WELCOME TO

Computer Science Principles

Spring 2018

Hello, and welcome to the Code.org family!

Over the next year you will be part of a new wave of facilitators leading Computer Science Principles (CS Principles) Professional Learning for teachers in classrooms around the country. Thanks to leaders like you, teachers and students 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 will lead new CS Principles teachers as they learn to work with this curriculum, exploring the Big Ideas of Computer Science like the internet, programming, and abstraction, while developing strong computational thinking practices.

The Facilitator Development Program you're about to embark on will help you develop the content knowledge, facilitation practices, and supportive peer network needed to successfully lead professional learning for this course. With your support, teachers will leave the Professional Learning Program ready to prepare their students with deep understanding of the ways computer science shapes our world.

We'll be in touch with more information about your Facilitator Development program throughout the spring, as we approach your summer training. In the meantime, please check out the enclosed digital resources to learn more about the course and the teacher Professional Learning Program. You'll also find tips and tools teachers are using to help spread the word about the CS Principles course to students, fellow educators, and school administrators. Whether you are teaching the course next year or not, we hope you will find the resources useful when leading teachers through their Professional Learning Program experience.

Inside, you'll find:

1. Facilitator Development Program overview: learn more about what you're undertaking this year!
2. Curriculum overview: all about what students will learn in the course
3. Professional Learning overview: learn more about the year-long teacher program
4. School counselor flyer: if you're teaching the course, ask your counselor to hang this enrollment flyer in their office
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. Student recruitment tips: tricks to encourage students to sign up for this course
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 see you soon!

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

2018-19 Facilitator Development Program Overview: CS Principles

New CS educators need top-notch facilitators!

Code.org recognizes the need for highly-qualified, flexible, and knowledgeable facilitators who can develop and support the next generation of computer science (CS) educators. That's why we're excited to welcome you to the 2018-19 Facilitator Development Program!

What is the Facilitator Development Program?

The Code.org Facilitator Development Program is an intensive professional learning program for facilitators of CS professional development. This program is designed to prepare facilitators to provide high quality local professional development on a specific Code.org computer science course.

What does a Code.org Facilitator do?

As a Code.org Facilitator you will...

- Join a nationwide community of leaders and facilitators in the CS education space
- Participate in in-person and online facilitator development
- Collaborate with your local Code.org Regional Partner to deliver professional development to teachers on Code.org's courses, with on-going support from Code.org and the facilitator community
- Partner with Code.org to shape the future of professional learning for thousands of new CS educators across the US and beyond

Code.org Facilitators are...

CS Champions

- Enthusiastic supporter of K-12 CS education and strong connection to an equity-focused mission

Equity-Focused

- Committed to supporting access to quality CS education for all students
- Believes all teachers can teach CS

Growth-Minded

- Strong desire to develop as a facilitator and leader within the CS education community
- Willingness to give and receive feedback in a collaborative working environment

Experienced Educators and Knowledgeable about Content

- Prior or current teaching experience
- Strong background in curriculum focus area, preferably through past teaching experience with the specific course
- High level of comfort with technology, including virtual meeting tools and experience with Google suite

Engaging Leaders

- High level of emotional intelligence and empathy for learners at varying ability levels
- Ability to "think on your feet" and make decisions that are in the best interest of the audience while maintaining fidelity to the program
- Motivated self-starter

Skilled Providers of Professional Learning

- Demonstrated ability to effectively engage and co-lead learning experiences for adults
- Experience in planning, leading, and assessing the effectiveness of K-12 teacher professional development

Code.org Facilitators participate in a one-year development program and a multi-year partnership!

Participants take part in a holistic, high-quality facilitator development program, tailored to their curriculum focus area, that provides hands-on preparation for the following core competencies:

- CS content-area knowledge appropriate for the specific curriculum
- Curriculum philosophy and application of best practices
- Effective practices and strategies for facilitating transformative professional development
- Mastery of Code.org facilitator materials, tools, and other supports available to run successful workshops

Participants also receive the following benefits:

- Competitive pay for meeting program commitments
- Travel and accommodations are provided for all required in-person Facilitator Development Program events. Requirements vary by program (see below)
- Access to Code.org facilitator resources for your curriculum focus area (including how-tos, session plans, and tools you can use to successfully deliver content to teachers)
- Access to a digital badge for your email signature which certifies that you are an officially-trained Code.org facilitator

Computer Science Principles Facilitator Development Program

2018-19 Cohort

The Computer Science (CS) Principles Facilitator Development Program is designed to prepare US-based trainers to deliver Code.org CS Principles Professional Learning workshops to educators teaching grades 9-12 grade in their local region. Facilitators participate in a one-year development program, and are expected to commit to a multi-year relationship with Code.org and its Regional Partners.

Program Requirements

At the end of the Code.org Facilitator Development Program, CS Principles facilitators will have gained:

- Expertise with the content and philosophy of the **Code.org CS Principles course**.
- Deep familiarity with **the Code.org Professional Learning model**, through past experience participating in and/or facilitating Code.org professional learning workshops, as well as through ongoing in-person and virtual trainings as a member of the 2018-19 facilitator development cohort.
- Strong background in best practices for preparing high school teachers and experience preparing Advanced Placement teachers.

