

# Welcome to AP Computer Science Principles!

This class will teach you the basics of coding in several languages.

The purpose of the AP Computer Science Principles (AP CSP) summer assignment is to ensure that every student is aware of the level of commitment required to do well in this challenging, college-level course and the AP exam. You will also get a preview of some of the content that we will tackle throughout the year.

In this course, collaboration is encouraged; however, cheating and plagiarism will not be tolerated. In order to learn the content, you must design, debug, and write your own programs.

To be successful in this course, you will need:

1. Access to a computer 3 hours per week outside class. (pc/ mac is preferable, as some of the software in the past did not work as well on chromebook) Let me know if this is not possible.
2. Familiarity with how to use your school-provided Google Drive
3. A desire to take and be successful on the AP exam 2021

## Summer Assignment

1. Sign into my AP Computer Science (2019 - 2020) class in Google Classroom. The join code is lq7mfw6. All summer work is due to be turned in there by the beginning of the first day of school. Email me with any questions.
2. Review the official AP Computer Science Principles homepage from the CollegeBoard.  
<https://apcentral.collegeboard.org/courses/ap-computer-science-principles/course>
3. Using any computer/ Chromebook with internet access, sign up for a free account on codecombat.com. The directions for how to join my codecombat class are found on Google Classroom. You cannot use a tablet or phone.
  - a. Do "Introduction to Computer Science," all exercises.
  - b. Do "Computer Science 2," all exercises.
4. Watch these videos:
  - a. software engineer:  
<https://www.youtube.com/watch?v=vt79JcPfZQA>
  - b. Software developers  
[https://www.youtube.com/watch?v=\\_9ZS6q4996g](https://www.youtube.com/watch?v=_9ZS6q4996g)

5. Read chapters 1, 2, 4, 6 of *Blown To Bits: Your Life, Liberty, and Happiness After the Digital Explosion* by Harry Lewis, Ken Ledeen, and Hal Abelson. The book can be found at [bitsbook.com](http://bitsbook.com), or bought from any bookstore. Answer the following discussion questions on a Google document titled “[your first initial and last name; example, GSauline] Blown to Bits responses.” Submit the document to Google Classroom under the Classwork tab. Each response can be answered in a few complete sentences, except for the free responses, which should be 1-2 paragraphs. If you plagiarize any of the responses, you will receive a 0 for the entire assignment.

**a. Chapter 1:**

- i. What is a bit and what does it mean to say that "it's all just bits"? (Koan 1) Give examples of the things today that are stored in bits?
- ii. Describe, in your own words, Moore's Law.
- iii. Someone offers you a summer job and offers you two pay rates: (1) \$10 per hour for 40 hours per week for 30 days or (2) One cent on day 1, two cents and day two, four cents on day three and on (doubling each day) for 30 days. If you were trying to make as much money as possible in 30 days, which pay rate would you choose? What does this illustrate?
- iv. Give an example of how the digital explosion is "neither good nor bad" but has both positive and negative implications.

**b. Chapter 2:**

- i. What is an RFID tag and what does it do?
- ii. What is an EDR and what does it do?
- iii. Is it possible to identify someone, perhaps a patient, knowing just his or her gender, birth date, and zip code? Explain.
- iv. What is the difference between "big brotherism" and "little brotherism"?

**Free Response:**

- v. How do you feel about "Big Brother" watching you? Do you think having security cameras everywhere is good or bad?
- vi. Is the Privacy Act effective? Explain.
- vii. *"The digital explosion has scattered the bits of our lives everywhere: records of the clothes we wear, the soaps we wash with, the streets we walk, and the cars we drive and where we drive them."* (pg 20) Marketing companies use these data to build models of our preferences and use these models to recommend products to us.. In 1 or 2 paragraphs, address the question 'Am I willing to trade some of my privacy for the convenience of having a computer or a company recommend products to me? Why or Why not?'

**c. Chapter 4:**

- i. Should a researcher place absolute trust in a search engine? Why or why not?
- ii. "The architecture of human knowledge has changed as a result of search." What does this claim mean?
- iii. When you type a word or phrase into the Google search engine, what is the search algorithm that is being used? Does Google's search engine search the web? Explain
- iv. Think of a number between 1 and 100. If you tell me "too high" or "too low", I can guess the number in 7 guesses. How come? What algorithm makes this possible?
- v. What is a captcha and why are captchas important?

Free Response:

- vi. "The architecture of human knowledge has changed as a result of search." Do you agree?
- vii. "Google emerged -- from this dilemma at least -- with its pocketbooks overflowing and its principles intact." Do you agree?
- viii. What do you think about the differences between Figure 4.10 and Figure 4.11?
- ix. Would you retain your search history or delete it? Why?

**d. Chapter 6:**

- i. Why should all Internet users be aware of copyrighted material?
- ii. What is the NET Act and what is its significance in the history of copyright?
- iii. What is a peer-to-peer architecture? Provide an example of at least one well-known peer-to-peer network.
- iv. What are Open Access and Creative Commons? How have they impacted the sharing of digital information?

Free Response:

- v. Before reading this chapter, were you aware of copyright infringement? Has the reading raised your awareness of how you use content found on the Internet?
- vi. In your opinion, are YouTube users violating copyright terms when they make lyric videos? Why or why not?
- vii. In your opinion, are computers that use DRAM violating copyright terms? Why or why not?
- viii. Select one of the technical innovations described in the chapter and write an explanation of the technical details of this innovation. Try to use terms that someone unfamiliar with the innovation would understand.

6. Not Required:

If you finish with the codecombat lessons and would like more Computer Science practice, you can go to the following websites:

- a. Sign up for an account with your Google account. Practice Python at <https://www.codecademy.com/learn/python>
- b. Create an account and join my khan academy class, <https://www.khanacademy.org/join/EEEEAH5ZA>