Coding in Math Syllabus

Independent, Interdisciplinary Math Modules

Course Overview and Goals

Students don't need to be in a computer science class to explore coding. There are coding applications in every subject, including art, math, science and history.

With each module in this course, students use coding to reinforce and extend their understanding of **mathematics**! As they learn major programming concepts, they will develop math-related projects that demonstrate their proficiency in both computer science and math. These modules are a great way to introduce students to programming and show them that coding is a valuable skill in a variety of disciplines.

Learning Environment

Each module in this course is a standalone, web-based curriculum. They contain a series of lessons that introduce students to coding and extend or reinforce a particular math concept. The lessons include short video tutorials, example programs, quizzes, programming exercises, and challenge problems.

Programming Environment

Students write and run programs in the browser using the CodeHS online editor.

Assessments

Each lesson includes at least one formative short multiple choice quiz that helps reinforce major concepts. At the end of each module, students will complete a final project and/or take a summative multiple choice quiz that tests their knowledge of the concepts covered in the module.

Prerequisites

These interdisciplinary modules are designed for students with no previous background in computer science. Each module varies in topic and difficulty depending on recommended grade level. The modules are highly visual, dynamic, and interactive, making them an engaging introduction to computer science.

More Information

Browse the content of this course at https://codehs.com/course/13419

Module Breakdown

The modules below are all independent of one another -- they can be used on their own, in any order. They span a variety of topics and grade levels.

Module Title	Description	Major Topics	Grade	Timing
Factors and Multiples	Students will leverage computational power to find all of the factors of a number in order to help The Sweet Shop bag its homemade candies.	**Math:** factors, greatest common factor, multiples, least common multiple **CS:** printing, modulus arithmetic, variables, if statements, for loops	MS	5-8 hours (an additional 3-4 hours for extension content)
Shapes and Pythagorean Theorem	Students will learn to code with variables and user input in order to develop a final program that determines the dimensions of a roof and the needed construction materials.	**Math:** area and perimeter, pythagorean theorem **CS:** printing, arithmetic, variables, user input	MS	4-6 hours
Categorizing Triangles	Students will use Turtle Graphics in Python to create a program that draws and categorizes triangles based on user input.	**Math:** triangles, area, algebra **CS:** variables, arithmetic, if statements, comparative and logical operators, functions	MS	1-3 hours
Vectors	Students will learn about vector measurements, their components, their applications, and how to program with them.	**Math:** vectors, components **CS:** printing, arithmetic, variables, arrays, user input	HS	4-6 hours