Montclair High School
Course Syllabus

Department: Math
Course: Introduction to Computer Science
Level: Honors
Credits: 2.5

Course Description:
This course will teach students how computers think: how they perform calculations, make decisions, manipulate data and store information. Problem solving techniques, algorithm design and analysis, and logic play a big part. Memory modeling, algorithm design and analysis, and logic play a big part. This course will introduce them to the tools and techniques to write computer instructions and to design, develop, and test computer programs. A variety of programming platforms will be presented, including Python and Processing.

This course will prepare students for further coursework in computer science and programming, including AP Computer Science.

Standards:
This course is an elective and is not covered by state standards.

Anchor Text(s):
none

Supplementary Materials:
- Presentations
- Lab activities
- Worksheets
- Study guides

Units of Study:
- Introduction to the field of Computer Science
- Careers and Opportunities
- Overview of hardware, software, and networks
- The binary number system (binary, octal, hexadecimal representations)
- Introduction to Computer Programming: Languages, Development Tools, Testing
- Program Statements
- Data Types and Variables
- Methods and Functions
- Flow Control: Conditionals and Loops
- List and Arrays
- Graphics and Color
- Introduction to Objects

Proficiencies:

By the end of this course, students will:

- Understand the various components of a computer system
- Translate a process into a set of instructions
- Solve problems using computer commands
- Understand how information is stored in computers
- Understand how colors are represented by computers
- Write small methods/programs

Evaluation & Assessment:

- Projects/Activities: 3 – 4 per term   50%
- Quizzes   3 – 4 per term   40%
- Homework/Classwork: 3 – 5 per term   10%