



AP[®] + CTE

College and Career Ready

AP[®]

CollegeBoard

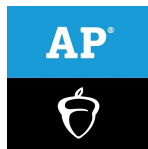
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Welcome and Introductions

Introductions



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College Board

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Why AP + CTE?

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From the McKinsey Global Institute

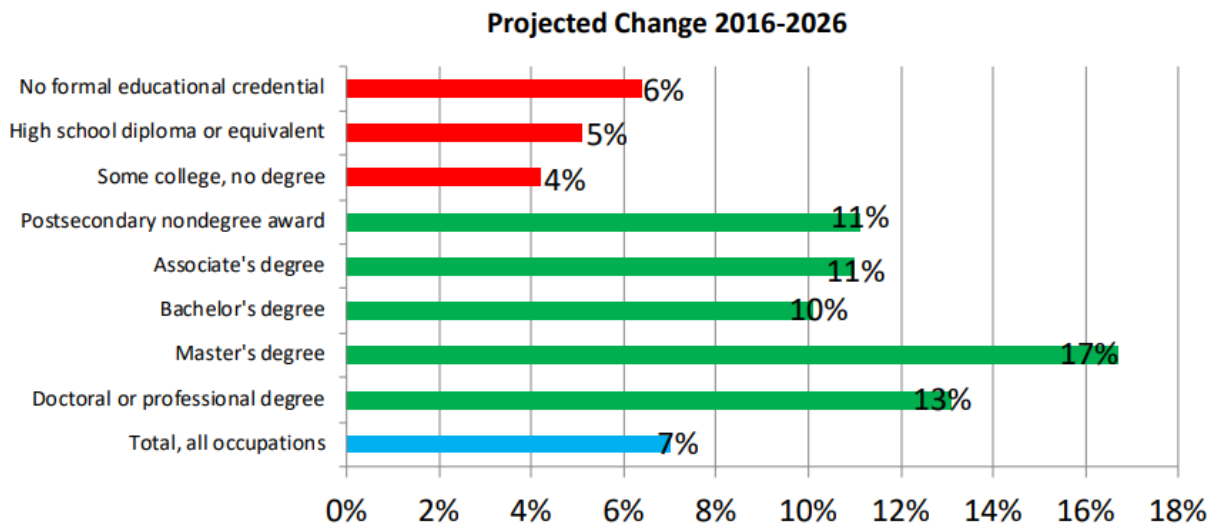
The McKinsey Global Institute predicts that the increased use of robotics and artificial intelligence by industry may require one-third of the U.S. workforce to change occupations by 2030, particularly workers in jobs that require a high school diploma or less.

“...many of the middle-income jobs of the past that required only a secondary education or less, and minimal training, will likely face significant displacement in an automated world.”

Source: Manyika, J., et al. (2017) *Jobs lost, jobs gained: What the future of work will mean for jobs, skills, and wages*. McKinsey Global Institute. Retrieved from: <https://www.mckinsey.com/featured-insights/future-of-work/jobs-lost-jobs-gained-what-the-future-of-work-will-mean-for-jobs-skills-and-wages>

What are the Fastest Growing Occupation Requirements?

Occupations that Require Some Postsecondary Education Are Projected to Grow Faster Than Average



Source: U.S. Bureau of Labor Statistics, U.S. Department of Labor. Occupations that Need More Education for Entry are Projected to Grow Faster Than Average, BLS.gov, last modified April 11, 2018. Retrieved from: <https://www.bls.gov/emp/tables/education-summary.htm>

About AP

The AP logo consists of the letters "AP" in a bold, white, sans-serif font, followed by a registered trademark symbol (®). It is set against a solid blue rectangular background.

About AP

College Board's Advanced Placement Program® (AP®) enables willing and academically prepared students to pursue college-level studies - with the **opportunity to earn college credit, advanced placement, or both** - while still in high school.

- The AP Program consists of 38 AP Courses
- Most courses have end of year multiple choice and free-response exams, while some are portfolio based
- Exam scores range from 1-5 and vast majority of colleges accept scores 3-5 for course credit

Why Colleges Trust AP

Rigorous enough to use as the basis for granting credit

1. The learning standards and curricular requirements for an AP course are **developed by a committee of college faculty** and expert AP teachers.
2. The achievement expectations for an AP Exam are **informed by national experts** in the field and validated by studies of how well AP students do in subsequent college courses.
3. AP Exams measure student knowledge and skills using **rigorous psychometric standards**.
4. AP Exams are **scored by college faculty and AP teachers** led by tenured higher education faculty members from across the country.



