



Greetings!

If you know me, you know how much I love coding and logic, which lines up with my Engineering background. Teaching Honors Computer Science during the 2024–2025 school year was one of the highlights of my year, especially since we used much of the AP curriculum to guide our learning. That's why I'm SUPER excited to officially teach AP Computer Science Principles for the 2025–2026 school year!

The AP curriculum is robust and fast-paced, so having a summer assignment is a great way to give us a head start and ensure we're in a good position to succeed on the AP exam. That said, I remember how much I disliked summer homework when I was in high school, so I've done my best to make this assignment as engaging and brief (and painless) as possible. My goal is to prepare you well while still respecting your summer break.

One last thing (you'll probably hear me say this throughout the year): you could totally cut corners. You could ask AI to do some of this for you. I don't know how I can keep you from doing so. But that would miss the point. This assignment is here to introduce you to the world of computer science, to spark curiosity, and to give you a head start. Please approach it with honesty and integrity. The struggle is part of the learning, and for those moments when the struggle is too much, please e-mail me and I'll do my best to assist.

The next section of this document will highlight the objectives for the Summer Assignment. The section following that is an outline for you to fill in the assignment. Remember, this will be due the first day of school.

I'm looking forward to an amazing year ahead!

Best,
Mr. Vargas
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AP Computer Science Principles – Summer Assignment

Estimated Time Commitment: 6-8 hours total

Part 1: Watch and Reflect (1-2 hours total)

Watch the following videos to begin thinking like a computer scientist. For each video, write a short reflection (3–5 sentences) in the next section explaining what you learned or found interesting. Note: we will be viewing more of these Crash Course videos throughout the school year.

1. Computer Science Preview: Crash Course CS Preview
<https://youtu.be/tpIctyqH29Q?si=WFpF7oIBTtaZ93kG>
2. Early Computing: Crash Course CS #1
https://youtu.be/O5nskjZ_GoI?si=aimPwcEDPGbY6NOx
3. Electronic Computing: Crash Course CS #2
<https://youtu.be/LN0ucKNX0hc?si=NMK0b1W6MvwnlOLQ>
4. Boolean Logic & Logic Gates: Crash Course CS #3
https://youtu.be/gI-qXk7XojA?si=hmEQv_TLreTumcnq
5. Representing Numbers and Letters with Binary: Crash Course CS #4
https://youtu.be/1GSjbWt0c9M?si=SnMjyX1H_osTY-yo
6. How Computers Calculate – the ALU: Crash Course CS #5
<https://youtu.be/1I5ZMmrOfnA?si=n047vvve8Nw2krEs>

Part 2: Explore & Create (4-6 hours)

To begin introducing the concept of coding, please visit <https://blockly.games/?lang=en> and complete all the levels except the very last one, titled “Pond”. There are some levels that give you a pop-up window that says “Advance programmers only” – feel free to skip those levels if you get stuck (Maze Level 10 is an example).

Blockly Games is a website designed as an introduction to programming using visual block-based coding. The blocks of code fit like puzzle-pieces to run a set of commands. You will gain experience in commands, loops, conditionals, nested-loops, mathematical equations, functions, and problem-solving.

Please take a screenshot of your completed Blockly Games screen and paste it in the space provided in the next section of this document.

Part 3: Research a Real-World Problem (1–2 hours)

Choose a real-world problem that interests you (e.g., climate change, cyberbullying, traffic congestion).

- Write a short paragraph (5–8 sentences) in the next section of this document describing:
 - The problem
 - How computing or technology could help solve or address it
 - Any creative ideas you have for an app, website, or innovation that could help

How to submit your assignment

Instructions will be provided in the first day of school. Please have a PDF of this document saved and ready to be submitted.

Part 1: Video Reflections

Write your 3-5 sentence reflections under the appropriate sections

1. Computer Science Preview: Crash Course CS Preview
2. Early Computing: Crash Course CS #1
3. Electronic Computing: Crash Course CS #2
4. Boolean Logic & Logic Gates: Crash Course CS #3
5. Representing Numbers and Letters with Binary: Crash Course CS #4
6. How Computers Calculate – the ALU: Crash Course CS #5

Part 2: Explore & Create

Paste a screenshot of your Blockly Games page here.

Part 3: Research a Real-World Problem

Write your paragraph here