

## Why take Computer Science?

### Computer Science Gives Students Vital 21st Century Skills

Computer Science underlies most innovation today, from biotechnology to cinematography to national security. Yet the majority of U.S. schools require only that students use computers. Seldom do schools prepare students to innovate and create the new technologies that drive local and national economies. This ability to innovate with technology is also important for students' future success and ability to make a difference in a global society. The ability to create and adapt new technologies and engage in computational thinking and problem solving distinguishes computer science from computer literacy, which focuses more on using existing technologies (e.g., word processing, spreadsheets).

### Computer Science Means Rewarding Careers

Jobs are plentiful, interesting, and flexible. Job prospects have remained strong despite economically challenging times. Computer scientists also enjoy a wide range of career options since all industry sectors today involve computing (e.g., the arts, film, finance, healthcare, journalism, manufacturing, music, security).

### Prerequisites:

Exploring Computer Science is intended for students who have successfully completed Algebra 1. This year-long course is approved as a "g" elective with Career Technical Education credit by the University of California Office of the President *and* satisfies the EDUHSD district ICT graduation requirement.

Exploring Computer Science is an introduction to the world of computer science and problem solving and aligns well with many career pathways including: Information Technology, Engineering and Design, and Arts, Media and Entertainment Technology among others.

ECS aligns with the Standards for Mathematical Practice and the Modeling and Statistics and Probability standards of the Common Core Standards in Mathematics and to many College and Career Readiness Anchor Standards in Reading, Writing, Listening and Speaking.

### Student Quotes:

*"Because of ECS I recognize I am a **problem solver** and problems can be solved in a variety of ways."*

*"It showed me all the great reasons why computer science is a **great career**."*

*"I was **inspired** further to pursue computer science and computer engineering as my college major."*

## Exploring Computer Science

For more information please visit [www.exploringcs.org](http://www.exploringcs.org) for a complete description of the course curriculum.

Visit [code.org](http://code.org) for more information on computing.

Contact instructor Stephanie Allen at [sallen@eduhd.net](mailto:sallen@eduhd.net) for more information.

## OAK RIDGE HIGH SCHOOL

### Exploring Computer Science

*"Learning to write programs stretches your mind, and helps you think better, creates a way of thinking about things that I think is helpful in all domains."*

— Bill Gates - Microsoft

- Problem Solving
- Website Design
- Robots
- Scratch Programming
- Team Projects

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## Course Content

Exploring Computer Science consists of 6 units which are approximately 6 weeks each. Assignments and instruction are inquiry and equity based and contextualized to be socially relevant and meaningful for diverse students. Units utilize a variety of tools/platforms, and culminate with creative final projects around the following topics:

### 1. Human Computer Interaction

In this unit students are introduced to the concepts of computer and computing while investigating the major components of computers and the suitability of these components for particular applications.

### 2. Problem Solving

This unit provides students with opportunities to become “computational thinkers” by applying a variety of problem-solving techniques as they create solutions to problems that are situated in a variety of contexts.

### 3. Web Design

This section prepares students to take the role of a developer by expanding their knowledge of programming and Web page design and applying it to the creation of Web pages, programs, and documentation for users and equipment.

### 4. Introduction to Programming

In this unit students are introduced to some basic issues associated with program design and development. Students design programming solutions to a variety of computational problems including animated stories, video games and community based projects, using Scratch.



### 5. Computing and Data Analysis

In this unit students explore how computing has facilitated new methods of managing and interpreting data. Students will use computers to translate, process and visualize data in order to find patterns and test hypotheses.

### 6. Robotics

Students apply previously learned topics to the study of robotics and work in small groups to build and program a robot to perform a required task.