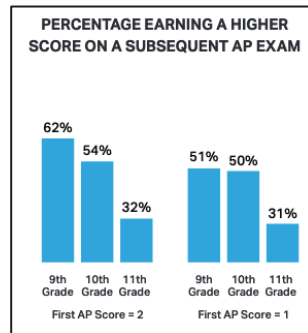
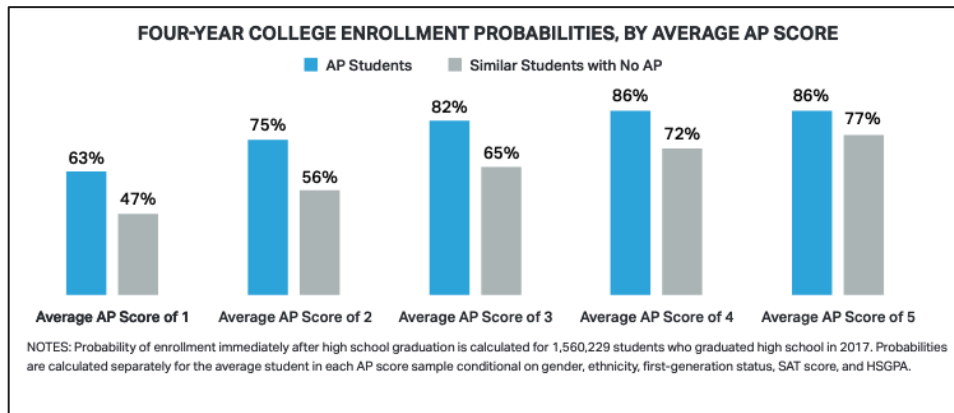
Advanced Placement Credits (AP)

Clemson University strongly endorses the College Board's Advanced Placement (AP) Program and consistently ranks among the top colleges and universities in the nation in the number of students reporting AP grades. Students who have participated in AP are attracted by, and in turn contribute to, the superior academic environment at Clemson. Clemson University credit is awarded for grades of 3, 4 or 5 on AP examinations.

New Findings on the AP Experience

No matter the score, completing an AP Exam has benefits.

- AP students are more likely to enroll in a four-year college compared to academically similar students who did not take an AP in school.
- Students who earn AP scores of 2 are well prepared to succeed in introductory college coursework.
- Many students who first earn a 1 or 2 on an AP Exam will take further AP courses and score higher.



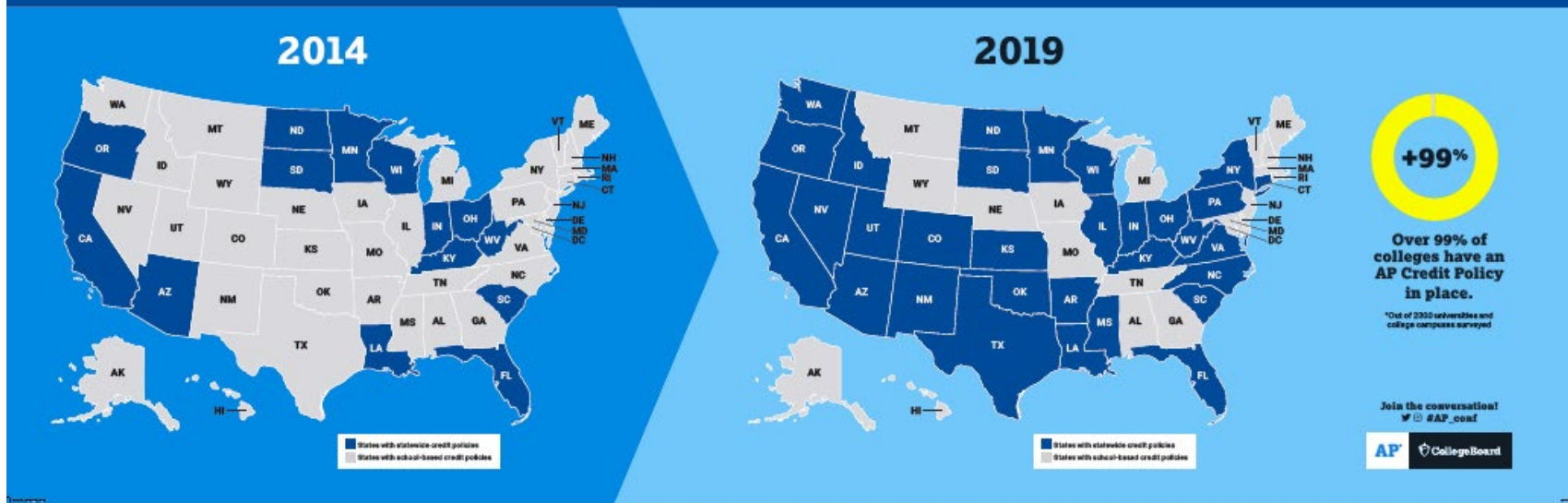
AP Impact

- **85%** of selective colleges and universities report that a student's AP experience favorably impacts admission decisions.
- In 2020, students across the U.S. earned **2,932,042** AP scores of 3 or higher, translating into potential cost savings of **\$3.1 billion**.
- Students who take **5** college level courses throughout high school have the best first year college GPA.

