

Spring 2018

Hello, and welcome to the Code.org family!

Over the next year you will be part of a new wave of teachers offering Computer Science Discoveries (CS Discoveries) in classrooms across the country. Thanks to teachers like you, an entire generation of young students now have more opportunities for a meaningful and rich introduction to computer science than ever before.

The Code.org CS Discoveries curriculum is built to empower students to create authentic artifacts and engage with computer science as a medium for creativity, communication, problem solving, and fun. By providing students opportunities to engage with culturally and personally relevant topics in a wide variety of CS-related fields we hope to show all students that CS is relevant to them.

The Professional Learning Program you're about to embark on will help you develop the content knowledge, teaching practices, and supportive peer network needed to successfully deliver this course. We also have a library of supports that will be available around the clock on Code.org (studio.code.org), and you can always turn to the local and online community of teachers who are preparing to offer this course alongside you.

Soon you'll receive more information about your summer workshop, but for now you can check out the enclosed resources to learn more about the course and our Professional Learning Program. You'll also find tips and tools to help spread the word about your CS Discoveries course to students, fellow educators, and your school administrator. Inside, you'll find:

1. Professional Learning overview: learn more about the year-long teacher program
2. Curriculum overview: all about what students will learn in the course
3. Letter to your administrator: please pass along to your principal
4. Student recruitment tips: strategies to encourage students to sign up for this course
5. Student handout ("Why Sign Up?"): make photocopies and help counselors encourage students to join the course by providing them this handout for students to take home. Pass out a few yourself!
6. School counselor flyer: ask your counselor to hang this enrollment flyer in their office
7. 4 large inspirational posters: print these to hang in your classroom or in the hallway to catch the interest of passing students

Thank you again for all of your hard work and dedication. We are so excited to meet you this summer!

Sarah Fairweather and Dani McAvoy
Education Team Program Managers
Code.org

Professional Learning Programs Overview

CS Principles and CS Discoveries



The Code.org Professional Learning Program

Whether you are new to teaching computer science (CS) or have experience teaching other CS courses, the Code.org Professional Learning Program is designed to promote growth by providing space for you to become comfortable with curricular materials, CS content, and pedagogy. The program supports teachers with diverse teaching backgrounds as they prepare to teach either of the following courses:

- **Computer Science Discoveries** is an introductory computer science course that empowers students to create authentic artifacts and engage with computer science as a medium for creativity, communication, problem solving, and fun. The curriculum is recommended for middle and high school students (grades 6-10), and can be taught either as a semester or full-year offering.
- **Computer Science Principles (can be taught as an AP® course)** is also an introductory course that requires no computer science background (from students or teachers). We recommend it for 9th-12th grade students with stronger reading and writing skills. More than a traditional introduction to programming, it is a rigorous, engaging, and approachable course that explores many of the foundational ideas of computing so all students understand how these concepts are transforming the world we live in.

Our curriculum supports teachers new to the discipline with a complete set of lesson plans that include inquiry-based activities, videos, assessment support, and educational tools.

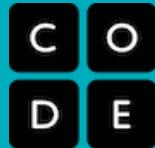


Professional Learning Program features:

- **One cohesive set of resources:** Our professional learning and curriculum flow seamlessly together, empowering teachers to deliver the course with confidence. In-person workshops combine with online tools to provide participants with a broad selection of resources to help them plan ahead for implementing the course in their classrooms, while also collaborating with other educators.
- **Teaching and learning in context:** Participants will engage with the curriculum both as instructors and as learners. By experiencing the course content as an active learner, participants will gain important, concrete insight into the perspective their students will have during the academic year. By interacting with curriculum content as instructors, participants will learn how to plan and deliver lessons.
- **A collaborative, participant-centric approach:** Teachers and facilitators will have the opportunity to share their expertise from the field and collaborate on strategies to bring to the CS Principles and CS Discoveries classrooms, giving participants a chance to learn from everyone in the room. Facilitators model pedagogical strategies and participants share their own approaches by planning and delivering lessons.

Professional Learning Programs Overview

CS Principles and CS Discoveries



Program Commitments:

The Code.org Professional Learning Program has both in-person and online supports designed to prepare teachers before and during their first year teaching CS Principles or CS Discoveries.

Timeline:

Summer Workshop	Ongoing Support
Summer	School Year (September - June)
<ul style="list-style-type: none">5 days, in-person at a central location (travel may be required)	<ul style="list-style-type: none">4 one-day, in-person sessionsContinued professional development and resources

Summer Workshop:

Participants kick off the Professional Learning Program with a 5-day workshop where they explore the curriculum and learning tools, discuss classroom management and teaching strategies, and build a community of teachers. With a focus on a customized experience, participants will develop skills while working in small groups to deepen their understanding of the materials.

