Exploring Computer Science

Why Computer Science? Every 21st century student should have the opportunity to learn computer science. The basics help nurture creativity and problem-solving skills, and prepare students for any future career.

Computer Science for All Students!

Code.org has partnered with ECS, a K-12/University national program committed to democratizing computer science knowledge by increasing learning opportunities at the high school level for all students, with a specific focus on access for traditionally underrepresented students. This introductory, year-long high school computer science class focuses on foundational computer science concepts and computational practices.

Full Year Professional Development Model

Spring: Online introduction to curriculum and resources.

Summer: In-person, multi-day workshop and online follow-up

School Year: Job-embedded PD focused on implementation

Summer: Wrap-up, reflection, moving forward

★★★★★ **Hundreds of teachers have participated. They rate our workshops 4.8 on a 5 point scale. The majority say, "It's the best professional development I've ever attended."**

"I like planning lessons/participating in other teacher's lessons. I thought this was a very good way to learn the content while at the same time thinking about how I can best teach it in my classroom."

"I like the fact that we were able to model lessons in the class. This gave me the opportunity to see and reflect on what I could expect in the classroom."

What's in a workshop?

- **Three focus areas of PD:** equity, inquiry, and CS content

- **ECS Teacher-Learner-Observer Model:** teachers co-plan and co-teach ECS lessons, followed by lesson debrief discussion

- **Guiding philosophy:** Teacher learning is a process over time
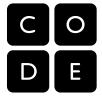
Curriculum Features:

- An inquiry-based approach to teaching and learning frames the instructional design of the curriculum

- Culturally relevant lessons designed to be inclusive for all learners

- Modular design allows for substitution of topics for the final two units

- Mapped to national academic standards (NGSS & CCSS), national computing standards (CSTA & ISTE)

- ECS and CS Principles courses are conceptually and pedagogically aligned

Exploring Computer Science Units

Unit 1: Human Computer Interaction	Students are introduced to the concepts of a computer and computing.
Unit 2: Problem Solving	Students become "computational thinkers" by applying a variety of problem solving techniques as they create solutions to problems in a variety of contexts.
Unit 3: Web Design	Students 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.
Unit 4: Introduction to Programming	Students design programming solutions to a variety of computational problems including animated stories, video games, and community-based projects.
Unit 5: Computing and Data Analysis (optional)	Where there are humans, there is data. Students use computers to translate, process, and visualize data in order to find patterns and test hypotheses.
Unit 6: Robotics (optional)	Students apply programming and problem solving skills to the study of robotics and work in small groups to design, build, and program a robot to perform a required task.

Currently, Code.org only offers ECS workshops through a district partnership. For info, visit: http://code.org/educate/districts

For more information about the ECS program (funded by the National Science Foundation), visit: http://www.exploringcs.org/