UCSD StudentTECH 2020

Advanced Technology for Elementary and Middle School Students
Sponsored by the San Diego Supercomputer Center, University of California, San Diego

Building Minecraft Action-Filled Games with SCRATCH

Monday-Wednesday, July 13-17, 2020
Class meets at the SDSC Auditorium: 8:30 AM - 3:00 PM

Course Goals and

Program your own interactive Minecraft animations and games using the fun and easy block coding language called “Scratch.” Think like a computer programmer by using Boolean Logic to plan a challenging Minecraft adventure. Create Minecraft games for one or more players with multiple skill levels. Import sound effects, design unique backgrounds, and program multiple-path Minecraft adventures,

Course Goals and Learning Outcomes

Participants will learn:

- programming skills using “Scratch” programming blocks
- animation and game design principles and functions
- how to program single and multi-player games
- how to design multiple-path games
- learn advanced point strategies, game testing, and debugging
- how to save, export, and share games with others

Class Structure

This course is taught using classroom and lab instruction employing demonstration, follow-along activities, individual and group participation, and a final project.

Activities Include

- Follow-along coding demonstrations. Individual and collaborative projects.
- Create your own Minecraft games
- Integrate your own voice, drawings, photos, and music
- Practice interactive program design
- Embellish games with custom backgrounds and lighting
- Make fun and challenging games

Prerequisites

- Must be a current student entering grades 5-6
- No programming experience needed
- Eager to ask questions, share ideas, and help others in the class •

Each day will consist of instruction and ample time for students to work on their own projects.

Topics to be covered each day include:

Day 1:
- Introduction to SCRATCH programming language
- Examples of Minecraft action games
- How to navigate in the Minecraft game environment
- Brainstorm Minecraft game ideas

Day 2:
- Creating Minecraft characters, objects and backgrounds
- How to program moves, jumps, builds and enchantments
- Setting up multiple path games
- Designing game navigation

Day 3:
- How to add special effects
- Programming game triggers
- Planning out skill levels and calculating points

Day 4:
- Trying out each other's games
- Debugging games
- Refining games

Day 5:
- Presentation of final Minecraft games
- Saving and sharing games
- Resources for future game programming

About Scratch & Minecraft
Scratch is a web-based block programming language where students can learn the fundamental principles of computer programming. Minecraft for Education is an open source platform where students can build, animate, and enchant in a 3D virtual world.

About the Instructor
Ruth Maas taught middle and high school computer science for nearly a decade. She has presented at numerous technology workshops and conferences. She teaches

online courses in technology including topics such as artificial intelligence, the impact of social media on society, and computer programming.