

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 Principles (CS Principles) in classrooms around the country. Thanks to teachers like you, an entire generation of students now have more opportunities for a meaningful and rich introduction to computer science than ever before.

The Code.org CS Principles curriculum is built to provide students with the opportunity to discover and understand the core concepts of computer science. You and your students will explore big ideas like the internet, programming, and abstraction, while developing strong computational thinking practices. Together, you will leave the course with context for the ways computer science shapes our world.

You're about to embark on a Professional Learning Program that will help you with the content, teaching practices, and, for many of you, the AP requirements needed to successfully deliver this course. We also have a library of supports available around the clock on Code.org ([studio.code.org](https://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 Principles course to students, fellow educators, and your school administrators. Please pass these resources along, especially to administrators who would benefit from knowing more about the CS Principles program! Inside, you'll find:

1. Professional Learning overview: learn more about your year-long 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.

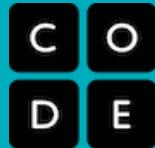


### Professional Learning Program features:

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

#### 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.

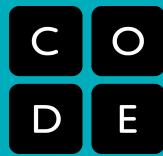
In addition, all teachers have access to the Code.org forum, an online professional learning community that offers continued support with tools and content, introduces new and helpful resources for teaching the course, and lets teachers continue to explore the curriculum.

#### 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 Principles

## 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.**

### Advanced Placement Computer Science for All Students!



Code.org's Computer Science Principles is an introductory Advanced Placement (AP<sup>®</sup>) course designed to broaden participation in computer science. Code.org is recognized by the college board as an endorsed provider of AP<sup>®</sup> Computer Science Principles curriculum and professional development. The Course has been reviewed by the College Board and is pre-approved to pass the audit. The professional development is also endorsed by the College Board as meeting (and exceeding) the standards of the AP<sup>®</sup> Summer Institutes.

### Engaging Curriculum

Our team designed the AP<sup>®</sup> Computer Science Principles curriculum to support students and teachers new to the discipline. The curriculum includes daily lesson plans made up of inquiry-based activities, videos, assessments, and computing tools, allowing teachers to guide and learn alongside students as they discover core computing concepts.



### One-Year Professional Learning Program

- **Summer:** Teachers attend a 5-day in-person workshop designed to introduce CS concepts from the curriculum, AP<sup>®</sup> elements of the course, 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.

**Hundreds of teachers participate each year. They overwhelmingly agree:**

**“It’s the best professional development I’ve ever attended.”**



**“I didn’t have much background in computer science, and thought: Let’s try it. I found out I loved it!”**

- Karen

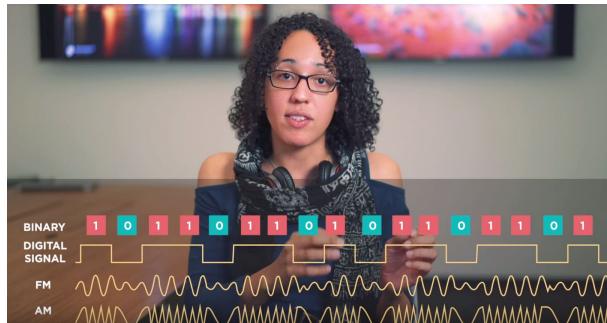


**“They make it so that you can understand the material and they make it so you want to come back!”**

- Curtis

## Curriculum Features:

- Daily instructional lesson plans that include inquiry/equity-based pedagogy and background content
- Formative and summative assessments, project exemplars, and rubrics
- Widgets and simulators for exploring computing concepts like text compression and the Internet
- Concept and tutorial videos for students, and teaching tips-and-tricks videos for teachers
- Code.org -- a learning platform where students interact with lesson materials and tools, and where teachers access a dashboard to see student work and progress
- App Lab -- a JavaScript programming environment in Code Studio, designed for creating event-driven web apps with block-to-text workspace and debugging capabilities



## CS Principles unit overview

<b>Unit 1</b> The Internet	Learn how the multi-layered systems of the Internet function as you collaboratively solve problems and puzzles about encoding and transmitting data, both 'unplugged' and using Code.org's Internet Simulator.
<b>Unit 2</b> Digital Information	Use a variety of tools to look at, generate, clean, and manipulate data to explore the relationship between information and data. Create and use visualizations to identify patterns and trends.
<b>Unit 3</b> Algorithms and Programming	Learn the JavaScript language with turtle programming in Code.org's App Lab. Learn general principles of algorithms and program design that are applicable to any programming language.
<b>Unit 4</b> Big Data and Privacy	Research current events around the complex questions related to public policy, law, ethics, and societal impact. Learn the basics of how and why modern encryption works.
<b>Unit 5</b> Building Apps	Continue learning how to program in the JavaScript language. Use Code.org's App Lab environment to create a series of applications that live on the web. Each app highlights a core concept of programming.
<b>AP® Performance Tasks</b>	Design a project plan, the work on and complete your AP Performance Task projects for submission to the College Board.

