Today’s Agenda

- Largest AP® Course Launch
- Course and Exam Details
- Engaging All Students
- Become an AP CSP Teacher
- Q&A
Largest AP Course Launch
Development of AP CSP

AP Computer Science A, which focuses on JAVA, has been a long-standing AP course that attracts students who know they want to pursue computer science.

We developed AP CSP to provide a broad introduction to computer science, to reach more students and help them understand all aspects of computer science, including the creative aspects of programming.

Goals

• Make computer science more engaging and accessible.
• Reach students underrepresented in computer science.
• Better prepare students for the job market of today and tomorrow.

A Collaborative Process

• Partnership with the National Science Foundation since 2008.
• Educators from over 50 leading high schools and higher education institutions piloted the course.
• Over 750 colleges and universities have indicated that they will create policies to grant credit, placement, or both for the exam.
Ever-Increasing Workforce Demand

About a half a million jobs in computer and information technology will be added by 2024. That’s a 12% growth in the tech industry, faster than the average for all occupations.

A Computer Science Background Improves Earning Potential

A computer science major can earn 40% more than the average college student.

Source: Code.org
AP Computer Science Principles adoption has **doubled** since launch year.

- **In 2016**
  - 2,500 SCHOOLS
  - 2,700 TEACHERS

- **In 2019**
  - 4,900 SCHOOLS
  - 5,400 TEACHERS
Annual AP CS participation has more than **doubled** since the launch of AP CSP in 2017.
Annual AP CS participation of Female students has more than **tripled** since the launch of AP CSP in 2017.
Annual AP CS participation of Black students has more than quadrupled since the launch of AP CSP in 2017.
Annual AP CS participation of Latinx students has more than **quadrupled** since the launch of AP CSP in 2017.

<table>
<thead>
<tr>
<th>Year</th>
<th>CSAB</th>
<th>CSA</th>
<th>CSP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>1,241</td>
<td>227</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>1,491</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>1,779</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>1,952</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>2,452</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>3,319</td>
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<td></td>
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<tr>
<td>2015</td>
<td>4,360</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>6,368</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>8,334</td>
<td>6,647</td>
<td>14,981</td>
</tr>
<tr>
<td>2018</td>
<td>14,020</td>
<td>7,077</td>
<td>21,097</td>
</tr>
<tr>
<td>2019</td>
<td>18,780</td>
<td>7,854</td>
<td>26,634</td>
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</table>
Student Enthusiasm on AP CSP

“The collaborative and exploration aspect of the curriculum helped me to create an atmosphere in which the students were truly interested and excited to learn.”

“Student enthusiasm ... they loved AP CSP. Several said it was the best class they had ever taken.”

“Student engagement and interest in the subject matter was amazing.”

“One of the aspects that went well this year is the student engagement. ... I was very surprised when some of them said it was their favorite class, and it was from students I did not expect.”
Course and Exam Details
About the Course

AP Computer Science Principles offers a multidisciplinary approach, focusing on the creative aspects of programming.

Students will learn:

- Creative problem solving.
- How to apply computational processes to analyze large data sets.
- Programming.
- How the internet works and important cyber security issues.
- Impacts of computing innovations.

“It is an exploratory class that my students say is the best part of their day. They have shown creativity, ingenuity, and a collegiality collaboration I have not had in other courses I’ve taught.”

— Becky Byer, AP Computer Science Principles Teacher from Wyoming
# 2 AP Computer Science Courses

<table>
<thead>
<tr>
<th>Curricular Focus</th>
<th>AP Computer Science A</th>
<th>AP Computer Science Principles</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Problem solving and object-orientated programming</td>
<td>Big ideas of computer science (including programming)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Programming Language</th>
<th>AP Computer Science A</th>
<th>AP Computer Science Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Java</td>
<td>Teachers choose</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Assessment Experience</th>
<th>AP Computer Science A</th>
<th>AP Computer Science Principles</th>
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</table>
|                      | • Multiple-choice and free-response questions | • Multiple-choice exam
|                      |                       | • One performance task administered by the teacher, and students submit digital artifacts |
Conceptual Framework: 5 Big Ideas

Big Ideas
1. Creative Development
2. Data
3. Algorithms and Programming
4. Computer Systems and Networks
5. Impact of Computing
### AP CSP Endorsed Providers in 2019-20 Academic Year

There are AP CSP endorsed providers, offering AP CSP resources and professional development across the country.

- Apple
- Beauty and Joy of Computing
- CodeCombat
- CodeHS
- Code.org
- CS Matters

- CS50
- Edhesive
- Mobile CSP
- Project Lead The Way
- UTeach
- Zulama by Carnegie Learning

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*Endorsed Providers for 2020-21 will be announced in March*
A New Approach to AP Assessment

### Through-Course Assessment (Weight = 30%)

<table>
<thead>
<tr>
<th>Performance Task</th>
<th>Timing</th>
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<tbody>
<tr>
<td>Create: Applications from Ideas</td>
<td>At least 12 hours in class</td>
</tr>
</tbody>
</table>

### End-of-Course AP Exam (Weight = 70%)

<table>
<thead>
<tr>
<th>Item Type</th>
<th>Number</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Choice (Single- and multiple-select)</td>
<td>70 questions</td>
<td>120 minutes</td>
</tr>
<tr>
<td>Nonstimulus Multiple Choice</td>
<td>65 questions</td>
<td></td>
</tr>
<tr>
<td>(Single- and multiple-select)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stimulus Multiple Choice</td>
<td>5 questions</td>
<td></td>
</tr>
<tr>
<td>(Single-select)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Create Performance Task

Students create a program to display their knowledge of programming techniques by:

- Describing the purpose of their program.
- Developing a data abstraction by using a list and describing how it is being used to manage complexity.
- Developing their own procedures with parameters that contains an algorithm that uses sequencing, selection, and iteration.
- Explaining how the algorithm the procedure uses functions.
- Determining potential call values for the procedure and describing the functionality that would be produced.