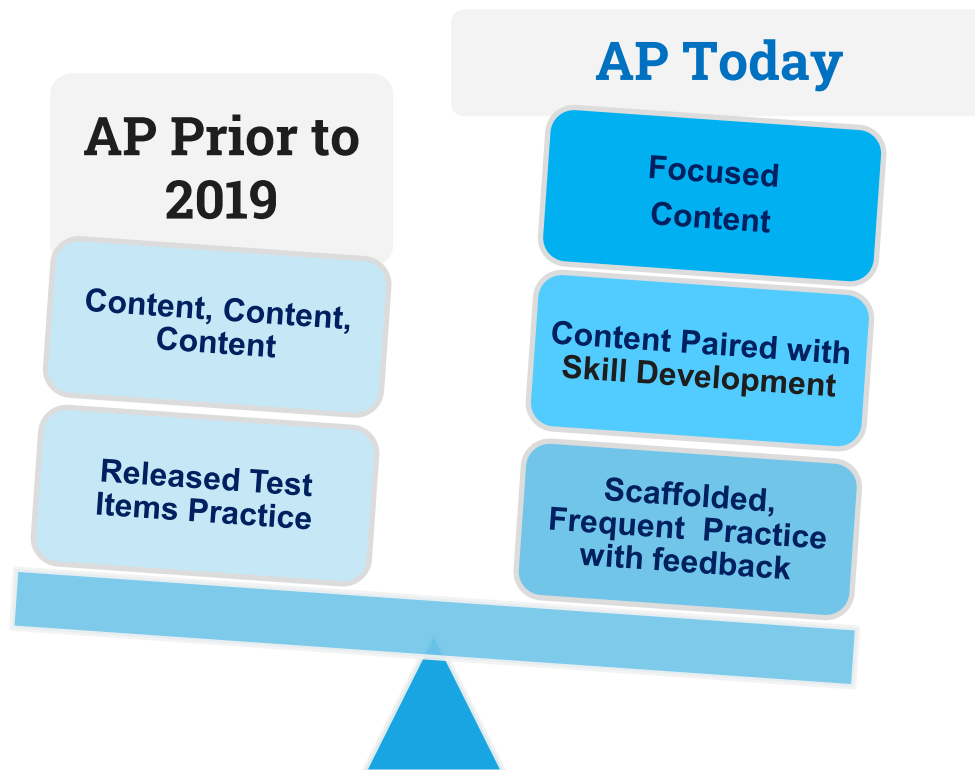
"Research shows that when students are given access to advanced coursework opportunities, they work harder and engage more in school, leading to fewer absences and suspensions and higher graduation rates. (EdTrust, 2019)"

States Agree: Students Deserve Credit for AP

More Statewide and Systemwide Credit Policies Than Ever Before



The Next Generation of Advanced Placement



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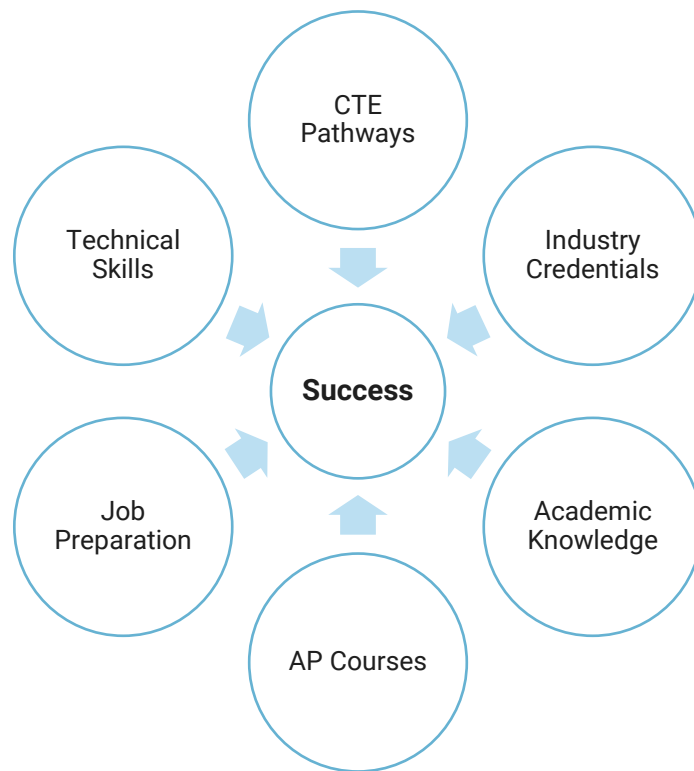
AP + CTE Working Together

CB Sample Slide Layouts

“It is a false premise to suggest you’re either an academic or career technical student. That is why we embed Advanced Placement courses into our career pathways. Students need to develop strong academic foundations regardless of their career pathway, so we cannot educate them in silos.”

**—Dr. Lazaro Lopez,
Associate Superintendent for Teaching
and Learning, High School District 214,
Arlington Heights, Illinois**

AP + CTE = College + Career Ready = Success



Computer Science

Ever-Increasing Workforce Demand



Employment in computer and information technology occupations is **projected to grow 11 percent from 2019 to 2029, much faster than the average for all occupations.**