Ongoing Support:

Participants attend local, 1-day quarterly workshops throughout the following academic year. These meetings are hosted by Code.org Regional Partners and run by local, Code.org-trained facilitators. They focus on the essential elements of the course, such as teaching new content, keeping the classroom environment equitable and engaging, and continue to build pedagogical strategies.

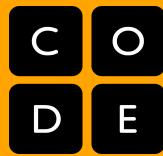
In addition, all teachers have access to the Code.org forum, an online professional learning community that offers continued support with tools and content, introduces new and helpful resources for teaching the course, and lets teachers continue to explore the curriculum.

For additional information, including course overviews, FAQs, and more, visit:

- **Professional Learning Program:** <https://code.org/professional-learning>
- **CS Discoveries:** <https://code.org/csd>
- **CS Principles:** <https://code.org/csp>

Computer Science Discoveries

Curriculum Overview



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

What is Computer Science Discoveries?

Computer Science Discoveries (CS Discoveries) is an introductory computer science course designed for 6th - 10th grade students. The curriculum emphasizes problem-solving, creation, collaboration, while introducing students to the many ways computer science impacts their lives.

K-12 curriculum pathway

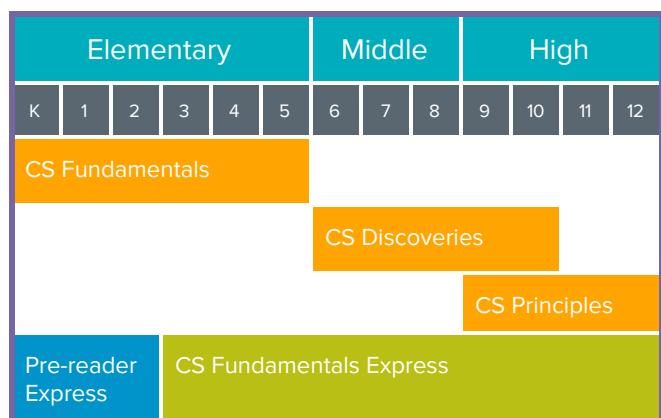
CS Discoveries fits naturally between our CS Fundamentals course (for K-5th grade) and our AP/Honors CS Principles course (for high school). This allows districts, teachers, and students to complete a K-12 pathway of CS courses that build on each other and cohesively flow together.

Flexible Implementation

We built the CS Discoveries curriculum for students in grades 6-10, so teachers can implement in either middle school or high school classrooms. The two semesters spiral upon each other, allowing the course to be taught as a single semester (Units 1-3), two sequential semesters, a full-year course, or even integrated into existing technology classes.

Designed for Equity

We designed this course from the ground up to be accessible and engaging for all students, regardless of background or prior experience. By providing students opportunities to engage with culturally and personally relevant topics in a wide variety of CS related fields, we hope to show all students that CS can be for them.



Professional Learning Program

Teachers implementing CS Discoveries as a semester or full-year course can apply to participate in a one-year professional learning program. The program has two phases:

- **Summer:** Teachers attend a 5-day in-person, conference style workshop designed to introduce CS Concepts from the curriculum and core teaching practices. (Travel may be required.)
- **School Year:** Teachers engage in continued learning through professional development focused on supporting their first year of implementation.

Curriculum Features:

- Daily instructional lesson plans that include inquiry- and equity based pedagogy and background content
- Formative and summative assessments, exemplars and rubrics

- Videos for students and teachers including concept tutorials, instructional guides, and lesson tips
- Code.org -- a learning platform that organizes lesson plans and activities with student and teacher dashboards

Curriculum tools:

- **App Lab:** JavaScript programming environment on Code.org, designed for creating event driven web apps with block-to-text workspace and debugging capabilities
- **Game Lab:** JavaScript programming environment on Code.org, designed for creating object oriented sprite-based games and animations with block-to-text workspace and debugging capabilities
- **Circuit Playground:** Adafruit's new Arduino-based microcontroller that has a number of components and sensors built right onto the board and is used as the hardware for physical computing lessons. Using the Maker Toolkit, students can program their Circuit Playground boards right from App Lab with easy-to-understand JavaScript commands and blocks
- **Web Lab:** HTML/CSS programming environment on Code.org used for website development



CS Discoveries unit overview

Semester 1: Exploration and Expression

Unit 1 Problem Solving	Explore the problem-solving process and the different ways humans and computers solve problems
Unit 2 Web Development	Discover the languages powering the web. Build your own websites in HTML and CSS using Web Lab
Unit 3 Animations and Games	Learn the powerful constructs underlying programming languages. Build interactive animations and games in JavaScript using Game Lab

Semester 2: Innovation and Impact

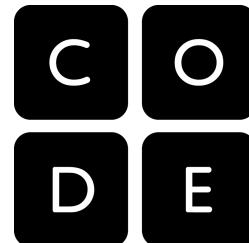
Unit 4 The Design Process	Follow a design process to identify and empathize with problems faced by a target audience. Prototype an app to help solve that problem using App Lab.
Unit 5 Data and Society	Develop binary representations of different kinds of information. Collect, analyze, visualize, and make automated decisions using data.
Unit 6 Physical Computing	Explore the relationship between hardware and software while building interactive projects on Adafruit's Circuit Playground.

