

# Poolsville High School

## Science Math Computer Science House

### 10<sup>th</sup> Grade Computer Science Pilot Accelerated Option – Version 1.0?

This option is for students who:

- Have a strong programming background
- Work and learn well independently
- Desire to take as many Computer Science classes as possible before graduating

If one of these does not apply, please consider remaining with the standard SMCS Computer Science pace. It will be plenty challenging for all but the most proficient programmers.

Please understand that the goal of this acceleration is to meet the needs of students with a special ability and desire in Computer Science. It is not necessary for any student to participate...you will not be “behind” if you do not participate! (If you are “on the fence,” I would suggest staying with the standard pace!)

OK, you’re still reading...so you must be off the fence. Here’s the plan...as I see it today. This is a Pilot (experimental) program, so all documents, ideas, plans, etc. are open for change as I see fit. My one and only promise is to attempt to create an atmosphere that is positive for **all** (both accelerated and standard) students and manageable for me, the instructor.

Accelerated students will:

- Be tested within the first 2 weeks of school to determine readiness for acceleration
- Participate in all “blocked” classes, assignments, and projects
- Sit and work together in the standard class
  - paying attention to the teacher when requested – for both accelerated and standard topics
  - working quietly and independently on accelerated materials all other times
- Be removed from the accelerated program if not completing tasks with acceptable quality

So, what do you need to know? The key is programming experience. Yes, you can read books, but you **MUST** spend time programming. You must be comfortable implementing all of the following:

- Conditionals
  - if / if...else / nested conditionals
  - switch statements
- Loops
  - for / while / do...while
  - nested loops
- Methods
  - creating methods that return a value
  - using Object variables and Primitive variables as parameters
  - calling methods from other classes
  - creating static and non-static methods

- Object – Oriented Programming
  - create a class that will be used to create usable Objects
  - (member fields, methods, and constructors)
  - Inheritance – creating subclasses, abstract classes and interfaces
- Strings
  - utilizing all String methods for String manipulation
- Arrays and ArrayLists
  - add and remove values, traverse, complete list statistics (mean, median, mode, etc...)

We will be using the text Java Methods in class. <http://www.skylit.com/jm-a-ab.html>  
We plan to cover Chapters 1-12 during Semester 1. All students (even accelerated) will complete Chapters 1-3 together during the first few weeks of school.

I am not giving a specific additional text or specific exercises intentionally. There are a myriad of web-sites (start with Sun) with Java tutorials and information. We will be using Eclipse as our IED (free at [www.eclipse.org](http://www.eclipse.org) - [Eclipse IDE for Java Developers](#) ). I recommend installing and becoming familiar with Eclipse first. There are tutorials on the Eclipse website to help you get started.

IO – you can use the Scanner class or JOptionPane for user input. The trick with JOptionPane is that every variable comes in as a String.

GUI's are not required, but are a lot of fun. Don't get caught up in them at the cost of completing the "real" programming.

Exercises...after getting Eclipse started, there are many resources...a quick Google search led me to <http://forum.java.sun.com/thread.jspa?threadID=5149061&messageID=9557628> which should get you started. After a little experience, make up your own challenges.

Any work you do with Programming will help you next year. If you get into it and really spend the time – then acceleration might be for you!

Good luck! I look forward to working with all of you in the fall.

Mr. Estep

Last saved: 06/20/2008 12:08 PM