These occupations are projected to add about **531,200 new jobs.**

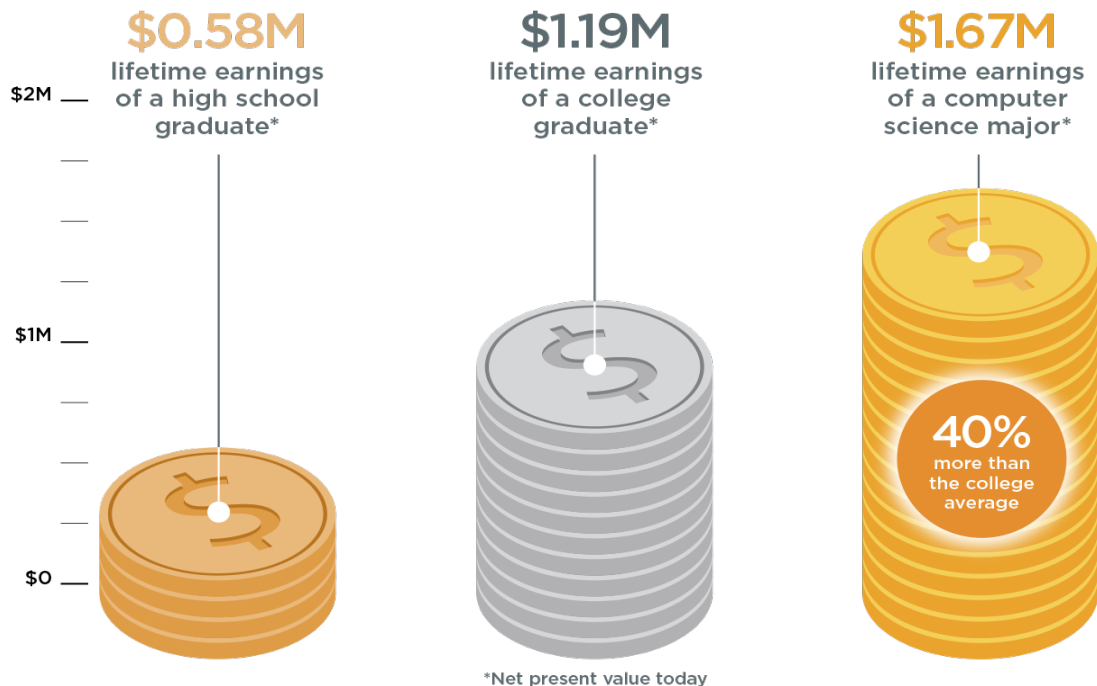


Demand for these workers will stem from greater emphasis on **cloud computing**, the collection and storage of **big data**, and **information security.**



A Computer Science Background Improves Earning Potential

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



Source: Code.org

Two AP Computer Science Courses

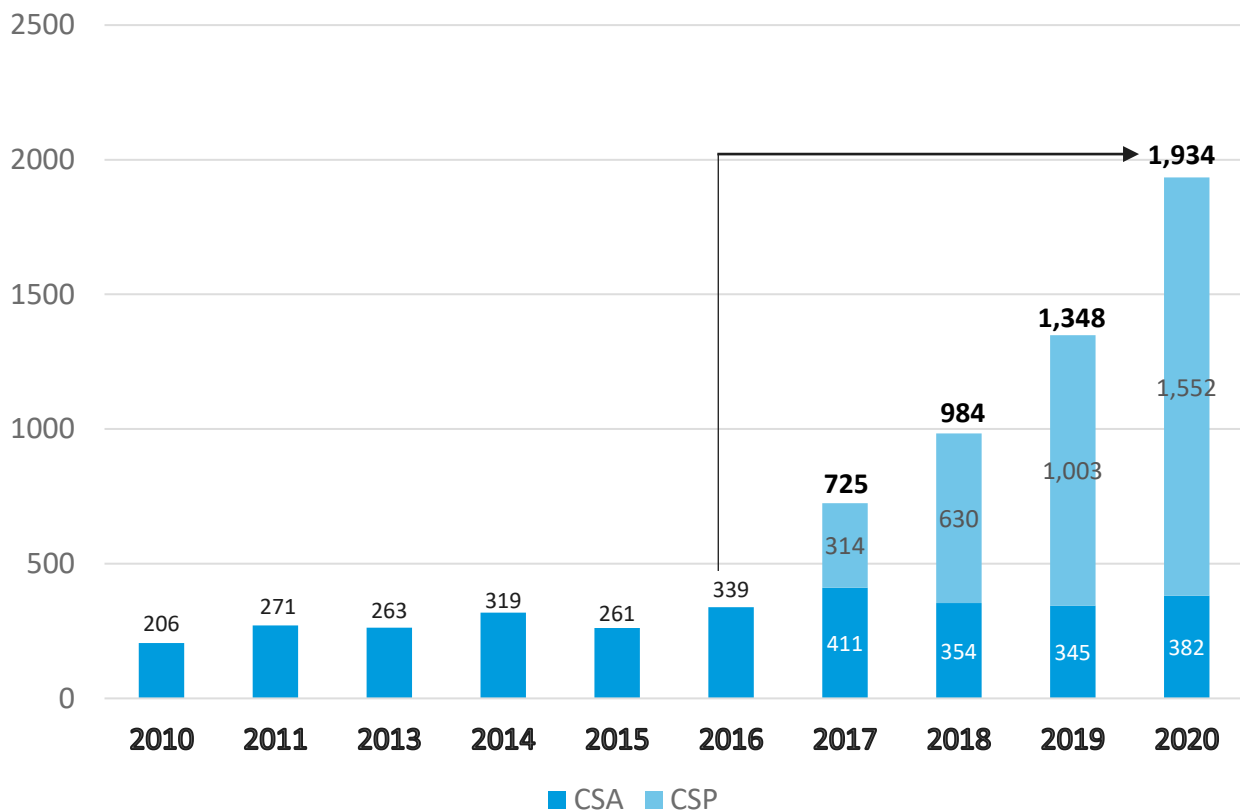
	AP Computer Science A	AP Computer Science Principles
Curricular Focus	Problem solving and object-orientated programming	Big ideas of computer science (including programming)
Programming Language	Java	Teachers choose
Assessment Experience	Multiple-choice and free-response questions	<ul style="list-style-type: none">• Multiple-choice exam• One performance task administered by the teacher, and students submit digital artifacts

