ACES Academic Enrichment Center

2019 Summer Enrichment Course Syllabus

Course Name: Scratch Programming Intermediate for 3rd – 5th Graders

Course Description

Scratch Camp is the perfect opportunity for elementary students to practice and improve critical thinking, computational thinking and problem-solving skills. Not everyone will grow up to be a programmer, but everyone can benefit from the problem-solving experience that computer programming provides. **Scratch** is used as the introductory **programming language** because its creation of interesting programs is relatively easy and skills learned can be applied to other **programming languages** such as Python and Java.

This summer, we will be using Scratch to learn about programming fundamentals, 2D sprite-based animation, the Cartesian coordinate system, variables, algorithms, program design, and debugging. The curriculum will base on **"Creative Computing Curriculum" developed by the Harvard Graduate School of Education**. We will begin by working on templates and tutorials to develop a greater understanding of computer programming. Students will then have the opportunity to design, write, and improve some of their own Scratch projects. We will be using curriculum designed to allow students of any experience level to improve their programming skills this summer.

Course Objectives and Student Competencies

1. be introduced to the computational concepts of conditionals, operators, and data (variables and lists)
2. become more familiar with the computational practices of experimenting and iterating, testing and debugging, + reusing and remixing, and abstracting and modularizing by building and extending a self-directed pong, or scrolling game project
3. apply Scratch to STEM project

Date	Topics
7/22	Review Beginner II course content, create Pong game. Introduce random, familiar with logical conditions, timer, action.
7/23	Game Scoring, working on extensions and using backpack
7/24	Scratch extension, video sensing and cloning
7/25	Interactions and Debugging.
7/26	Scratch on math applications