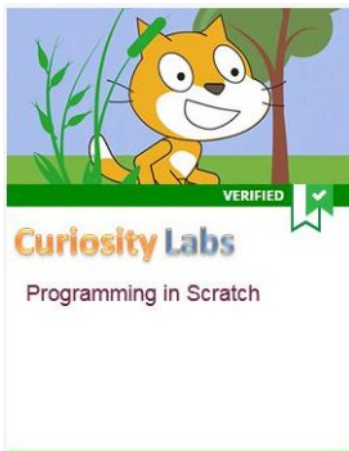# Curiosity Labs

SmartCode Broucher

- SUMMER TRAINING PROGRAM ON PROGRAMMING IN SCRATCH(course ID SC.04S)

Program Details-

COURSE INTRODUCTION

Programming in Scratch will be a course about just that - how to make computer programs using one of the friendliest programming languages ever created.

This course is listed as a Computer Science course. That's because programming is an important tool that computer scientists use in their work. However, that *doesn't* mean that computer science and programming are the same thing: computer science is the study of how computers work and what we can do with them, while programming is simply one way to write out those solutions. So, a huge focus of this course will be not just on how to use Scratch, but how to solve interesting problems and make cool things with the help of a computer.

Structure

The course has ten main lessons, each of which should take about three hours to complete. Each lesson introduces some new concepts in Scratch by way of a mix of videos, text instructions, and practice questions. After the new concepts are introduced, you'll have a homework assignment and a quiz to complete.

Here's a brief outline of what the lessons will cover:

  Unit 1: Moving blocks, creating scripts, and repeating blocks
  Unit 2: Drawing with a computer
  Unit 3: Tempo, variables, and the hat block
  Unit 4: Coordinates and conditionals
  Unit 5: Drawing with iteration
  Unit 6: Broadcast and random numbers
  Unit 7: Updating variables in repeats, iterative development, and the ask and join blocks
  Unit 8: Scratch tools, gravity, and mazes
  Unit 9: Building your own blocks
  Unit 10: Strategies for games

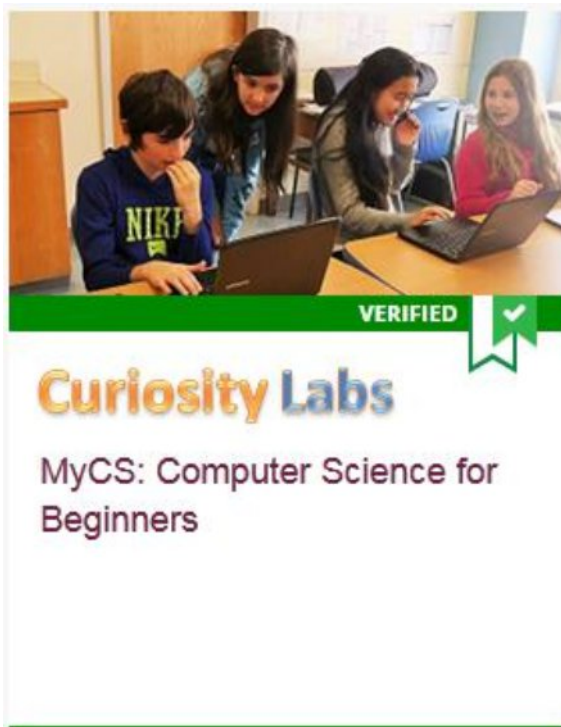After you've completed all of the units, you'll have the opportunity to design your own final project.

CONTACT DETAILS

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- SUMMER TRAINING PROGRAM ON MY CS: COMPUTER SCIENCE FOR BEGINNERS (course ID MYCS.05S)

WHAT IS MYCS?

What is computing? What do computer scientists do? How do computers "think" and deal with information? What is programming, and how do we use it?

MyCS, or "Middle-years Computer Science," is an early introduction to computer science (CS) concepts designed especially for middle school students, as well as those slightly older or younger. Because of the intended audience, the course tries to introduce the big ideas of CS without relying on a lot of math or computer skills to do so. It's a fun way to build a

foundational understanding of what CS is all about, making it easier for you to take more advanced CS and programming courses when you've finished.

Computer science can be creative, challenging, and fun for anyone. We hope that every student finishes this course with the belief that "CS is something that people like me can do," regardless of any previous background in computing.

COURSE STRUCTURE

MyCS:

Computer Science for Beginners is composed of five units of curriculum, which alternate back and forth between the ideas that shape computer science and Scratch programming activities. The topics of these units are listed below.

Unit 1: What is Computer Science?

Answer broad questions about the role of computers and the goals of computer scientists. Explore the definition of intelligence as it relates to computers.

Unit 2: A-maze-ing Scratch

Learn the basics of Scratch programming through a series of pre-made mazes of increasing difficulty.

Unit 3: Data and Codes

Practice encoding and decoding information using a variety of codes and methods. Learn to represent numbers in binary. Connect these concepts to computer science and working with data.
Unit 4: Projects in Scratch

Create your own stories, games, and interactions using Scratch. Practice design skills for making unique programming projects.

Unit 5: Problem Solving and Algorithms

Build intuition for how people and computers solve problems differently Learn basic algorithms for searching and sorting information, as well as how we can compare these algorithms.