

AP Computer Science-A: Summer Reading

(no Java experience)

Welcome to the wonderful world of computer science! If you haven't noticed, everything is run by computers these days. Knowing how and why they work is a Super Power! However, if you are not ready and well versed in Java basics, then the first few weeks of AP Computer Science can come as a real shock. You have to rely much more on your own problem solving abilities, your own ability to learn through the assigned reading, and your own perseverance to keep working on a program until you get it right.

Therefore, during the summer, it is important to get mentally prepared AP Computer Science. It is important that you don't let your brain wither over the summer! If you are a star athlete, do you lie on the couch all summer? No! You exercise! You work out! You train! The same goes for this class.

There are three parts of summer training that will help you succeed come August. I realize that some of you have very busy summers: you travel, you go to camp, and some of you work. Don't Panic. This summer program should take up 30-40 minutes a day, 3 days a week, for 4 weeks. Feel free to "train" more frequently, but you will not be penalized for completing just the minimum expectations.

Component #0 - Joining the group

This will only take a minute: Contact Mr. Parets at matthew.parets@montverde.org to be added to the Schoology group. Being part of this group will allow us to keep in contact over the summer and make it easy for you to ask questions.

Component #1 - Getting inspired

To succeed at a task you must first see where your training can lead you. Towards that end I am assigning the novel *Enders Game* by Orson Scott Card. While being a fun book to read *Enders Game* gives a realistic view of the future of computer technology and the growth of the internet. It is also a fantastic way to expand your technical vocabulary. The book is easily available through Amazon.com, including a digital version for the Kindle, iPad and other tablets. If you have seen the movie or read the book already, you should instead read *Enders Shadow*. This is the same story from the point view of a secondary character.

Links to *Enders Games* and *Enders Shadow* at Amazon.com: <http://ow.ly/MX1pX> -- <http://ow.ly/MX1QY>

Component #2 - Keep Learning

None of the topics from AP Computer Science are more complicated than the ones we covered in Intro to Programing. However, there is a lot of topics covered. To help smooth our way into AP Computer Science it is important that you are comfortable with the basics of Java. Towards that end you are required to do some reading. In the Exposure Java book read chapters **2** (*Introduction to Java*), **3** (*Simple Data Types*), **4** (*Program Organization*), **5** (*Control Structures*), and **6** (*Using Methods*). Answer the exercises questions, perform the labs. If you get stuck or need help understanding drop me an email. While 2-6 are the only required chapters, the more you complete the better prepared you will be in September.

You should ensure that you have a working copy of a Java compiler on your laptop before you leave for the summer. Instructions on download and installing the compiler JGrasp can be found on the back of this sheet.

Component #3 - Hitting the Ground Running

Reading is important, however, programming is a skill. Programming, as with any other skill you master, requires you to get in and work with your hands (and your brains). This practice can come in many forms. LearnJavaOnline will walk you through the basics. CodingBat is all about problem solving and will be used in class next year. And there are more. Lots More. Some of the more purely entertaining sources of practice are listed on the back of this page.

LearnJavaOnline

- Hello World!
- Variables and Types
- Conditionals
- Loops
- Functions

CodingBat

- WarmUp-1 and WarmUp-2 --> All Problems (*remember the solutions are given*)
- String-1 --> Problems 1 - 15 (helloName through middleTwo)
- Logic-1 --> Problems 1 - 6 (cigarParty through alarmClock)

All of the rest are optional. But, the more you complete, the easier next year will be.

Details for use and sharing for next year can be found on the back of this page.

Needed Resources

It is highly recommended that you obtain copies of all the needed files and documents from Mr. Parets before leaving school for the summer. If you find that you are missing the files, additional copies of the course work can be obtained through email from Mr. Parets, and the needed software can be downloaded freely from the net.

Finding a copy of *Ender's Game* or *Ender's Shadow*

In addition to the Amazon link on the preceding page, *Ender's Game* can easily be found at any book store or borrowed from your local library.

Downloading Java to your Laptop

It is highly recommended that you verify that you have a working copy of Java before you leave for the summer. A PowerPoint presentation is provided as part of the summer reading files that will walk you through downloading and installing the needed software. This presentation will also be available through Schoology.

LearnJavaOnline.org - Setup and Usage

- 1) There is no account to setup. All status will be saved in your browsers history
- 2) In the middle of the home page at <http://www.learnjavaonline.org> you will find the links to the needed lessons.
- 3) Follow each of the lessons. Be sure to run the code as suggested, and view the official solutions; but don't *just* follow the lessons. Experiment!

CodingBat.Com - Setup and Usage

- 1) Create an account on CodingBat.com (Be sure to fill in your full real name -- no nicknames please)
- 2) Click on "prefs" at the top left
- 3) Under "Teacher Share", fill in the "Share To" box with "apcs2017-18@montverde.org" (*This allows Mr. Parets to see your progress*).
- 4) Remember to login to the site each time you visit. If you do not login before solving a problem you will not receive credit for that problem.

Additional Java Review

If you feel that you have not quite mastered the basics of Java, I am including another resource to improve your skill. It is the digital text book Blue Pelican Java. The first sixteen lessons in the book cover the Java basics in a clear and concise form. Read, answer the exercises, and complete the projects. Mastering the basics of Java is vitally important. If you are still filled with question marks after reading BPJ, email me with questions and ask for more practice.

Practice is Fun

Not all practice is a chore. If you are doing it right, practice can also be a lot of fun. To encourage this point of view I will give extra credit for any additional programming that you accomplish over the summer. This can mean developing your own games and apps. It can also mean participating in any of websites or apps that let you practice (or play) with programming. Some examples are:

Interactive Coding Practice	-->	http://www.crunchzilla.com/	https://blockly-games.appspot.com/
A multiplayer game where coding is your tool	-->	https://www.codingame.com	
On the iPad	-->	CargoBot	Hakitzu
			Codea (develop apps - fee required)

Requirements Summary

1. Ender's Game - Read for enjoyment and vocabulary improvement
2. Exposure Java Chapters 2-6. - Read, answer the exercises, and perform the labs.
3. LearningJavaOnline.org and Codingbat.Com - Complete the practice
4. Having fun with Programming

Excuses for not doing the summer reading will not be accepted. If you will not have access to the internet over the summer, make sure you have printed copies of the CodingBat problems before you leave for the summer. Finishing the labs from the book will require that you have a working compiler on your computer. Make sure you have JGrasp installed and working before you leave for the summer. If you find you are missing needed files, email Mr. Parets and he will email you back new copies. Again, NO EXCUSES!

Please Remember - Get started on the summer assignment early. If you have questions or you get stuck you can email me any time during the summer. Don't stay confused. Email your questions and I will answer as soon as possible.

Have a fun summer, and Good Luck!

-Mr. Parets

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