Today’s Agenda

• Largest AP® Course Launch
• Course and Exam Details
• Bring AP CSP to Your School
• Q&A
Largest AP Course Launch
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 500 colleges and universities have indicated that they will create policies to grant credit and/or placement for the exam
Largest AP Course Launch

- 49 STATES
- 2,700 TEACHERS
- 2,500 SCHOOLS
- 50,000 STUDENTS
AP CSP continued to grow in school-year 2017-18

- 50 STATES
- 4,100 TEACHERS
- 3,500 SCHOOLS
- 76,000 STUDENTS
AP Computer Science participation increased 135% since the launch of AP CSP in 2017

Note: 2007-2016 includes AP CSA exams; 2017-2018 includes AP CSA and AP CSP exams.
Number of Black or African American students taking an AP Computer Science exam increased by 265% since the launch of AP CSP.
AP Computer Science participation

Number of Hispanic or Latino students taking an AP Computer Science exam increased by 228% since the launch of AP CSP.
Number of female students taking an AP Computer Science exam increased by 183% since the launch of AP CSP.
“The collaborative and exploration aspect of the curriculum helped me to create a 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>Computer Science A</th>
<th>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>
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</table>

<table>
<thead>
<tr>
<th>Programming Language</th>
<th>Java</th>
<th>Teachers choose</th>
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<table>
<thead>
<tr>
<th>Assessment Experience</th>
<th>Computer Science A</th>
<th>Computer Science Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Multiple-choice and free-response questions</td>
<td></td>
<td>• Multiple-choice exam</td>
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<tr>
<td>• Two performance tasks administered by the teacher, and students submit digital artifacts</td>
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Curriculum Framework: Seven Big Ideas

Big Ideas
1. Creativity
2. Abstraction
3. Data and Information
4. Algorithms
5. Programming
6. The Internet
7. Global Impact
AP CSP Endorsed Providers

There are AP CSP endorsed providers, offering AP CSP resources and professional development across the country.
# A New Approach to AP Assessment

## Through-Course Assessment (Weight = 40%)

<table>
<thead>
<tr>
<th>Performance Task</th>
<th>Individual Weight</th>
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<tbody>
<tr>
<td>Explore: Implications of Computing Innovations</td>
<td>16%</td>
</tr>
<tr>
<td>Create: Applications from Ideas</td>
<td>24%</td>
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</tbody>
</table>

## End-of-Course AP Exam (Weight = 60%)

<table>
<thead>
<tr>
<th>Item Type</th>
<th>Number</th>
<th>Timing</th>
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</thead>
<tbody>
<tr>
<td>Multiple Choice (Single- and multiple-select)</td>
<td>74 questions</td>
<td>120 minutes</td>
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Performance Tasks

Explore Task
• Students choose a recent computational innovation to explore and display their understanding of its purpose and ethical impact by providing:
  • A computational artifact
  • A security, privacy, or storage concern
  • A beneficial and harmful effect of the innovation and how it affects society, culture, or economy
  • How the innovation uses the input, output, or transformation of data

Create Task
• Students create a program to display their knowledge of programming techniques by using:
  • Incremental and iterative processes
  • Mathematical and logical operators
  • Abstraction
  • Simple and complex algorithms
Course and Exam Resources

collegboard.org/cspresources

- AP Course Audit—opens May 21, 2019
- AP CSP Course and Exam Description
- Scoring Guidelines and Notes
- AP CSP Course Overview
- AP CSP Overview Modules
- Course Planning and Pacing Guides
- Full Practice Exam—accessible when AP course authorization has been received
- AP CSP Student Site
Implementing AP CSP
Riverside Brookfield High School

Enrollment and Demographics in 2017

Demographics

- White (55.5%)
- Black (5.7%)
- Hispanic (34.1%)
- Asian (1.7%)
- American Indian (0.2%)
- Two or More Races (2.7%)
- Pacific Islander (0.1%)

Grade Snapshot

- Grade 9: 382
- Grade 10: 400
- Grade 11: 407
- Grade 12: 430
AP at Riverside Brookfield HS

Culture of the School

- Open access
- All teachers encourage AP participation
- It’s not all about the pass rate

2017 Data

<table>
<thead>
<tr>
<th>Grade</th>
<th>Students Taking One or More AP Exams</th>
<th>Students Earning College Credit for One or More AP Exams</th>
<th>Total AP Exams Taken</th>
<th>Total AP Exams Resulting in College Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 10</td>
<td>131</td>
<td>113</td>
<td>242</td>
<td>197</td>
</tr>
<tr>
<td>Grade 11</td>
<td>184</td>
<td>152</td>
<td>603</td>
<td>442</td>
</tr>
<tr>
<td>Grade 12</td>
<td>239</td>
<td>202</td>
<td>1,212</td>
<td>780</td>
</tr>
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</table>
AP CSP at Riverside Brookfield HS

Growth of the Course

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Students</th>
<th>Female Students</th>
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</thead>
<tbody>
<tr>
<td>2015-16 Pilot Year</td>
<td>75</td>
<td>20 (27%)</td>
</tr>
<tr>
<td>2016-17</td>
<td>90</td>
<td>27 (30%)</td>
</tr>
<tr>
<td>2017-18</td>
<td>90</td>
<td>36 (40%)</td>
</tr>
<tr>
<td>2018-19</td>
<td>130</td>
<td>63 (49%)</td>
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AP CSP Course Implementation

1. Syllabus is locally created
   - Block programming (Blockly, App Inventor)
   - Text programming in Python on trinket.io
   - Many resources used from endorsed providers, including Code.org and Code HS.

2. Continually refining/rewriting the content

3. Scaffolding for Performance Tasks—always eyeing the goal

4. Practice, practice, practice
Ever-Increasing Workforce Demand

About 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
Classroom Visits

• CSP teachers give a 5-minute talk about why students should enroll
• What current students have to say
• Compelling, digestible content
• Flyers are handed out

Department Buy-in

• Math teachers push interested students to “just try it”
Why AP CSP?

Computer science skills can help students:

1. Create apps to track health data and provide real-time suggestions for ways to live healthier.
2. Program models and experiments that help answer biology, physics, and sociology questions.
3. Design and build robots for use in fields like manufacturing, surgery, research, and transportation.
4. 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 who may have taken CSA without CSP have a stronger foundation and have gone on to major in CS

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

• 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 participating in Girls That Code Club
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
Online Courses on CSP Content and Instruction

- Developed by Harvard University, University of California at Berkley, 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 CSP Toolkit

collegeboard.org/cspresources

Bringing AP Computer Science Principles to Your School

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

AP Computer Science Principles AP CSP is designed to attract a greater diversity of students to the field, focusing on creative problem solving, making concepts accessible to students of all backgrounds, and providing practical skills that students can use now.

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

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AP COMPUTER SCIENCE PRINCIPLES
Make Your Ideas Come to Life

Start Here
More questions?

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