

Exploring Computer Science

Mr. Harrington

<http://technologyclass.org>

Course Description:

Exploring Computer Science (ECS) is the 1st level in a two-course series that is being offered at SHHS; The 2nd level is Computer Science Principles (CSP). The students will acquire a hands-on understanding of a number of Tech Fields, in particular: Programming, Computer Science, Artificial Intelligence, Robotics and Engineering/3D Printing. Students will also be exposed to career opportunities in the Tech Sector by being offered internships and a guest speaker series provided by industry tech leaders. The Goal: Get the students excited about the Tech. Sector so that they may consider it as a career. Thus, this course is designed to be intriguing, challenging...and fun!



Course Content

Phase #1: Computer Science

1. Hardware: Student will build a computer for themselves and a client.
2. Digital Communication: The internet, privacy, security and data.
3. Process: Students will engage in activities that will focus on organizational & problem solving skills and attention to detail. Students will develop an understanding of Artificial Intelligence, Binary & Linear Search, sorting algorithms and Minimal Spanning Trees.

Phase #2: Programming

1. Building Web Pages (Attention to detail & syntax error.)
2. Block Coding
 - Students will learn the foundational concepts of C++ and then will design and code an online computer game using Scratch.

Phase #3: Robotics

Students will design and code Lego Robots to compete in a number of activities.

Phase #4: Engineering & 3D Printing

Students will create a composite drawing of a racing car, then design this car on a CAD program and finally build and assemble it using a 3D printer. We will race the cars on a classroom track. The students will be able to alter the design and print the cars again and again in order to improve them (Attention to detail & Problem Solving.)

Careers

A major component of this class is to expose the students to many of the career opportunities available to them in the tech sector and to learn what it takes to become employed with many of these firms.

Internships:

- SHUSD I.T. – Students submit a cover letter.

Guest Speaker Series:

- Tech leaders from a variety of fields visit the students and tell them about growing up, college, what they do and advice (Every Friday for eight weeks in the Spring).

Partners

Although I may be guiding the classes, a tremendous amount of the learning and support comes from the students themselves. Students will be partnering with other students through most of the course.

Class Conduct

- Phones are not to be visible or used during class.
- The moment the bell rings be in your seat.

Also:

- Bathroom (Bladder Control) – Just ask.
- Roaming the Room – The only students who should be out of their seats are those who are helping others. If you want to help someone, just ask.
- Food & Drink – water is ok...anything else, please wait till class is over.
- Other Class Assignments – Other class assignments are not to be done during class time.

Missed Assignment Guidelines

- You are responsible for all missed work due the day following your return.
- Late work will not be accepted unless previously authorized by the instructor.

Availability:

I will always make myself available to assist you...just ask.



Grading Policy (Student's grade is a total of all the points accumulated during the course.)

Since the first portion of the class is based on learning process, most of the student's grades will be coming from how engaged they are in the projects. The grade in the second part of the course will come from the code they write and success of the projects they design.

Class Materials:
Pen, Pencil & Earbuds.

Grading Scale

94-100=A	80-83=B-
90-93=A-	77-79=C+
87-89=B+	74-76=C
84-86=B	70-73=C-