

## AP Computer Science A Summer Assignment: Mrs. Whitlock, G127

Please email me for any questions ([whitlock@fultonschools.org](mailto:whitlock@fultonschools.org)) or post a comment on the discussions section of [www.cswithwhitlock.com](http://www.cswithwhitlock.com)

Your summer assignment will count as your first test grade and will be weighted at 50% of a regular test. The assignment contains five parts.

### **Part I: Access the APCS A course description and complete the questions on page 3 of this document (5 pts)**

The course description can be found at: <https://secure-media.collegeboard.org/digitalServices/pdf/ap/ap-computer-science-a-course-description.pdf>

These questions are due at the beginning of class on Friday, August 11<sup>th</sup>. Answers should be handwritten. This material will be included in the in-class assessment on August 11<sup>th</sup>.

### **Part II: Number System Conversions**

You are responsible for understanding the following number systems: Binary, Octal, Decimal and Hexadecimal AND how to convert a value between systems. For example, I will give you a decimal number and ask you to convert that number to its binary, octal and hexadecimal equivalents. There are many different methods of converting numbers. Find the methodology that works for you. There are plenty of resources online to help you learn this material. The following resources are helpful.

[http://www.tutorialspoint.com/computer\\_logical\\_organization/number\\_system\\_conversion.htm](http://www.tutorialspoint.com/computer_logical_organization/number_system_conversion.htm)

[https://www.youtube.com/watch?v=JTa1XthNDD0&list=PLLzusDodN2ndVdeuXR7g\\_E0q-uKSK8cGt](https://www.youtube.com/watch?v=JTa1XthNDD0&list=PLLzusDodN2ndVdeuXR7g_E0q-uKSK8cGt)

<https://www.youtube.com/watch?v=aW3qCch6Dda0>

**We will spend two class periods reviewing number conversions during the first week of school.** This material will be included in the test on Friday, August 11<sup>th</sup>. You will NOT be allowed to use a calculator on the quiz (no calculators are allowed on the AP exam so we are being consistent with College Board policies). I am attaching a [worksheet](#) for you to use as practice. I will not be collecting or grading this worksheet but the format of the questions will be similar to what you will see on the test.

### **Part III: Read Chapter 1 of Think Java and answer the attached questions (20 points)**

Think Java by Allen B Downey can be found here:

<http://www.greenteapress.com/thinkajava/thinkajava.pdf>

I am only asking you to read and answer questions from Chapter 1. You can read further if you would like. Questions are on page 4 and 5 of this document. These questions are due at the beginning of class on Friday, August 11<sup>th</sup>. Answers should be handwritten. This material will be included in the first test on August 11<sup>th</sup>.

### **Part IV: In class assessment on 8/11/17 (60 points)**

The in class assessment will be multiple choice and short answer questions from parts I, II and III.

### **Part V: Complete Unit 1 on <https://www.codecademy.com/learn/learn-java> (15 points)**

On Monday, August 13, 2017, I will ask you to log into your code academy account and I will check to see if you have completed unit 1. You do NOT have to complete any of the "pro" level options in CodeAcademy...just do the free exercises. **There will be NO Java questions on the test on 8/11/17.**

## Summer Assignment Rubric: AP Computer Science A

Name: \_\_\_\_\_ Score: \_\_\_\_\_

<b>Task</b>	<b>Due Date</b>	<b>Available points</b>	<b>Earned Points</b>
Part I: Course description questions	8/11/17	5	
Part II: Number conversions	Worksheet not graded. Review in class on August 9 & 10	NONE	NONE
Part III: Think Java, Chp 1 worksheet	8/11/17	20	
Part IV: In class assessment. MC and Short answer questions on material from I, II & III	8/11/17	60	
Part IV: CodeAcademy Java, Unit 1	8/13/17	15	
		Total Points earned For Test 1	

## APCS Summer Work: Part I

**APCS Exam Information Worksheet – Use the College Board course description to help answer these questions. The course description can be found at: <https://secure-media.collegeboard.org/digitalServices/pdf/ap/ap-computer-science-a-course-description.pdf>**

1. How many sections are on the exam? How many questions are in each section? How long is given for each section?

2. What must you be able to demonstrate on both sections of the test?

3. Multiple choice questions on the exam are classified according to the type of content. What are the seven categories tested in the multiple-choice section of the exam?

4. Are you allowed to use a computer on the FRQ of the APCS exam? \_\_\_\_\_

5. Are you allowed to use a calculator on the APCS exam? \_\_\_\_\_

**APCS Summer Work: Part III --- Chapter 1 from Think Java**

**The Way of the Program Worksheet Written by: Allen B. Downey**

Think Java can be found at: <http://www.greenteapress.com/thinkajava/thinkajava.pdf>

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 5 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?