A photograph of three students working together on a project. A male student in the center is using a red-handled screwdriver to adjust a component on a blue LEGO-based robot. To his left, a female student with long dark hair is looking down at the project. To his right, a female student with long blonde hair is also focused on the work. They are all wearing casual clothing. The background is slightly blurred, showing what appears to be a classroom or workshop setting.

The largest course launch in
AP's 60-year history

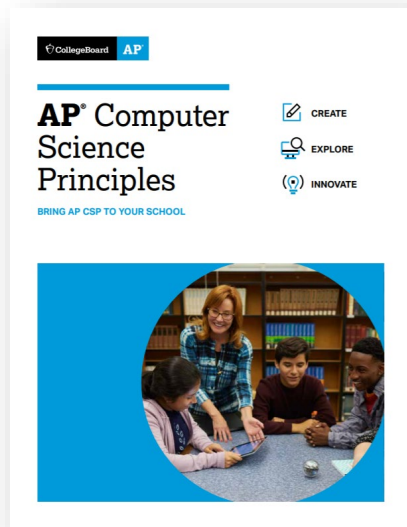
DRAFT

What happened in South Carolina?



AP Computer Science Principles

AP CSP Offers a multidisciplinary approach, focusing on the creative aspects of programming



Students do not need any previous computer science experience to take this course. The only prerequisite is Algebra 1.

AP Computer Science Principles introduces students to the essential concepts of computer science and challenges students to explore how computing and technology impact the world around them. Along with the fundamentals of computing, students learn:

- ✓ Creative problem solving through programming
- ✓ How the internet works and issues of cybersecurity
- ✓ Global impacts of computing and present-day innovations
- ✓ How to apply computational processes to analyze large data sets
- ✓ Programming

"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

College Board Support for Teachers of All Levels of CS Experience

AP Summer Institutes

- Multiple weeklong professional development sessions

AP One-Day Workshops

- Available now for new and experienced computer science teachers: collegeboard.org/cspworkshop.

AP Mentoring

- Online, teacher-to-teacher support for AP teachers provided over the course of the school year: collegeboard.org/apmentoring.

AP CSP Teacher Community

- Access curriculum resources, instructional resources, lesson plans, and more.

AP Classroom

- Repository of formative and summative questions as well as instructional videos on each topic of the course.

Endorsed Providers

- Independent organizations who provide a complete curriculum, professional development, and/or a syllabus aligned to an AP course. Must pass a thorough review, conducted by external consultants and Course Lead(s)

AP CSP and AP CSA Endorsed Providers in 2021-22 Academic Year

collegeboard.org/csp-endorsed-providers

**Endorsed providers offer resources
and professional development across
the country.**

Provider	CSP	CSA
Apple	X	
Beauty and Joy of Computing (BJC)	X	
CodeHS	X	X
Code.org	X	
Computer Science (CS) Matters	X	
CS50	X	
Edhesive	X	X
Microsoft	X(MakeCode)	X (Philanthropies TEALS Program)
National Center for Computer Science Education	X(Mobile CSP)	X(CSAwesome)
Popfizz CS	X	X
Project Lead The Way (PLTW)	X	X
Tynker	X	X
UTeach	X	X
WeTeach		X
Zulama by Carnegie Learning	X	

What makes it AP?



- ✓ Meet state/local requirements for AP
- ✓ AP Teacher completes the AP Course Audit
- ✓ AP Coordinator/AP Teacher creates class section in the AP Registration & Ordering system to access AP Classroom tools and register students for the corresponding AP exam.
- ✓ The **Course and Exam Description (CED)** ensures the instructional focus ties to information and skills covered on exam.
 - Course skills describe **what students should be able to do** while exploring course concepts. In the AP Computer Science courses, these are called **Computational Thinking Practices: Skills**.
- ✓ **AP Classroom** resources, including formative assessments and AP Daily videos, for daily practice and personalized feedback to students throughout the year.
- ✓ Students take **AP exam** for the opportunity to earn college credit, advanced placement, or both.
NOTE: In South Carolina, the state pays for the AP exam fee for students enrolled in the corresponding AP course.

Exam Overview

- The AP Computer Science Principles Exam assess student understanding of the **course content** and **skills** outlined in the Course and Exam Description
- The end-of course AP exam is **120 minutes** in length
- Teachers must allow **12 hours** of class for students to complete the **Create Performance Task**.

