations of Algebra pacing can vary dramatically depending upon individual student needs. Contact teacher for his or her own pacing for the course.

Module 1: Number Sense and Quantity

Expected Dates: Beginning of School Year to Early October

This module focuses on building a conceptual understanding of basic mathematical ideas which will enhance the student's number sense, rather than a focus on algorithms. The unit begins with the use of whole numbers followed by fractions, decimals, and integers through the lens of problem solving. Students will use a variety of strategies and manipulative tools.

Module 2: Arithmetic to Algebra

Expected Dates: October to Mid-November

This module focuses on the creation of a connection between arithmetic skills and operations in algebra. Students will draw conclusions from computation with specific numbers in order to build generalizations about properties that can be used for numbers and variables. Students will interpret and apply the properties of exponents and use concrete models to investigate square roots and cube roots. The module lays the groundwork for modules 3, 4, and 5.

Module 3: Proportional Reasoning

Expected Dates: Mid-November to Mid-January

This module focuses on the use of modeling to explain equivalent ratios and to understand real-world rate, ratio, and percentage problems. Students will derive slope using similar triangles and interpret slope using unit rates.

Module 4: Equations and Inequalities

Expected Dates: Mid-January to Late February

This module focuses on building understanding of concepts of variables, equations, and inequalities. Systems of equations, solutions of equations, and inequalities will be interpreted in relationship to real-world applications. Multi-variable formulas will be solved for specific variables using algebraic operations.

Module 5: Quantitative Reasoning with Functions

Expected Dates: Late February to End of Year

This module focuses on functions and the characteristics of functions such as domain, range, and rates of change. The y-intercept form of linear functions will be used to graph lines and to compare the rates of change of functions.

After Module 5: Algebra 1 Preview

Expected Dates: After content from Modules 1-6 is successfully completed

If students have shown success on modules 1-5, the FOA teacher may advance into Algebra 1 concepts including exponential and quadratic functions, graphs, and their key characteristics.

Helpful Tips for Parents and Guardians

Believe that every child can be successful in math. It takes good teaching, coaching, encouragement and practice.

Partnering with your child's teacher

- Get to know your child's math teacher! Your child will thank you (someday) for being involved in his or her learning. Also – know about the online resources that are available!
- Don't be afraid to reach out to your child's teacher—you are an important part of your child's education. Ask to see a sample of your child's work or bring a sample with you.
- Talk with your child's teacher about difficulties he/she may be experiencing. When teachers and parents work together, children benefit.
- Ask the teacher questions like:
 - Where is my child excelling? How can I support this success?
 - What do you think is giving my child the most trouble? How can I help my child improve in this area?
 - What can I do to help my child with upcoming work?

Helping your child learn outside of school

- Talk about math in a positive way. A positive attitude about math is infectious. Encourage your child to stick with it whenever a problem seems difficult. This will help your child see that everyone can learn math.
- Encourage persistence. Some problems take time to solve. Praise your child when he or she makes an effort, and share in the excitement when he or she solves a problem or understands something for the first time
- Encourage your child to experiment with different approaches to mathematics. There is often more than one way to solve a math problem.
- Encourage your child to talk about and show a math problem in a way that makes sense
- When your child is solving math problems ask questions such as: Why did you...? What can you do next? Do you see any patterns? Does the answer make sense? How do you know? This helps to encourage thinking about mathematics.
- Connect math to everyday life and help your child understand how math influences them
- Play family math games together that add excitement such as checkers, junior monopoly, math bingo and uno.
- Computers + math = fun! There are great computer math games available on the internet that you can discover with your child.