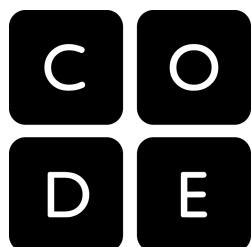
**Learn more about professional learning!**

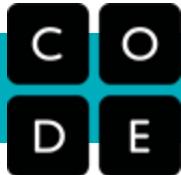
<https://code.org/professional-learning>

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

<https://code.org/csp>

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 Principles (CS Principles) teacher to the Code.org family!

Whether or not CS Principles 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 will join with hundreds across the nation to offer AP® CS Principles, a course that has been generating excitement around the computer science education community for over 7 years. You're playing a huge part in changing the face of AP® computer science.

We built the Code.org CS Principles curriculum to provide students with meaningful opportunities to discover and understand the core concepts of computer science. Lessons support students and teachers with a range of prior experience. Your CS Principles teacher is enrolled in a Professional Learning Program that will support content, teaching practices, and—for those teaching AP—the AP® requirements that ensure successful delivery of this course. Here's a brief overview of the program commitments for your teacher:

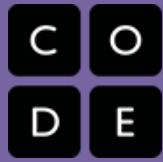
Summer Workshop	Ongoing Support
Summer	School Year (September - June)
<ul style="list-style-type: none"><li>• 5 days, in-person at a central location (travel may be required)</li></ul>	<ul style="list-style-type: none"><li>• 4 one-day, in-person sessions</li><li>• Continued professional development and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

We know that these 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 2018-19 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](https://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](https://code.org/recruit).

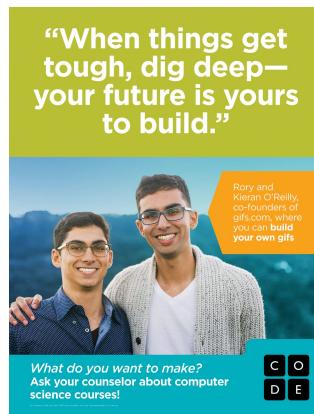
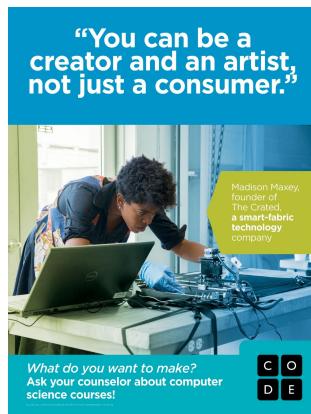
Find more videos to encourage your students at [code.org/inspire](https://code.org/inspire), as well as content you can use to inspire more girls to take computer science.

## 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](https://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](https://code.org/recruit).



Learn more about these young tech professionals at [code.org/careers](https://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](https://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](https://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](https://code.org/recruit).

# Why sign up for Computer Science Principles?

**We use the Internet, social media, smart devices, and other technology every day. Wouldn't it be cool to learn how they *really* work?**

## No experience needed

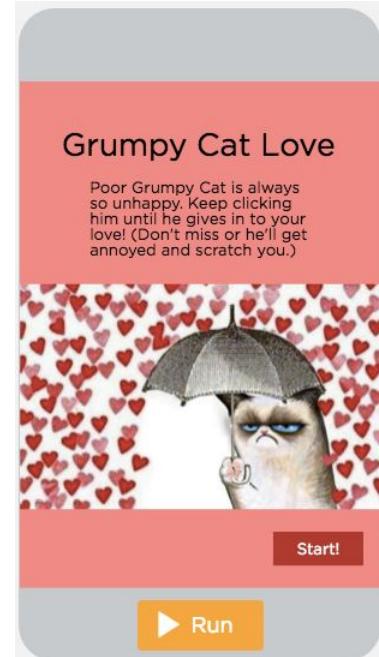
No matter how much or how little you know about technology, CS Principles will give you the skills you need to navigate the high-tech world we live in.

## What will you learn in CS Principles?

- How people are using computer science to change the world with breakthroughs in every field—**from medicine to music, from fashion to business**
  - How apps and websites like Instagram and Tumblr actually work
  - The benefits and downfalls of living in an increasingly online world

## Work on projects you care about

CS Principles allows you to express your thoughts and opinions while collaborating with your friends to build projects. You'll create apps that you can share with anybody, and develop and pitch innovative solutions to everyday problems.



**Complete exciting projects over the course of two semesters!**

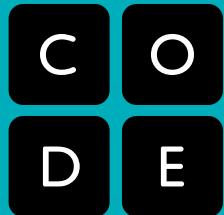
Apps	The Internet	Data
<ul style="list-style-type: none"><li>Learn to program in the JavaScript language with turtle programming in Code.org's App Lab</li><li>Using the general principles of algorithms and program design, you'll create a series of real working apps that you can share with your friends!</li></ul>	<ul style="list-style-type: none"><li>Explore the Internet and its layers as you learn about the challenges of supporting a giant network like the world wide web</li><li>Solve problems about encoding and transmitting data using Code.org's Internet Simulator</li></ul>	<ul style="list-style-type: none"><li>Learn the basics of how and why modern encryption works</li><li>Learn how big data is changing our world</li></ul>

# *What do you want to make?*



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

**Enroll in  
Computer Science Principles**



# “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?  
Ask your counselor about computer  
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**

*What do you want to make?*  
Ask your counselor about computer  
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  
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company

*What do you want to make?  
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C O  
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