

AP COMPUTER SCIENCE SUMMER ASSIGNMENT

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NORTH GWINNETT HIGH SCHOOL 2017-2018

Welcome to AP Computer Science A, I'm looking forward to a very exciting and collaborative experience this year. 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 may earn college credit. This course will prepare you for further study in computer programming, and is the first step in preparing for a career in software and engineering or information technology (IT). The skills you learn will also be useful in other technical fields, such as science and engineering.

You do not need to have prior programming experience, but you must be very comfortable with computers and have completed at least High School Algebra. Learning a computer programming language is much like learning any language in that you must learn proper spelling, syntax, and structure. You will be learning the Java language, one of the most popular languages in the world, and you will be programming using object-oriented design methodology. You will be required to create a very structured notebook with specifics of each new concept and programming commands well as code examples for all the programs you write. Because writing a computer program is much like writing an essay, plagiarism is taken very seriously. There will always be ways to find solutions to problems online, but it will be essential that you demonstrate individual effort and style on each program you write.

Items due the first day of class:

- ____ Screen print of install complete messages for Java JDK and DrJava installs (Hit the PrntScrn key then open up a word document and select paste.)
- ____ Printed copy of your exercise 1.2 and a print screen of the output
- ____ Completed study guide in your own handwriting.
- ____ You will have a quiz over this material on first day of class.

1. ____ **Install Java JDK** on your computer

- a. Go to <http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>
- b. Accept license agreement for Java SE Development Kit
- c. Select the appropriate download for your computer – Mac OS X or Windows(for 32bit Windows select Windows x86, for 64bit Windows select Windows x64)
- d. Follow the Java install prompts
- e. Prnt Scrn and paste into word doc in a screen shot of the installation complete message

2. **Install DrJava** Integrated Development Environment

- a. Make sure you have installed the Java JDK first.
- b. Go to www.DrJava.org
- c. Click on the download link that is appropriate for your computer (either Windows or Mac OS X)
- d. Follow the installation prompts
- e. Prnt Scrn and paste into word doc a screen shot of the installation complete message.

3. Go to <http://greenteapress.com/wp/think-java/> and download **thinkapjava.pdf** “How to Think Like a Computer Scientist” by Allen B. Downey. Read Chapter 1 “The Way of the Program”.

4. ____ At the end of the chapter One in of “How to Think Like a Computer Scientist” complete exercise 1.2 and 1.3.

5. Search on “**AP Computer Science Course Home Page**”, download “**AP Computer Science Course Description.pdf**”. Read p. 4-17.

6. Print and complete in your own handwriting the study guide found at the end of this document on the reading assignments “The Way of the Program” and “APCS Course Description”. Answers must be handwritten to eliminate electronic sharing of answers. This study guide will be turned in and there will be a quiz over this material on the first day of class.

Name: _____

AP Computer Science Summer Assignment Study Guide

Read Chapter 1 of “How to Think Like a Computer Scientist”

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 does portable mean?
6. What language is used in AP Computer Science?
7. What is an interpreter?
8. What is a compiler?
9. What is source code?
10. What is the object code or executable?
11. Java is unusual because it is both compiled and interpreted. Explain the process.
12. What is a program?
13. What is a statement?
14. What are the 5 basic operations that most programming languages can perform?
15. What is debugging?
16. What is syntax?
17. What is a compile time error?
18. What is a run time error?
19. What is a logic error?
20. How is debugging like experimental science?
21. What is a Natural Language?
22. What is a Formal Language?

23. Explain syntax rules in reference to token and structures.
24. What does the author suggest for reading programs?
25. What is the basic template for a class?
26. What is the significance of “main”?
27. What statement is used to print things to the screen or terminal?
28. What symbol is required at the end of every statement?
29. What is the purpose of { } squiggly braces in java?
30. What is the purpose of a comment?
31. What does the compiler do when it sees //, the comment symbol?

Read p. 4-17 AP Computer Science Course Description

32. According to the course description, what are the six goals of AP Computer Science?
33. What is the minimum amount of non class time a student will be expected to spend working on a computer?
34. What is the minimum prerequisite recommended by the College Board for taking AP Computer Science and why?
35. What are the topics in the topic outline of course?
36. How many questions are on each part of the Exam and how long do you get to answer each part