Learn more about professional learning!

<https://code.org/professional-learning>

For curriculum, videos, support documents, and more, visit:

<https://code.org/csd>



Code.org is a 501(c)3 non-profit dedicated to expanding participation in computer science education by making it available in more schools and increasing participation by women and underrepresented students of color. The Code.org vision is that every student in every school should have the opportunity to learn computer programming

Spring 2018

Hello — We are so pleased to welcome you and your Computer Science Discoveries (CS Discoveries) teacher to the Code.org family!

Whether or not CS Discoveries is your school's first computer science course, we are excited that you are expanding access to this critical subject by offering it!

Over the next year, your school join with hundreds across the nation to offer CS Discoveries, an introductory computer science course for students grades 6 to 10. As you know, excitement about computer science is growing by the minute, and your participation is providing more ways for students to get involved.

We built the Code.org CS Discoveries curriculum to provide students with meaningful opportunities to investigate and understand the core concepts of computer science. Lessons support students and teachers with a range of prior experience. Your CS Discoveries teacher is enrolled in a Professional Learning Program that will support the content and teaching practices needed to successfully deliver this course. Here's a brief overview of the program commitments for your teacher:

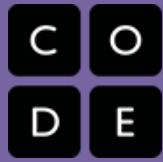
Summer Workshop	Ongoing Support
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<ul style="list-style-type: none">• 5 days, in-person at a central location (travel may be required)	<ul style="list-style-type: none">• 4 one-day, in-person sessions• Continued professional development and resources

We know that curricular and professional learning resources only go so far. That's why we are incredibly grateful to have the support of school administrators like yourselves on the ground to make sure teachers have what they need to succeed.

In your teacher's welcome package, we've included find a few tips and ideas for promoting the CS Principles course with students, parents, and the community. Thank you again for all of your hard work and dedication. We are excited to see how you, your teachers, and your students continue to change the face of computer science education in the 2017-18 school year!

Sarah Fairweather and Dani McAvoy
Education Team Program Managers
Code.org

Tips for recruiting students into your computer science course



Planning to offer a computer science course in your school? Here are some tips for recruiting students into your class—look for more online at code.org/recruit!

Show recruitment videos to students.

Hear from current students as they talk about the topics covered in our courses and why your students should sign up. Check out the video on our YouTube channel, or at code.org/recruit.

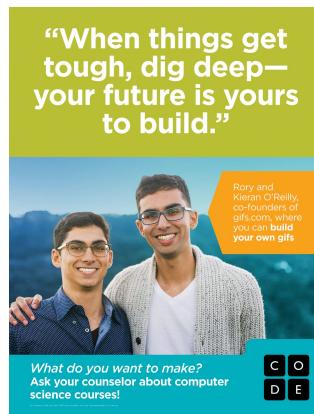
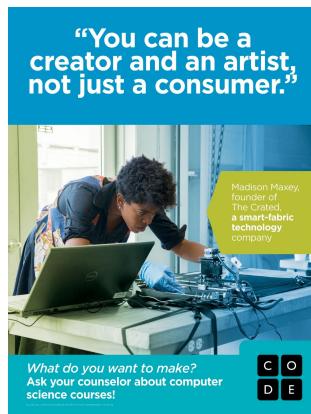
Find more videos to encourage your students at code.org/inspire, as well as content you can use to inspire more girls to take computer science.

Ask your counselors for help.

Make sure the counselors at your school know what your school's computer science course is all about! Check out the program brochures, student flyers, and more ideas on how to talk to stakeholders at code.org/recruit.

Hang these inspiring posters.

We've included some posters in this packet. Hang them in the halls along with the course number for your computer science class. If you want to print out more posters, you can find the files at code.org/recruit.



Learn more about these young tech professionals at code.org/careers!

Host an information session.

Invite students to your classroom during lunch or after school to learn more about taking computer science. Find a sample agenda at code.org/recruit.

Run an Hour of Code.

Get your students excited about computer science with an Hour of Code activity. Check out the dozens of activities created by Code.org and our partners at HourofCode.com

Use sample blurbs to email students and parents.