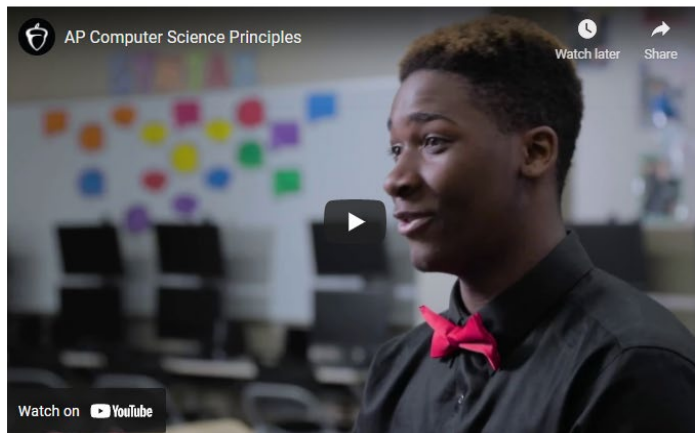
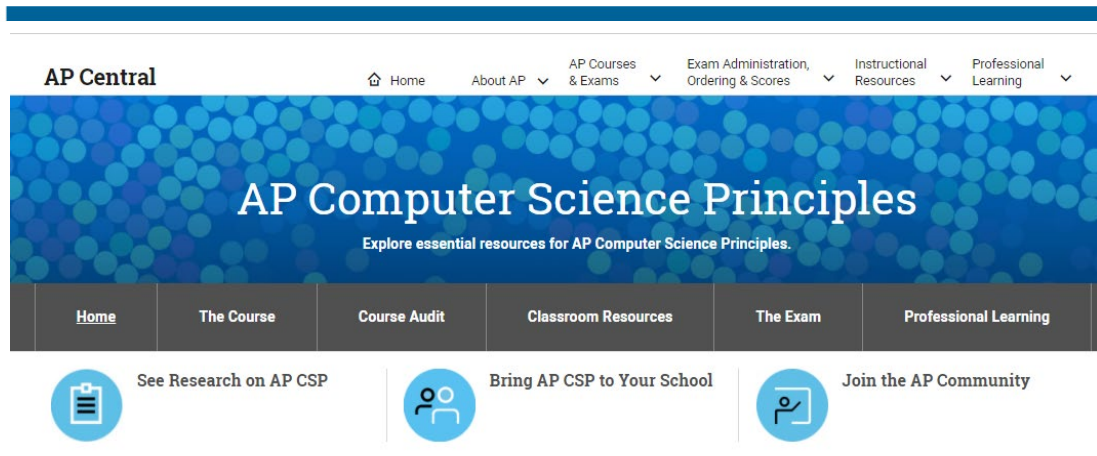
Section	Question Type	Number of Questions	Exam Weighting	Timing
I	Multiple-choice questions	70	70%	120 minutes
	Single-select	57		
	Single-select with reading passage about a computing innovation	5		
	Multi-select	8		
II	Create Performance Task	1	30%	At least 12 hours of class

More Information

apcentral.collegeboard.org

AP Course Page

- ✓ Register for AP CSP Webinar
October 19th 6:30 p.m.
- ✓ Download the CED
- ✓ Review details of information
shared today
- ✓ Access Recruitment Toolkit



Bring AP CSP to Your School

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.

AP[®] Computer Science Principles (AP CSP) is designed to attract a greater diversity of students to the field, focusing on creative problem solving and real-world applications to better prepare students for college and career. Students do not need previous computer science experience to take this course. The only recommended prerequisite is to complete Algebra I. Here's how to bring this dynamic course to your school:

1 EXPLORE CURRICULUM OPTIONS

Like all AP courses, AP CSP gives teachers the flexibility to customize a curriculum based on the AP CSP Curriculum Framework.

As an alternative, your school may be interested in curricula developed through College Board–endorsed providers. Endorsed providers offer a full curriculum with pre-approved syllabi, lesson plans, formative assessments, and professional development.

To find out more, visit collegeboard.org/apcsp-school.

2 ADD THE COURSE, AND IDENTIFY AND RECRUIT TEACHERS

Once you've decided to offer AP CSP and added it to your catalog, notify the AP Program to get updates and free resources: collegeboard.org/apcsp-interest.

If your school offers foundational computing courses and/or AP Computer Science A, teachers of these courses are a natural fit for AP CSP.

Due to the broad, multidisciplinary nature of the course, teachers in other disciplines, such as the arts or social sciences, can teach AP CSP.

AP CSP teachers who participated in the pilot program gain a range of disciplines including math, science, business, economics, and English.

Professional development opportunities are available from the College Board and several endorsed providers. Mentoring is available through AP Mentoring. Learn more at collegeboard.org/apcsp-pd.

