

AP COMPUTER SCIENCE SYLLABUS

2021-2022

Course Overview:

AP Computer Science Principles is a course for students interested in learning the principles that underlie the science of computing. Students will also develop the thinking skills that computer scientists use. Students work both on their own and as part of teams to creatively address real-world issues using the tools and processes of computation.

Topics Covered:

1. The Information Layer (numbers, positional notation, data representation)
2. The Hardware Layer (gates, circuits, computing components)
3. The Programming Layer (pseudocode, low-level programming languages, algorithms, abstract data types, subprograms, object-oriented programming, high-level programming languages)
4. The Operating Systems Layer (operating systems, file systems, directories)
5. The Application Layer (information systems, artificial intelligence, simulations, graphics, gaming)
6. The Communications Layer (networks, the internet, computer security)

We will explore five Big Ideas through these topics: Creative Development, Data, Algorithms and Programming, Computing Systems and Networks, and the Impact of Computing.

Course Breakdown:

1. *Problem Sets*
Problem sets on relevant concepts will be assigned weekly. All work and final answers should be recorded in your notebook, to be graded when it is collected.
2. *Reports*
Each time a challenge is completed, you will summarize your scientific process in a written report which will be graded for both content and scientific writing skills.
3. *Tests*
Occasionally there will be tests. Responses will be graded for accuracy.

Your grade will be posted regularly on Aspen under a Total Points system. Grades are also posted in the classroom weekly. If you have a question or an issue with one of your grades, please see me as soon as possible to discuss it. If your parents would like to discuss your grade, they are welcome to contact me.

Classroom Expectations:

- Bring a charged Chromebook to class.
- Cell phones are not allowed in this class. If you need to use one, please receive permission first. If a cell phone is out without permission, it will be confiscated and sent to the office after one warning.

- You are allowed water in this class. Food is not allowed and will be thrown out if I see it. This is less because of the science and more because of the ants.
- Come to class on time and prepared. Lateness will not be tolerated and will result in detention.
- When absent, you are responsible for both finding out the work you missed and for completing it.
- Plagiarism or cheating results in a zero and a referral to the office. This includes virtual work.
- Always respect each other and the teacher, but please, most of all, respect yourself. You are capable of this, I promise.
- Keep your mask on for the duration of class. Mask breaks will be at the teacher's discretion.
- Please note: ***This is an AP level class.*** As such, I expect all work to be completed on time and without fuss, the quality of the work to be superior, and participation to be enthusiastic any time we are working remotely. You should also have a strong math background and be able to work competently on your own. If you feel a case of senioritis is in your future, or that you will otherwise not be able to meet these standards, please find a more appropriate class/level for this year.

Please put this syllabus in your binder and refer to it when necessary.

AP COMPUTER SCIENCE SIGN-OFF SHEET
2021-2022

I, _____ (student) have read the AP Computer Science Syllabus in its entirety. I understand the requirements of this Computer Science course. I recognize that I am responsible for my grade in Computer Science.

Student's signature: _____ Date: _____

Parent's signature: _____ Date: _____

Parent's Phone #: _____

Parent's Email: _____