

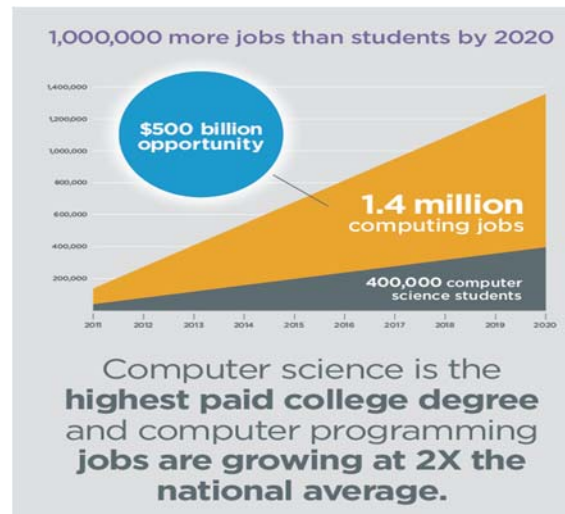
# What is the Computer Science Academy (CSA)?

- Courses focus on learning **computer science concepts** through **inquiry and projects**.
- Themes and practices include the **creative nature of computing, problem-solving** using technology as a tool, and seeing the relevance and **impact of computer science**.
- Students in CSA take their **Computer Science class** and their **English class together** with the same students. The teachers work to build projects and skills across the curriculum – together we form a **small learning community**.
- **College and career skills** are built into the courses to prepare students for **higher education and future works as computing professionals**.



## Why join CSA? Why computer science?

- Computational thinking is important across **ALL subjects**, not just computer science.
- **More than 50 percent** of all math and science jobs are for computer scientists.
- Computer science jobs are the **highest-paying jobs** for new graduates.
- Computing jobs are **growing 3 times faster** than the number of computer science graduates.
- **CSA field trips** to local universities, tech companies, game companies, and hackerspaces.
- **Guest speakers** from the tech industry to talk about various subfields within computer science.



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Creative Problem Solving for the 21st Century

**BINARY NUMBERS**  
**SOLVE PROBLEMS BETTER**  
**LEARN WEB 2.0** **BUILD & PROGRAM** **WEBSITE** **OWN** **DESIGN YOUR**  
**A ROBOT** **STORIES & GAMES** **CREATE ANIMATED** **REPRESENT & ANALYZE DATA**  
**COMPUTER SCIENCE IS IMPORTANT**  
**& FUN! EXPLORINGCS.ORG**  
**HUMAN / COMPUTER INTERACTION**

“From phones to cars to medicine, technology touches every part of our lives. If you can create technology, you can change the world.”

— Susan Wojcicki

For more information contact:  
Danny Tan  
tand@galileoweb.org  
415-749-3430 x 3111  
csinquiry.org

## Exploring Computer Science (10th Grade)

- Computers and the Internet
- Societal impacts of computing
- Algorithms and abstraction
- Connections between Math and Computer Science
- Programming
- Models of Intelligent Behavior
- Web page design and development
- Data and Information
- Electronics/Robotics



## Computer Science Principles (11th Grade)

- Fundamental computer programming concepts and skills
  - Computer programming from practical perspective
  - AppInventor & Mobile App Design
  - Python programming language
  - Hardware and Software
- Abstraction
- Design Cycle
  - Creative Computing
  - Problem-solving, problem analysis, and algorithm design
  - Analysis of Data, Algorithms, and the Internet
  - Global Impacts of Computing
  - Professional norms of the software development industry
  - Career opportunities in programming

## Advanced Placement Computer Science A (12th Grade)

- Java Programming Language
- Object-Oriented Program Design
- Program Implementation
- Program Analysis
- Standard Data Structures
- Standard Algorithms
- Computing in Context



Sample CSA Student Schedule (required CSA courses highlighted)

9 <sup>th</sup> Grade	10 <sup>th</sup> Grade	11 <sup>th</sup> Grade	12 <sup>th</sup> Grade
English 1	<b>English 2 (CSA)</b>	<b>American Literature (CSA)</b>	<b>English/European Literature (CSA)</b>
Computer Art	<b>Exploring Computer Science (CSA)</b>	<b>Computer Science Principles (CSA)</b>	<b>AP Computer Science A (CSA)</b>
Algebra 1	Geometry	Algebra 2	Pre-Calculus or AP Calculus
Biology	Chemistry	Physics	AP Chemistry or AP Physics
College/Career & Health Ed	Modern World	US History	Democracy & Economics
PE	Spanish 1	Spanish 2	PE or Spanish 3