Welcome!

Presenting today:

Maureen Reyes, Executive Director, AP Program Management
Today’s Agenda

• Why adopt AP CSP?
• Course and Exam Details
• Bring AP CSP to Your School
• Engaging All Students
• Q&A
Why adopt AP CSP?
Development of AP CSP

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.

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.
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
Computer science is everywhere.

New AI Model Tries to Synthesize Patient Data Like Doctors Do
A new approach developed by PNNL scientists improves the ... in a paper presented at the Data Science for Healthcare workshop at the ... PNNL computer scientist Khushbu Agarwal stresses AI will not replace doctors.
5 hours ago

Artificial Intelligence Generates Fashion Recommendations Virtually
Now one of the projects under UT-Austin’s Department of Computer Science, Fashion++, was created with a philosophy of making minimal ...
2 weeks ago

Machine Learning: How A Game Of Checkers Is Shaping Agriculture
Scientists are using computer simulations to conduct early tests to ... Machine learning in agriculture allows for a more accurate disease ...
1 month ago

Showing the Algorithms Behind New York City Services
A city councilman is pushing to make public the code behind city decisions on everything from school assignments to trash collection.
By Jon Dayer

AP Computer Science Principles adoption has **doubled** since launch year.

<table>
<thead>
<tr>
<th></th>
<th>In 2016-17</th>
<th>In 2018-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SCHOOLS</strong></td>
<td>2,500</td>
<td>4,900</td>
</tr>
<tr>
<td><strong>TEACHERS</strong></td>
<td>2,700</td>
<td>5,400</td>
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</table>
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.

<table>
<thead>
<tr>
<th>Year</th>
<th>CSAB</th>
<th>CSA</th>
<th>CSP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>3,202</td>
<td>659</td>
<td>3,861</td>
</tr>
<tr>
<td>2010</td>
<td>3,827</td>
<td>4,157</td>
<td>4,893</td>
</tr>
<tr>
<td>2011</td>
<td>4,157</td>
<td>4,893</td>
<td>5,807</td>
</tr>
<tr>
<td>2012</td>
<td>4,893</td>
<td>5,807</td>
<td>7,846</td>
</tr>
<tr>
<td>2013</td>
<td>5,807</td>
<td>7,846</td>
<td>10,778</td>
</tr>
<tr>
<td>2014</td>
<td>7,846</td>
<td>10,778</td>
<td>13,506</td>
</tr>
<tr>
<td>2015</td>
<td>10,778</td>
<td>13,506</td>
<td>15,717</td>
</tr>
<tr>
<td>2016</td>
<td>13,506</td>
<td>14,262</td>
<td>17,111</td>
</tr>
<tr>
<td>2017</td>
<td>13,328</td>
<td>14,262</td>
<td>27,590</td>
</tr>
<tr>
<td>2018</td>
<td>22,721</td>
<td>15,717</td>
<td>38,438</td>
</tr>
<tr>
<td>2019</td>
<td>31,458</td>
<td>17,111</td>
<td>48,569</td>
</tr>
</tbody>
</table>
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.
“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.”

“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.”

“Student engagement and interest in the subject matter was amazing.”
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>
</tr>
</thead>
<tbody>
<tr>
<td>Problem solving and object-orientated programming</td>
<td></td>
<td>Big ideas of computer science (including programming)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Programming Language</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Java</td>
<td>Teachers choose</td>
<td></td>
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<table>
<thead>
<tr>
<th>Assessment Experience</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>• Multiple-choice and free-response questions</td>
<td>• Multiple-choice exam</td>
<td>• One performance task administered by the teacher, and students submit digital artifacts</td>
</tr>
</tbody>
</table>
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

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>
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</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 (Single- and multiple-select)</td>
<td>65 questions</td>
<td></td>
</tr>
<tr>
<td>Stimulus Multiple Choice (Single-select)</td>
<td>5 questions</td>
<td></td>
</tr>
</tbody>
</table>
Bring AP CSP to Your School
Bring AP CSP to Your School

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.

1. Recruit Teachers and Add Course—teachers in disciplines other than CS can teach this course

2. Explore Endorsed Providers

3. Check Recommended Classroom Resources—make sure your school/classroom aligns with course recommendations

4. Recruit All Students—including females and students of color

5. Submit Course Audit Info—Course Audit open March 2, 2020

6. Stay Connected—sign up at collegeboard.org/CSPinterest
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): collegeboard.org/apcsp-providers

AP Summer Institutes
• 70 locations offering weeklong professional development sessions: collegeboard.org/cspworkshop

AP One-Day Workshops
• Available for new and experienced computer science teachers: collegeboard.org/cspworkshop

AP Mentoring
• Online, through-year, teacher-to-teacher support for AP teachers of all experience levels: collegeboard.org/apmentoring
Recruiting Teachers

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.
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.
Required Classroom Resources

- Ensure that each student has:
  - Access to course materials
  - Individual access to a computer (i.e., one student per computer) for an adequate time to complete course activities
  - Access to the internet as well as to the tools and programming environments used in the course

- Ideally, students have access to support multimedia explorations such as 3D graphics and sound.
Engaging All Students
Recruitment Strategies

- Recruit students from groups that represent your target demographic population.
- Invite students personally and create online resources to reach and engage students.
- Empower current and former computer science students as ambassadors for computer science.
- Reach out to parents; host CS-specific events and take advantage of school events.
- Remove barriers and partner with guidance counselors to identify and target students.
- Create enrollment policy for equity and diversity.
AP CSP Toolkit

collegeboard.org/cspresources

- Student Testimonial Videos
- Recruitment Strategies for a Diverse Class
- Brochures for Students and Parents
- Posters
- Email and Presentation Templates
- Banner Ads
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
More questions?

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