AP® Computer Science Principles - Grades 10-12
Computer Science Discoveries - Grades 6-9

The Michigan Math Science Centers Network and Code.org are bringing professional learning to educators to implement AP® Computer Science Principles and Computer Science Discoveries.

Professional Learning Program Benefits

Professional Learning for Teachers:

Summer, 2018: Teachers attend a 5-day in-person, conference-style workshop designed to introduce the CS concepts from the curriculum and core teaching practices. There are no registration costs for this event. Lodging, breakfast, lunch, and materials will be provided free of charge.

School Year, 2018-19: Teachers continue with 4 job-embedded workshops held in Michigan and online modules focused on supporting teachers in their first year of implementation.

Curriculum Resources:

The curriculum supports teachers new to the discipline with daily lesson plans made up of inquiry-based activities, videos, assessments, and computing tools that empower students to discover core computing concepts.

AP® Audit Information:

For the AP® Computer Science Principles Course, Code.org is recognized as an endorsed provider for AP® Computer Science Principles. This designation offers access to an AP® CSP syllabus pre-approved by the College Board's AP® Course Audit.

Gaining Access

Schools will be asked to submit documentation showing AP® Computer Science Principles or at least 1 semester of Computer Science Discoveries as a schedule course for Fall of 2018 when their teachers apply.

* All teachers attending the professional learning program are expected to instruct the corresponding Computer Science Course in 2018-19 school year.

In the United States
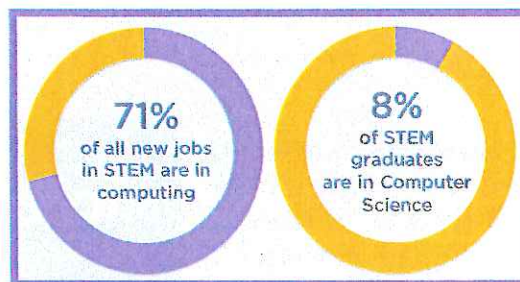
71% of all new jobs in STEM are in computing

8% of STEM graduates are in Computer Science

MMSCN

Code.org and Michigan Mathematics and Science Centers Network are 501(c)3 non-profit organizations dedicated to expanding participation in STEM education.

Code.org® Regional Partner

Computer science drives job growth and innovation throughout our economy and society. Computing occupations are the #1 source of all new wages in the United States. This makes Computer Science one of the most in-demand college degrees.

Professional Learning Details

	Summer 2018		School Year 2018-19
Dates	July 8th-13th, 2018	**Dates**	TBD - Four Follow-up Workshops
Location	JW Marriott, Grand Rapids	**Location**	TBD - Regional Sites
Includes	Hotel room, breakfast, lunch, & materials	**Includes**	Lunch & materials
Cost	No registration fees	**Cost**	No registration fees

Available to any teacher in Michigan

Code.org and the Michigan Math and Science Centers Network (MMSCN) are dedicated to providing the opportunity for access to AP® Computer Science Principles and Computer Science Discoveries to any teacher in Michigan. Through grant funds, we will provide support and professional learning to teachers across the state to become proficient AP® Computer Science Principles and Computer Science Discoveries instructors.

Be a part of the movement! 100 teachers participated last year with rave results! Limited seats available, apply ASAP!

"I feel comfortable going into my class every day because the materials are easy to use and engaging for my students."

Ray Herek – AP CSP Educator
Williamston HS, Michigan

Funding for this program is supported by a grant from the MiSTEM Advisory Council & Code.org

For More Information
MiCoding.weebly.com
Opportunity to subscribe for updates and application

Applications open in January, 2018

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 Code.org Regional Partner

Computer Science Principles

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

Advanced Placement Computer Science for All Students!

Code.org's Computer Science Principles (CSP) 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® CSP curriculum and professional development. The course has been reviewed by the College Board and is pre-approved to pass the course audit process. Our endorsed professional development is held to (and goes beyond) the standards of AP® Summer Institutes. The official AP® exam launches this 2016-17 school year.

Engaging Curriculum

Our team designed the AP® CSP 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 the CS concepts from the curriculum, AP® elements of the course, and core teaching practices. (Travel may be required.)

School Year: Teachers continue with job-embedded workshops and online modules focused on supporting their first year of implementation.

