Course Overview College Math

Content Area: **Math**
Course(s):
Time Period:
Length: **86 Days**
Status: **Published**

School Mission Statement

The mission of Chartertech is to provide artists the opportunity to blend principles of artistic expression with cutting-edge technology, so artists will excel in academic, career, and civic pursuits and contribute to the harmony and productivity of the 21" century.

Artistic integration: Performing arts will be accessible to all artists as a skill and content area and will serve as a vehicle for imparting, enlivening, and motivating excellence in all academic topics, as well as providing a platform for learning multicultural appreciation and empathy, not just tolerance.

Technological integration: Technology will serve as the foundation for instructional delivery systems leading to knowledge acquisition, concept understanding, and skill mastery in all academic subjects. Technology will not be studied as a separate entity but infused into the very fabric of educational pursuits, exactly as it occurs in the business world. Artists will be prepared to compete in the modern workplace or post-secondary institution.

"Education has always been torn between vocational and utilitarian purposes on one hand and creative and holistic purposes on the other... We are rapidly entering a world that is hard to imagine. By developing the problem-solving skills, creativity, and discipline required in the arts, artists can prepare for life in the 21st century."

From Understanding How the Arts Contribute to Excellent Education

National Endowment for the Arts, 1991

School Goals

Goals for Arts Education:

Artists will learn the knowledge, skills, and abilities necessary to turn their passions and gifts in the arts into vocations or serious avocations.

Objective 1: Each year, each artist will take two semesters (10 credits) of career-oriented training (80 minutes per day) in their artistic major.
Objective 2: Each marking period, each artist will perform or produce frequently, in diverse settings and for diverse audiences.

Objective 3**:** Artistic instruction will be integrated into the study of all academic subjects.
Objective 4: Each year, each artist will complete at least twenty after-school "lab" hours in their artistic major. These will constitute career-oriented service to the school and/or community, and demonstrate accomplishment of the NJCCCS crosscutting workplace readiness standards.

Goal for Technology:
Chartertech will model the technology-intense workplace and artists will be able to compete successfully and perform well in a technology-intense workplace.

Objective 5: Each artist will routinely use technology in a workplace-like manner to acquire, analyze, communicate, and present information in every subject.
Objective 6: Each artist will have access to a computer every day, every class so that automated sources will be the main conduit for educational content.
Objective 7: All administrative and instructional functions of the school will be supported by the most modern technology available.

Goals for Academic Achievement:
Artists will apply themselves in the serious pursuit of knowledge and skills, especially skills in critical thinking, problem solving, decision making, and communication.

Objective 8: Each year, and to be promoted to the next grade each artist will pass five credits in English, Health, Social Studies, Science, Mathematics, and PE/Health. Between grades 9-12 artists will also complete 1year of Spanish.

Objective 9: In each academic subject, each year, each artist will complete a significant project that involves critical thinking, problem solving, decision making, and communication skills, and which demonstrates cross-content workplace readiness skills.

Objective 10: Each year artists will develop a artist resume to guide his/her academic and artistic studies and to document his/her academic and artistic accomplishments. This work will be done under the mentorship of the faculty in the artist's artistic major.

Objective 11: Academic instruction in all subjects will be highly cross-curricular, in accordance with curricula design and continuously improved by teachers, in compliance with the New Jersey Artist Learning Standards.

Course Description

Course Title:	College Math
Department:	Mathematics
Prerequisite:	Algebra I or Algebra I CP
Number of Credits:	5
Grade Level(s):	11

Standards:	Aligned to New Jersey Student Learning Standards for High School Mathematics
Description of Course	The purpose of the College Math course is to expand upon artists' understanding of Algebra and elevate their abilities to the collegiate level. They will encounter, explore, and analyze a variety of functions in order to achieve this goal. The first topic in the course will be to explore common functions and their graphs. Artists will learn how the structure of a function affects its shape and end behavior. This will lead directly to function transformations which will enable artists to manipulate the behavior of a given graph. Polynomial Functions will be the next area of study. Artists will recall previously learned materials such as factoring and function operations, which will directly connect to new concepts such as composition and polynomial division. Polynomial Functions will lead to the study of Rational Functions. Artists will take the concepts learned in the Polynomial chapter and take to new heights in the exploration of rational functions. Artists will learn, explain, and analyze the domain, range, and structure of these functions using previously learned algebraic techniques such as factoring and polynomial division. The final chapter in the College Math course will cover Exponential Functions. Artists will learn the connection between exponential and logarithmic functions through the study of their graphs, behavior, and applications. Throughout the course, artists will be presented with opportunities to integrate the arts through projects, presentations, and other assignments.

Overview & Pacing

Unit #	Major Content	Expected Time
Unit #1	System of Equations	6 classes
Unit #2	Portfolio Completion	7 classes
Unit #3	Domain and Range	5 classes
Unit #4	Function Evaluation	8 classes
Unit # 5	Parent Functions	6 classes
Unit #6	Polynomials	6 classes
Unit #7	Rational functions	6 classes
Unit #8	Solving Quadratics	5 classes
Unit #9	Synthetic Division	6 classes
Unit #10	Rational Function Operations	6 classes
Unit #11	Exponential Growth and Decay	8 classes
Unit #12	Radicals	6 classes