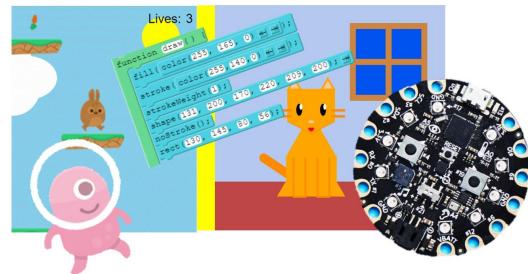
We provide you with sample emails for students and parents. Let them know about the exciting and immediate possibilities your computer science course has to offer! Find these sample blurbs at code.org/recruit.

Why sign up for Computer Science Discoveries?

Whether you're interested in the arts, engineering, culture, design, or technology, CS Discoveries shows you how to bring your ideas and interests to life—no experience necessary!

Turn your ideas into reality

In class you'll get to **express your thoughts and opinions** while collaborating with your friends to build projects. Activities you'll do in this class are designed to build on what you're interested in and give you the freedom to share your passions and creativity.



What will I learn?

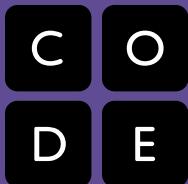
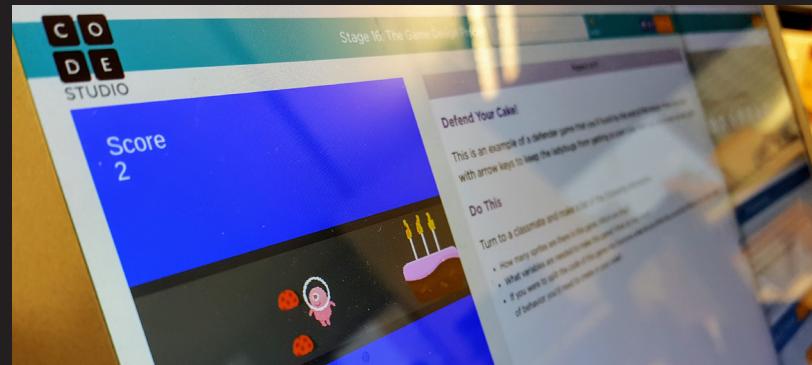
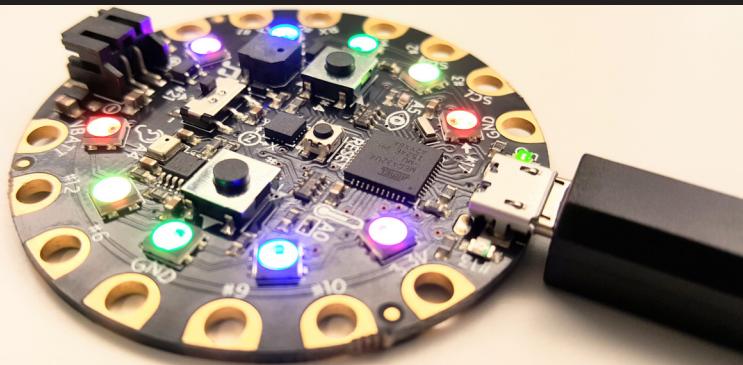
Learn how to make your own website, design an app, program a game, and even create physical devices that interact with the outside world. You'll learn the computer science underlying the technology you use every day and then **get the skills** to bring your own version to life.

No matter what you're passionate about, a background in computer science will give you the tools you need!

Complete exciting projects over the course of one or two semesters!

Problem Solving	The Internet	Programming
<ul style="list-style-type: none">Learn the different ways that humans and computers solve problemsFollow a design process to learn how to empathize with and prototype an app for a target audience	<ul style="list-style-type: none">Build your own website using HTML and CSSLearn how data is collected online and the ethical impacts of data collectionCollect, analyze, and visualize data of your own	<ul style="list-style-type: none">Build interactive projects on Adafruit's Circuit PlaygroundBuild interactive animations and games in Javascript

Sign up for Computer Science Discoveries today and realize your vision. No experience needed.



Computer Science Discoveries

code.org/csd

“Coding is deeply creative work.”

Nidhi Kulkarni and Erin Parker, co-founders of Spitfire Athlete, a **strength training app**



*What do you want to make?
Ask your counselor about computer
science courses!*

C O
D E

**“The skills you learn
today will let you shape
tomorrow’s future.”**

Javier Agüera,
founder of
Geeksphone and
**developer of
open source
smartphones**



*What do you want to make?
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science courses!*

C O
D E

“When things get tough, dig deep—your future is yours to build.”



Rory and
Kieran O'Reilly,
co-founders of
gifs.com, where
you can **build**
your own gifs

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science courses!

C O
D E

“You can be a creator and an artist, not just a consumer.”



Madison Maxey,
founder of
The Crated,
**a smart-fabric
technology**
company

*What do you want to make?
Ask your counselor about computer
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C O
D E