1. **Recruit Teachers and Add Course** - explore opportunities to collaborate with other schools
2. **Explore Endorsed Providers**
3. **Check Recommended Classroom Resources** - confirm your school/classroom aligns with course recommendations (access to course materials, individual computer access, internet access and the tools and programming environments used in the course...)
4. **Recruit All Students** – leverage Recruitment Kit toolkit resources, including testimonial videos, recruitment strategies, promotional materials for students/parents, and more
5. **Submit Course Audit Info**—Course Audit opens in March
6. **Stay Connected**—sign up at collegeboard.org/CSPinterest

AP Capstone

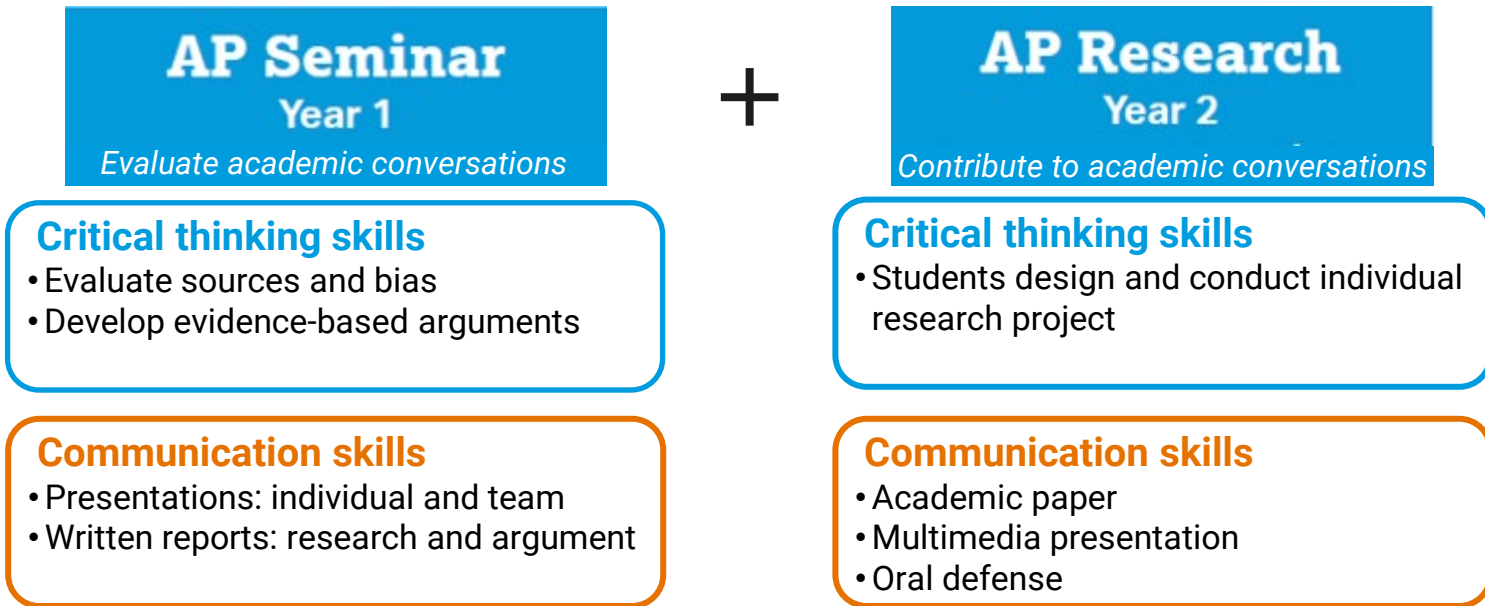
Benefits to school and staff

“AP Capstone is when you stop asking students what they want to be when they grow up and start asking students which problems they want to solve.”

AP Seminar Teacher, Greenbelt MD

AP Capstone™ is based on two courses

Courses equip students with independent research, teamwork, and communication skills valued by higher ed and employers



Additional resource:

Connecting AP Seminar and CTE Programs of Study

- Project based learning (PBL)
- Communicating about transferable skills
- State, district, student examples

Sample AP Seminar Topics and Potential Alignment to CTE Programs of Study

- Future of automotive industry – *Finance*
- Food waste solutions – *Agriculture, Food and Natural Resources*
- Artificial intelligence in the future – *STEM or Information Technology*



AP Seminar and Career and Technical Education

Connecting AP Seminar and CTE Programs of Study

AP[®] Seminar is a foundational, project based learning (PBL) course that engages students in cross-curricular conversations that explore the complexities of academic and real-world topics. AP Seminar fits within multiple career and technical education (CTE) programs given the focus on critical thinking, collaboration, and presentation skills within a PBL experience.

Project Based Learning

The Buck Institute for Education defines PBL as “a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge.”

In a 2017 report, Getting Smart explains how the changing economy requires us to live in an increasingly project-based world. About four in ten high school students will freelance – working short-term gigs, or if highly skilled, in a series of value-add projects. To prepare students for a complex, fast-paced world, the report explains how a growing number of schools are using PBL to provide real-world challenges and promote deeper learning outcomes.¹

AP Seminar Course Content

Through individual research and a team project, students engage in conversations about complex academic and real-world issues through a variety of lenses, considering multiple points of view. Students then choose topics to explore for project based assessments, which can include:

- Concepts from other AP or CTE courses
- Issues of personal interest
- Local and/or civic issues
- Global or international topics

AP Seminar students are assessed on academic and career skills, including:

- Evaluating sources for credibility and bias
- Synthesizing information from multiple sources
- Advocating for recommendations in written essays and multimedia presentations
- Managing long-term project schedules and deadlines
- Collaborating with peers

For more information, visit the AP Seminar hub on [AP Central](#).

