

Welcome to Computer Science Principles

Code.org's Computer Science Principles (CSP) curriculum is a **full-year, rigorous, entry-level course** that introduces high school students to the foundations of modern computing. The course covers a broad range of foundational topics such as programming, algorithms, the Internet, big data, digital privacy and security, and the societal impacts of computing. All teacher and student materials are provided for free online and can be accessed at code.org/csp.

Curriculum Overview and Goals

Computing affects almost all aspects of modern life, and all students deserve an education that prepares them to pursue the wide array of opportunities that computing has made possible. This course seeks to provide knowledge and skills to meaningfully participate in our increasingly digital society, economy, and culture.

Unit	Description
Unit 1 (14 lessons) Digital Information	Explore how computers store complex information like numbers, text, images and sound and debate the impacts of digitizing information.
Unit 2 (9 lessons) The Internet	Learn about how the Internet works and discuss its impacts on politics, culture, and the economy.
Unit 3 (11 lessons) Intro to App Design	Design your first app while learning both fundamental programming concepts and collaborative software development processes.
Unit 4 (15 lessons) Variables, Conditionals, and Functions	Expand the types of apps you can create by adding the ability to store information, make decisions, and better organize code.
Unit 5 (18 lessons) Lists, Loops, and Traversals	Build apps that use large amounts of information and pull in data from the web to create a wider variety of apps.
Unit 6 (6 lessons) Algorithms	Design and analyze algorithms to understand how they work and why some are considered better than others.
Unit 7 (11 lessons) Parameters, Return, and Libraries	Learn how to design clean and reusable code that you can share with a single classmate or the entire world.
Unit 8 (18 lessons) Create PT Prep	Practice and complete the Create Performance Task (PT).
Unit 9 (9 lessons) Data	Explore and visualize datasets from a wide variety of topics as you hunt for patterns and try to learn more about the world around you.
Unit 10 (14 lessons) Cybersecurity and Global Impacts	Research and debate current events at the intersection of data, public policy, law, ethics, and societal impact.

AP Endorsed

Code.org is recognized by the College Board as an endorsed provider of curriculum and professional development for AP[®] Computer Science Principles (AP CSP). This endorsement affirms that all components of Code.org CSP's offerings are aligned to the AP Curriculum Framework standards, the AP CSP assessment, and the AP framework for professional development. Using an endorsed provider affords schools access to resources including an AP CSP syllabus pre-approved by the College Board's AP Course Audit, and officially-recognized professional development that prepares teachers to teach AP CSP.



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CS Principles Course At-A-Glance

Unit 1 - Digital Information

wk 1	Welcome to CSP
	Representing Information
	Circle Square Patterns
	Binary Numbers
2	Overflow and Rounding
	Representing Text
	Black and White Images
	Color Images
3	Lossless Compression
	Lossy Compression
	Intellectual Property
	Project - Digital Information Dilemmas - Parts 1-2
Assessment Day	

Unit 2 - The Internet

wk 1	Welcome to the Internet
	Building a Network
	The Need for Addressing
	Routers and Redundancy
2	Packets
	HTTP and DNS
	Project - Internet Dilemmas - Parts 1-2
	Assessment Day

Unit 3 - Intro to App Design

wk 1	Intro to Apps
	Introduction to Design Mode
	Project - Designing an App - Parts 1-2
	The Need for Programming languages
2	Intro to Programming
	Debugging
	Project - Designing an App - Parts 3-5
	Assessment Day

Unit 4 - Variables, Conditionals, and Functions

wk 1	Variables Explore
	Variables Investigate
	Variables Practice
	Variables Make
2	Conditionals Explore
	Conditionals Investigate
	Conditionals Practice
	Conditionals Make
3	Functions Explore/Investigate
	Functions Practice
	Functions Make
	Project - Decision Maker App - Parts 1 - 3
Assessment Day	

Unit 5 - Lists, Loops, and Traversals

wk 1	Lists Explore
	Lists Investigate
	Lists Practice
	Lists Make
	Loops Explore

Unit 5 - Continued

2	Loops Investigate
	Loops Practice
3	Loops Make
	Traversals Explore
4	Traversals Investigate
	Traversals Practice
3	Traversals Make
	Project - Hackathon - Parts 1-3
4	Project - Hackathon - Parts 4-5
	Assessment Day

Unit 6 - Algorithms

wk 1	Algorithms Solve Problems
	Algorithm Efficiency
	Unreasonable Time
	The Limits of Algorithms
2	Parallel and Distributed Algorithms
	Assessment Day

Unit 7 - Parameters, Return, and Libraries

wk 1	Parameters and Return Explore
	Parameters and Return Investigate
	Parameters and Return Practice
	Parameters and Return Make
2	Libraries Explore
	Libraries Investigate
	Libraries Practice
	Project - Make a Library - Parts 1-3
3	Assessment Day

Unit 8 - Create PT Prep

wk 1	Create PT - Review the Task
	Create PT - Make a Plan
	Create PT - Complete the Task (12 total class hours)
2	Create PT - Complete the Task (continued)
3	Create PT - Complete the Task (continued)

Unit 9 - Data

wk 1	Learning from Data
	Exploring One Column
	Filtering and Cleaning Data
	Exploring Two Columns
2	Big, Open, and Crowdsourced Data
	Machine Learning and Bias
	Project - Tell A Data Story - Parts 1-2
Assessment Day	

Unit 10 - Cybersecurity and Global Impacts

wk 1	Project - Innovation Simulation - Parts 1-2
	Data Policies and Privacy
	The Value of Privacy
2	Project - Innovation Simulation - Part 3
	Security Risks - Part 1-2
3	Project - Innovation Simulation - Part 4
	Protecting Data - Parts 1-2
3	Project - Innovation Simulation - Parts 5-7
	Assessment Day