Congratulations on your choice of AP Computer Science A for the 2020-2021 academic year. I want to start by saying I am very excited that you are taking this course, and I am looking forward to getting to know each and every one of you. In this course, you will learn the fundamentals of computer programming using the Java programming language and by doing well on the AP exam you will earn college credit. The purpose of the AP Computer Science A (AP CSA) summer assignment is to prepare you for the challenges in AP CSA and to ensure students are aware of the content and commitment level involved in this college level course as well as prepare for the AP Exam on the first two full weeks of May 2022. In this class in order to learn content, you must design, debug and write your own programs. Please read and complete all the steps in this document. The summer assignment is due on the first day of school, Tuesday August 10, 2021. It will count as your first quiz.

Go to http://greenteapress.com/wp/think-java-2e/ and either download the book to your computer or choose to read it online "How to Think Like a Computer Scientist" Java version by Allen B. Downey. Read Chapter 1 "The Way of the Program".

**Prerequisite:** Algebra I EOC, including function notation and other algebraic problem solving skills. Overall, the course recommends a solid foundation in mathematical reasoning.

**AP Computer Science A Summer Assignment:**

**Read Chapter 1 of "How to Think Like a Computer Scientist" and answer the following questions.**

1. How is thinking like a computer scientist similar to the thinking involved in engineering and other sciences?
2. What is the single most important skill for a computer scientist?
3. Describe the differences between a low level and high-level language?
4. What are the advantages of programming in a high-level language?
5. What language is used in AP Computer Science?
6. What is a compiler?
7. What is source code?
8. What is a program?
9. What is a statement?
10. What are the five basic operations that most programming languages can perform?
11. What is debugging?
12. What is syntax?
13. What is a compile time error?
14. What is a run time error?
15. What is a logic error?
16. How is debugging like experimental science?
17. What does the author suggest for reading programs?
18. What is the basic template for a class?
19. What is the significance of "main"?
20. What statement is used to print things to the screen or terminal?
21. What symbol is required at the end of every statement?
22. What is the purpose of {} squiggly braces in java?
23. What is the purpose of a comment?
24. What does the compiler do when it sees //, the comment symbol?

I highly recommend that you spread out the reading over the summer. Pace yourself.  Please do not try to complete it all in the final week of summer. AP CSA concepts take time to process and grasp at a level necessary for success in this class. Remember, AP Computer Science A is a college level course. Taking a college level course in high school is not be taken lightly.  It requires dedication, and is a great investment in your education so prepare yourself and arrive ready to learn.

Have a great summer and enjoy Java programing.

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