Hundreds of teachers have participated. The majority say, "It's the best professional development I've ever attended."

"Hands-down the best PD I've ever been to. This week modeled the equity that we will bring to our CSP classrooms."

"Pretty much every student wants to take the next CS courses we'll offer."

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 Studio — 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
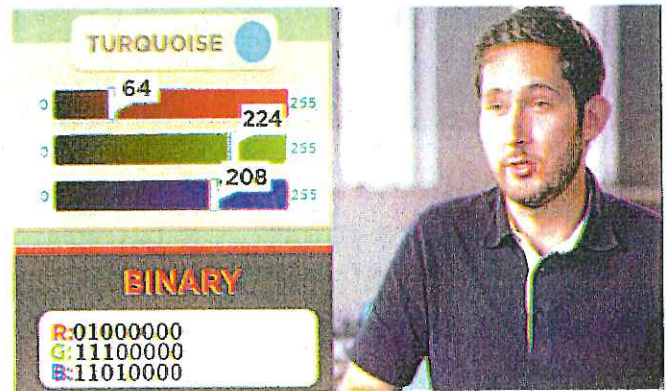
CSP Unit Overview

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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 digital 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 to program in 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.
Unit 6: Performance Tasks	Design a project plan, then work on and complete your AP® Performance Task projects for submission to the College Board.

Apply now for professional learning!
http://code.org/csp/pd

For curriculum, videos, and support documents, visit:
http://code.org/csp

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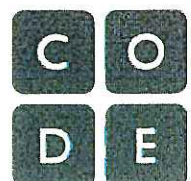
Computer Science Discoveries

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, and prepare 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 that empowers students to create authentic artifacts and engage with computer science as a medium for creativity, communication, problem solving, and fun.

K-12 curriculum pathway

CS Discoveries fits naturally between our CS Fundamentals course (for K-6th 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.

Designed for equity

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. That's why we designed this course from the ground up to be accessible and engaging for all students, regardless of background or prior experience.

	Elementary		Middle		High
K 1 2 3 4 5 6 7 8 9 10 11 12					
CS Fundamentals					
			CS Discoveries		
					CS Principles

Flexible implementation

We built the CS Discoveries curriculum for students in grades 7-9, 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.

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 involves:
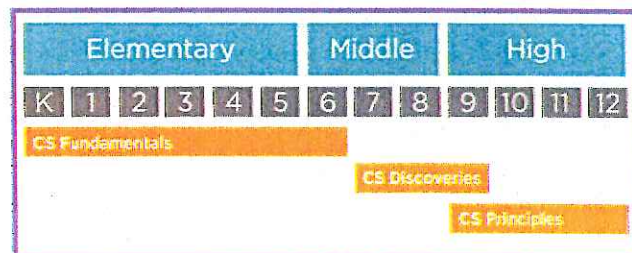
- **Summer:** Teachers attend a 5-day in-person, conference style workshop designed to introduce CS concepts from the curriculum and core teaching practices. (Travel may be required.)

- **School Year:** Teachers continue with job-embedded workshops and online modules 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 Studio, a learning platform that organizes lesson plans and activities with student and teacher dashboards

Curriculum tools:

- **App Lab:** JavaScript programming environment in Code Studio, designed for creating event driven web apps with block-to-text workspace and debugging capabilities
- **Game Lab:** JavaScript programming environment in Code Studio, 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 Unit 6: Internet of Things
- **Maker APIs:** Enables students to program their Circuit Playground boards right from App Lab with easy-to-understand JavaScript commands and blocks
- **Web Lab:** HTML/CSS programming environment in Code Studio used for website development
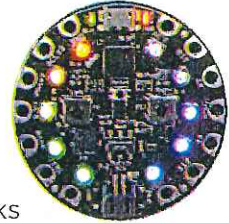
CS Discoveries unit overview

Semester 1: Exploration and Expression

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

Semester 2: Innovation and Impact

Unit 4: Problem Solving 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: The Internet Data and Society	Collect, analyze, and visualize data using a spreadsheet tool. Investigate how data is collected online and weigh the potential benefits and harms to individuals and society at large.
Unit 6: Programming Internet of Things	Explore the relationship between hardware and software while building interactive projects on Adafruit's Circuit Playground.

Learn more: https://code.org/csd

Monthly updates: https://code.org/educate/csd/status