Updated for 2020-21
Course and Exam Resources

collegeboard.org/cspresources

- AP Course Audit opens March 2, 2020
- Course and Exam Description is the core document for the course that clearly lays out the course content and describes the assessment.
- AP Classroom Question Bank with Formative Assessments offer daily practice and personalized feedback to students throughout the year.
- Scoring Guidelines and Notes with Sample Student Responses
- Full Practice Exam is accessible when AP course authorization has been received.
- Student Site – collegeboard.org/csp
- Recruitment Toolkit – collegeboard.org/cspresources
Engaging All Students
The College Board is honoring schools who reached 50% or higher female representation in either of the two AP computer science courses, or whose percentage of female CS students met or exceeded that of the school’s female population.

685 schools won an AP CS Female Diversity Award.
- 490 - AP CSP
- 167 - AP CSA
- 28 - both AP CSP and AP CSA
“Prior to taking AP CSP, I thought computer science would be boring, was ‘for boys,’ was weird, full of just video games, and definitely would not be a part of my future if I had a choice. I ultimately chose to take AP CSP and AP CSA because it would allow me to not have to take any computer science in college.

A year later, I have transformed into a completely different person who is interested in pursuing computer science in college, and I was inspired to create a computer science club for middle school girls in my community.

This AP class has honestly changed my life. Thank you.”

– Katherine C., Rising Senior
Kennesaw Mountain HS Student, Kennesaw, GA
Jamila Mitchell

Evans High School • Orlando, FL

- 2500 students
- 99% of student population is of a minority ethnicity
- One of the largest percentages of Haitian students in Orlando
- 99% eligible for free and reduced lunch
- 39% visual and performing arts participation (up from 25% the previous year but below district average of 47%)
- Reading and math levels almost half of district averages
- 41% suspension rate (district average of 13%)
Changing the Perspective of CS

Student-Centered Opportunities

"I had taken many computer classes before, yet none were as engaging as the countless lessons learned in CSP."

"As a college student currently pursuing a degree in computer science, CSP showed me a future in which I otherwise would have never imagined."

"But I don't know anything about computer science or technology."

That's the point!

CSP creates a discovery-based platform for teachers and students to learn how computing innovations work and impact our society.

It's not about knowing everything walking in the door – it's about being curious about everything to explore the world of computer science.
Student Success

Confident Problem-Solvers

Students that take CSP are more likely to continue studies in computer science, including CSA and IB CS.

The increased confidence gained from CSP leads to higher success in other computer science courses and even in core classes.

• Started with only one computer science course – now have an entire computer science program including AP and IB courses
• CSP has one of the highest pass rates out of all other AP courses at my school
• More students pursuing computer science in college and as a career
• Increased participation in competition, internship programs, and extracurricular opportunities
Recruiting Students for AP CSP

- Online resources to reach and engage students
- Empower students as ambassadors for computer science
- Host CS-specific events and take advantage of school events
- Remove barriers and partner with guidance counselors to identify and target students
Why AP CSP?

Computer science skills can help students:

• Create apps to track health data and provide real-time suggestions for ways to live healthier.

• Program models and experiments that help answer biology, physics, and sociology questions.

• Design and build robots for use in fields like manufacturing, surgery, research, and transportation.

• Create a website to raise awareness for causes you care about.

Students who’ve taken AP CSP say that it:

• Prepares them for many different jobs.

• Enables them to apply computer science to disciplines that interest them.

• Gives them an opportunity to work on problem solving with classmates.
Success Stories

• Students enroll in CSA who wouldn’t have otherwise had they not had the opportunity to take CSP.

• They show an increased confidence and willingness to apply for scholarships, grants, and internships.

• Female students who only took CSP chose to major in CS.

• Female CS students participate in Girls That Code Club.
Become an AP CSP Teacher
Become an AP CSP Teacher

1. State certification requirements
2. Any teacher passionate about learning computer science can learn to teach AP CSP.
3. Background of Teachers:
   - Art/Music
   - Business
   - English/Language Arts
   - Engineering
   - Computer Science/Technology
   - History
   - Mathematics
   - Science
   - Social Science
4. Administrative support is essential: multiple teachers in the same school to allow for collaboration and teaming.
Support for Teachers of All Levels of CS Experience

PD by Endorsed Providers
• Offers a full ready-to-use CSP curriculum, including lessons, unit plans, activities, and robust teacher PD (online and face-to-face).

AP Summer Institutes
• 70 weeklong professional development sessions.

AP One-Day Workshops
• Available now for new and experienced computer science teachers: collegeboard.org/cspworkshop.
Additional Support Is Available Online and in Person

**Online Courses on CSP Content and Instruction**
- Developed by Harvard University, University of California at Berkeley, Trinity College, Edhesive, and more.

**Teacher Partner Instruction**
- TEALS—teachers work in partnership with volunteers to teach CS and build the CS program.

**AP CSP Teacher Community**
- Access curriculum resources, instructional resources, lesson plans, and more.
AP CSE Toolkit

collegeboard.org/cspresources

Bringing AP Computer Science Principles to Your School

Whether for 3-D animation, engineering, music, app development, medicine, visual design, robotics, or political analysis, computer science is essential for today’s students and the workforce they’ll enter.

• Student Testimonial Videos
• Best Practices for Implementation
• Recruitment Strategies for Diverse Class
• Brochures for Students and Parents
• Posters
• Email and Presentation Templates
• Banner Ads
More questions?

Web: collegeboard.org/APCSP
Email: APCSP@info.collegeboard.org