Program Commitments

Facilitators must commit to meeting or exceeding the following program commitments:

Summer 2018 Facilitator Development - 7 days; lodging, meals, and travel (as needed) provided by Code.org

- **TeacherCon or local summer workshop:** Facilitators will attend and participate in one 5-day workshop, location and dates assigned based on Regional Partner
- **Facilitator-in-Training Workshop:** Facilitators will attend and participate in one 2-day workshop with other facilitators to prepare for the academic year facilitation.
    - June 23-24, 2018 or July 28-29, 2018

Academic Year Facilitator Development, Support and Impact (2018-2019)

- **Reach & Impact:** Facilitators will work with their local **Regional Partner** and their co-facilitator(s) to plan and lead at least four 1-day, in-person workshops for local teachers in your region (typically on Saturday).
- **Deeper Learning:** Facilitators will demonstrate curriculum proficiency, prepare for academic year workshops, and become more comfortable answering teacher questions by completing and submitting written reflections and peer reviews throughout the school year.
- **On-going development, support and mentorship:** Facilitator will participate in virtual on-going development and support, including office hours and workshop agenda prep calls, as well as share feedback with Code.org to help improve the program.
- **Spring Local Leads Training:** Facilitators will attend a weekend workshop to prepare to run a local week-long CS Principles workshop in their region (2-3 days; lodging, flight, and meals provided by Code.org).
- **Program Compliance:** Facilitators will fulfill the above listed commitments and remain in good standing with their Code.org Regional Partner.

Summer 2019 Facilitator Impact, and beyond (2019-2020)

- **CS Principles week-long summer workshop:** Facilitators will run a week-long local CS Principles workshop in their region for new teachers teaching CS Principles in the 2019-20 school year.
- **Reach & Impact:** Facilitators will work with their local **Regional Partner** to plan and co-lead at least four 1-day, in-person workshops for local teachers in your region in the 2019-20 school year (typically on Saturday).

Other Commitments: Facilitators are required to abide by the terms of the Code.org Facilitator Development Program, including: Following Code.org guidelines on use of trademarked and Creative Commons-licensed content, respecting our Code.org Privacy Policy and using Code.org Workshop Dashboard for reporting, scheduling, and communication.

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®) course designed to broaden participation in computer science. Code.org is recognized by the college board as an endorsed provider of AP® 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® Summer Institutes.

Engaging Curriculum

Our team designed the AP® 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® 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."

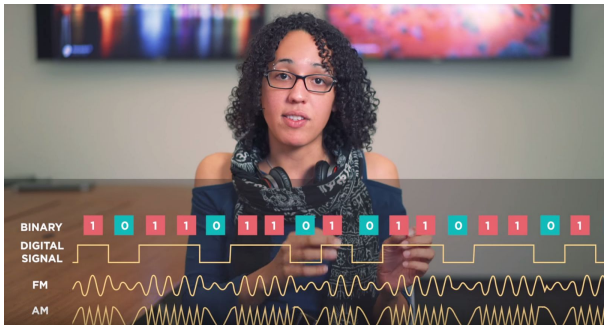
"I didn't have much background in computer science, and thought: *Let's try it.* I found out I loved it!"

- 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

Unit 1 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.
Unit 2 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.
Unit 3 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.
Unit 4 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.
Unit 5 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.
AP® Performance Tasks	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

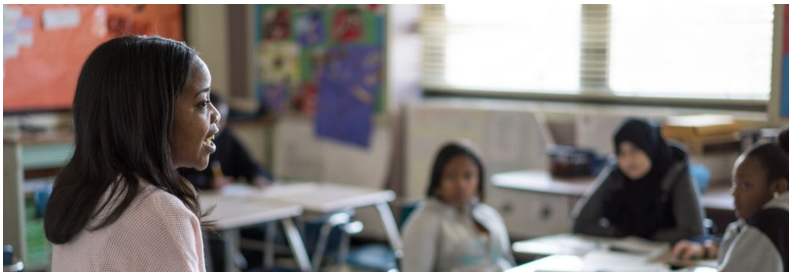
Professional Learning Programs Overview
CS Principles and CS Discoveries

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)**
• 5 days, in-person at a central location (travel may be required)	• 4 one-day, in-person sessions • Continued 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:

