

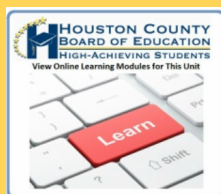
College Readiness Mathematics

Key Instructional Activities

College Readiness Mathematics is a fourth course option for students who have completed Algebra I or Coordinate Algebra, Geometry or Analytic Geometry, and Algebra II or Advanced Algebra, but are still struggling with high school mathematics standards essential for success in first year post-secondary mathematics courses required for non-STEM majors. The course is designed to serve as a bridge for high school students who will enroll in non-STEM post-secondary study and will serve to meet the high school fourth course graduation requirement. The course has been approved by the University System of Georgia as a fourth mathematics course beyond Algebra II or Advanced Algebra for non-STEM majors, so the course will meet the needs of college-bound seniors who will not pursue STEM fields. College Readiness Mathematics focuses on key content and practice standards to ensure that students will be ready for post-secondary academic courses and career preparation in non-STEM fields. The course will revisit and expand the understanding of content standards introduced in earlier mathematics courses and will emphasize numeracy, algebra and functions, geometry, and statistics in a variety of contexts.

Here's a brief snapshot of some of the work students will be doing in these areas:

- Students will solve linear, quadratic, polynomial, exponential, and logarithmic equations and inequalities and systems including those with complex solutions.
- Students will create linear, quadratic, polynomial, exponential and logarithmic functions and analyze these functions graphically.
- Students will analyze rational and radical functions and situations that create these functions.
- Students will analyze Geometric concepts necessary for success in mathematics at the college level.
- Students will make statistical inferences about population parameters.



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



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!
- ✓ College Readiness Mathematics students seeking help on Weebly should go to Algebra 2 and Geometry weebly sites and search for the topic they need.

College Readiness Mathematics Course Overview

Unit 1: Linear, Quadratics, Complex Numbers, Polynomials

Expected Dates: Beginning of School Year to Mid-September

Students will revisit solving linear, quadratic, and polynomial equations in this unit. Students solve for both real and complex solutions and relate these solutions to the graphs of the functions. Students explore function characteristics and compare functions to non-functions. Linear, quadratic, and polynomial functions are created from real-world situations and analyzed in context. Students will hone their equation solving skills in preparation for College Algebra or College PreCalculus.

Unit 2: Graphing and Describing Linear, Quadratic, Exponential, and Polynomial Functions

Expected Dates: Mid-September to Mid-October

This unit develops the connections between linear, quadratic, and polynomial functions and their graphs, interpreting key characteristics of graphs to real-world situations. Students will write functions, calculate average rate of change, relate domain and range to graphs, and write functions in different but equivalent forms in context for purpose. Deep analysis of all graphs and their characteristics will prepare students for college mathematics expectations.

Unit 3: Systems of Equations

Expected Dates: Mid-October to Early November

In this unit, students continue to solve equations but extend to systems of equations. Students will solve any combination of types of equations, which could include linear, quadratic, exponential, and polynomial. Students will choose the appropriate method (from graphing, analytical methods, to using technology appropriately). Students will represent constraints and interpret data points as possible solutions vs. non-solutions.

Unit 4: Rational and Radical Function

Expected Dates: Early November to End of Semester (radicals) and Beginning of Semester to Mid-February (Rationals)

Rational numbers extend the arithmetic of integers by allowing division by all numbers except 0. Similarly, rational expressions extend the arithmetic of polynomials by allowing division by all polynomials except the zero polynomial. A central theme of this unit is that the arithmetic of rational expressions is governed by the same rules as the arithmetic of rational numbers. Similarly, radical expressions follow the rules governed by irrational numbers.

Unit 5: Exponential and Logarithmic Functions

Expected Dates: Mid-February to Late March

Students extend their work with exponential functions to include solving exponential equations with logarithms. They analyze the relationship between these two functions. Students will interpret parameters of functions in context and will analyze key characteristics of both functions. Special attention to the inverse nature of certain parameters when comparing exponential and logarithmic functions will be given (for instance, the domain of an exponential function becomes the range of its logarithmic inverse).

Unit 6: Inequalities

Expected Dates: First 2 weeks of April (usually after Spring Break)

In this unit, students will prepare for college-level courses by graphing and solving compound linear inequalities in one and in two variables, and graphing both.

Unit 7: Geometry

Expected Dates: Mid-April to Early May

In this unit, students will use properties of polynomials to find perimeter, area, and volume. Students will use sine, cosine, and tangent to solve right triangles in preparation for Trigonometry at the college level.

Unit 8: Statistics and Sequences

Expected Dates: Late April to End of School Year

In this unit, students see how the visual displays and summary statistics they learned in earlier grades relate to different types of data and to probability distributions. They identify different ways of collecting data—including sample surveys, experiments, and simulations—and the role that randomness and careful design play in the conclusions that can be drawn

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.