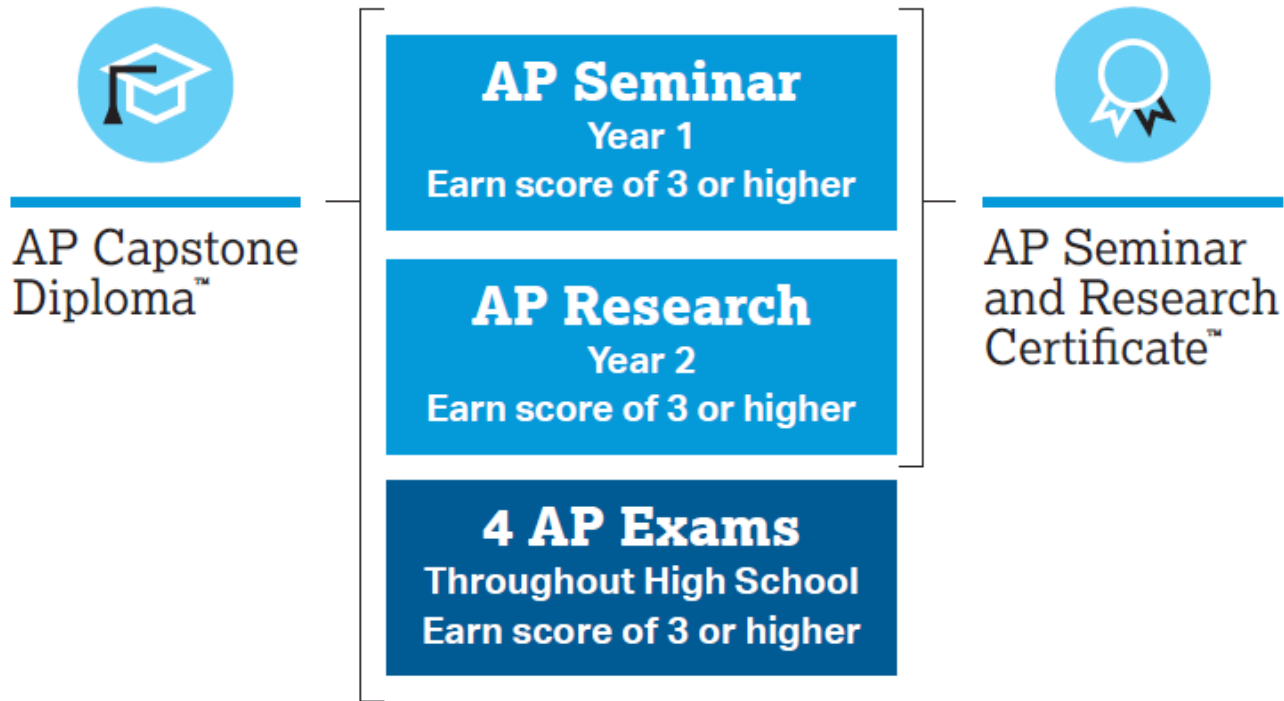
States, District, and Student Examples

State Examples:

- Indiana’s new graduation pathway options include project based and work-based learning options, such as completing an AP Capstone[™] course or exam (including AP Seminar).¹²
- To graduate high school in Idaho, students are required to complete Senior Projects, which include a written report and oral presentation with guidelines set at the district level.¹⁴ Districts can allow AP Capstone – including AP Seminar and AP Research – to meet the Senior Project requirement.

AP Capstone students pursue 1 of 2 awards

AP Capstone is a skilled-based diploma program



AP Capstone™ has differentiated exam structures

	AP Seminar	AP Research
During year	Performance Task 1 (20%) <ul style="list-style-type: none">• Individual Research Report (1,200 words)• Team Multimedia Presentation* (8-10 min) Performance Task 2 (35%) <ul style="list-style-type: none">• Individual Written Argument (2,000 words)• Individual Multimedia Presentation* (6-8 min)	Academic Paper (75%) <ul style="list-style-type: none">• 4,000-5,000 words Presentation and Oral Defense (25%)* <ul style="list-style-type: none">• 15-20 minutes + Q&A from panel
End-of-course	End-of-course exam (45%)	No end-of-course exam

** Official scores provided by classroom teacher of record following mandatory rubric training and calibration*

Offering AP Capstone at Your School

1. **Submit AP Capstone Application by 12/15/21 -**
<https://collegeboard.force.com/APCapstone/s/>
2. **AP Seminar and AP Research Teacher Expectations**
 - ✓ Attend summer in-person training
 - ✓ Complete mid-year rubric training
 - ✓ Provide official presentation scores

Teachers come from various primary content areas and are comfortable with ambiguity



4

Next Steps

CB Sample Slide Layouts

Next Steps

- ✓ Complete our **survey** to provide feedback and express interest.
- ✓ **Share** information with other stakeholders in your school/district
- ✓ Based on responses we will hold **follow-up sessions** with districts that opt to move forward
- ✓ Reach out with questions or opportunities to collaborate Rachel McCoy (rmccoy@collegeboard.org)

A photograph of four diverse high school students walking and laughing on a paved street. From left to right: a young man in a blue jacket, a young man in a grey hoodie, a young woman in a striped shirt, and a young woman in a blue jacket. They are all smiling and looking towards each other. The background shows trees and a fence. The entire image has a blue tint.

AP + CTE

**Will ensure our students are prepared for
our new world**