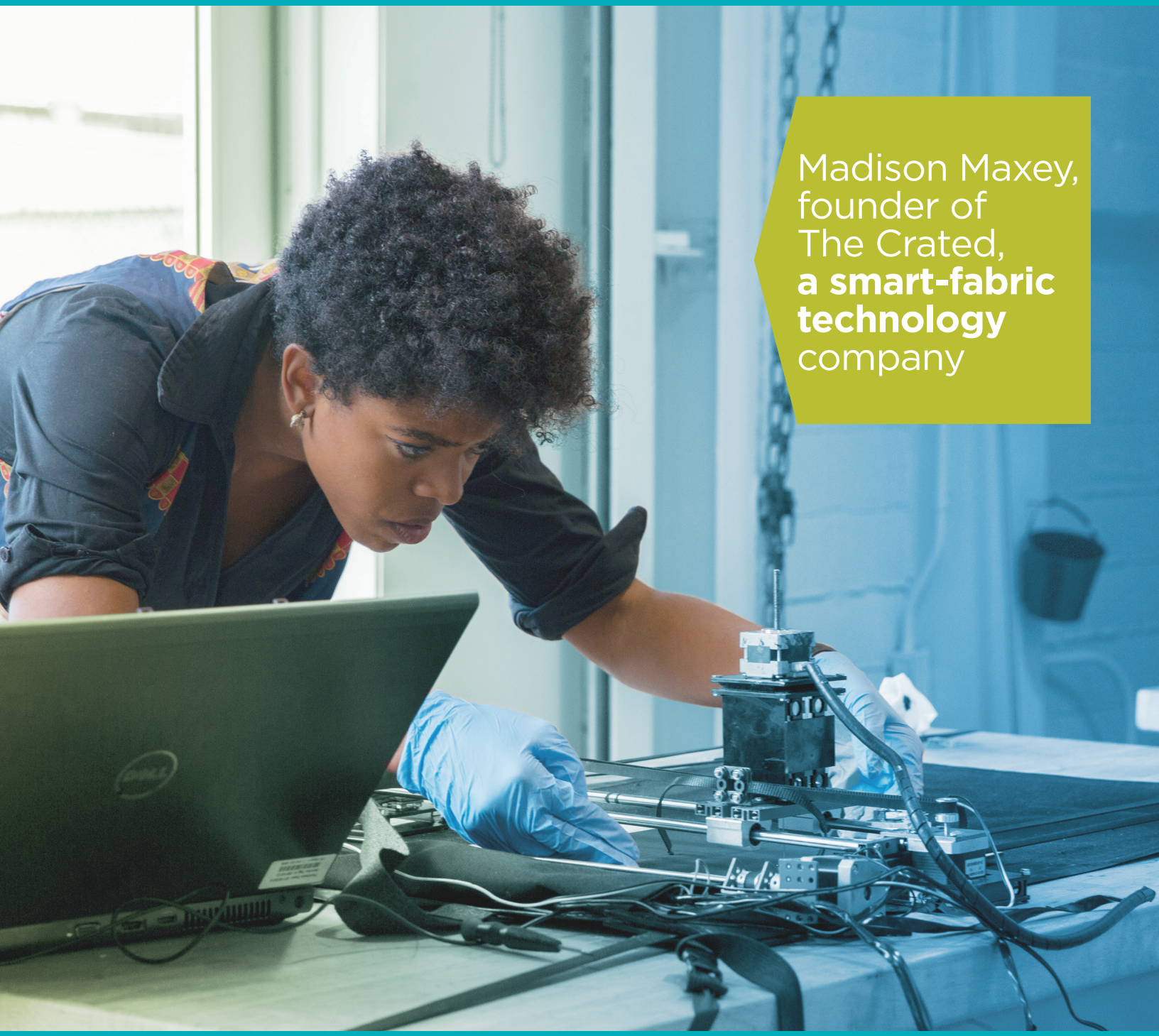
Participants attend local, 1-day quarterly workshops throughout the following academic year. These meetings are hosted by Code.org Regional Partners and run by local, Code.org-trained facilitators. They focus on the essential elements of the course, such as teaching new content, keeping the classroom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

What do you want to make?



Enroll in Computer Science Principles

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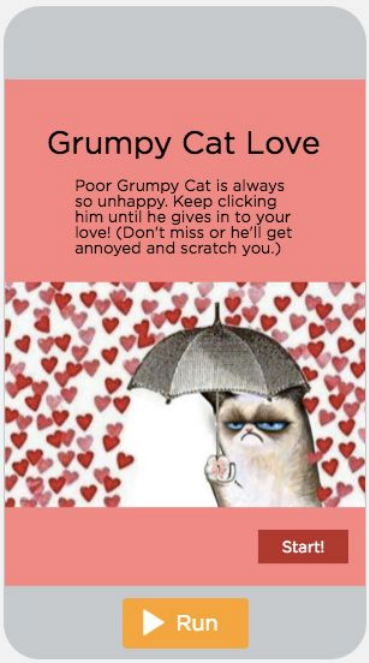
Why sign up for Computer Science Principles?

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

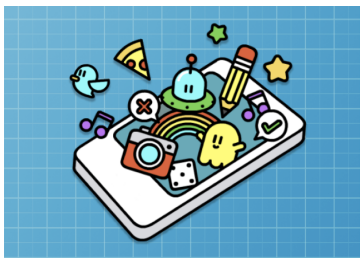
- Learn to program in the JavaScript language with turtle programming in Code.org's App Lab
- Using the general principles of algorithms and program design, you'll create a series of real working apps that you can share with your friends!

The Internet

- Explore the Internet and its layers as you learn about the challenges of supporting a giant network like the world wide web
- Solve problems about encoding and transmitting data using Code.org's Internet Simulator

Data

- Learn the basics of how and why modern encryption works
- Learn how big data is changing our world



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**.

“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!

“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!

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

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

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