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| **Date Assigned: 1/5/16** | **Date Due: 1/7/16** |
| **Unit:** Languages | **Turn In List:** **1. Terms** |
| *“I will be able to declare the language of focus for Semester 2 .”* | |

**Computer Programming Languages: An in-depth analysis**

**Content Objectives:** Students will research each of the five languages acceptable for the 2A computer programming state CTE certification. The following [Wiki article](http://en.wikipedia.org/wiki/Comparison_of_programming_languages) may help in your search. [Language popularity article](http://en.wikipedia.org/wiki/Measuring_programming_language_popularity).

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| **Starter Activity** |
| Write a class that will run in Processing. You may choose from the following list of class names: Human, Cat, Dog, Spaceship, Soldier or Planet. The class must contain a name, at least 2 class variables, 1 constructor, a display function and at least one action function. Paste code below: void setup() {  //Set the size of the window  size(1500,950);  }  void draw() {  //Draw a white background  background(#1D809D);  zoog(mouseX,mouseY);    }  void zoog(int x, int y){  // Set CENTER mode  ellipseMode(CENTER);  rectMode(CENTER);      // Draw Zoog's body  stroke(0);  fill(#E024D4);  rect(x,y,20,100);        // Draw Zoog's head  stroke(0);  fill(#E024D4);  ellipse(x,y-30,60,60);      // Draw Zoog's eyes  fill(0);  ellipse(x-19,y-30,16,32);  ellipse(x+19,y-30,16,32);      // Draw Zoog's legs  stroke(0);  line(x-10,y+50,x-20,y+60);  line(x+10,y+50,x+20,y+60);  //moon  fill(#3A8310);  ellipse(750,2001,3001,3001);  //clouds  fill(255);  ellipse(100,100,75,50);  ellipse(110,110,75,50);  ellipse(120,100,75,50);  ellipse(130,115,75,50);  ellipse(140,95,75,50);  ellipse(740,100,75,50);  ellipse(750,110,75,50);  ellipse(760,100,75,50);  ellipse(770,115,75,50);  ellipse(780,95,75,50);  ellipse(400,100,75,50);  ellipse(410,110,75,50);  ellipse(420,100,75,50);  ellipse(430,115,75,50);  ellipse(440,95,75,50);    //sun  fill(#F0E61D);  ellipse(1420,85,150,150);    } |

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| **Key Terms: (lookup each language and write a short description of each)** | |
| **C++** | **C++** is an object-oriented programming (OOP) language that is viewed by many as the best language for creating large-scale applications. **C++** is a superset of the C language. |
| **C#** | **C#** (pronounced "C-sharp") is an object-oriented programming language from Microsoft that aims to combine the computing power of C++ with the programming ease of Visual Basic. **C#** is based on C++ and contains features similar to those of Java. |
| **Java** | Java is a programming language expressly designed for use in the [distributed](http://searchcio-midmarket.techtarget.com/definition/distributed) environment of the Internet. |
| **Python** | a high-level general-purpose programming language |
| **Visual Basic** | a programming environment from Microsoft in which a programmer uses a graphical user interface (GUI) to choose and modify preselected sections of code written in the **BASIC**programming language. |
| Type Safety | The extent to which a programming language discourages or prevents type errors. |
| Interpreted | An interpreted program, sometimes called a script, is a program whose instructions are actually a logically sequenced series of operating system commands, handled one at a time by a command interpreter |
| Procedural | Same as routine, subroutine, and function. A procedure is a section of a program that performs a specific task |
| Compiled | A compiler is a computer program that transforms source code written in a programming language into another computer language with the latter often having a binary form known as object code |

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|  | **C++** | **C#** | **Java** | **Python** | **Visual Basic** |
| Intended Use | games, office applications, graphics and video editors, and operating systems. | A simple, modern, general, purpose, object oriented programming language | General purpose computer programming language that is concurrent, class based, object oriented and specifically designed to have as few implementation dependencies as possible | Widely used general purpose, high level, programming language | Designed to accommodate a steep learning curve |
| Strongly Typed | No | yes | yes | yes | both |
| OS’s | Windows, os, linux | windows | Windows, os, linux | Windows, os, linux | windows |
| Industry | Microsoft | Microsoft | Oracle | Oracle | Microsoft |
| **Atoms or Bits** | bits | bits | Bits | bits | atoms |
| Current Version | 11 | 5.0 | 8 | 3.4 3rc1 | 10 |
| Official Standard | 11 | 5.0 | 7 | 3.4.2 | 10 |

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| **History and Background of the Language you are interested in:** |
| You may work in pairs for this portion but you need to submit your own file to Canvas. Give the When’s, Who’s, Why’s, Where’s, How’s and worldwide popularity pulse applicable for the language you are considering. (Note, this is NOT your final decision.)  Java |

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| **Assignment:** |
| Rewrite Class from Starter:  Find the official standard website or simply do a google search for your language and “class” or “object” and do your best to re-write the class from starter in the new language (code not require to build or compile.)  //Set the size of the window  size(1500,950);  }  void draw() {  //Draw a white background  background(#1D809D);  zoog(mouseX,mouseY);    }  void zoog(int x, int y){  // Set CENTER mode  ellipseMode(CENTER);  rectMode(CENTER);      // Draw Zoog's body  stroke(0);  fill(#E024D4);  rect(x,y,20,100);        // Draw Zoog's head  stroke(0);  fill(#E024D4);  ellipse(x,y-30,60,60);      // Draw Zoog's eyes  fill(0);  ellipse(x-19,y-30,16,32);  ellipse(x+19,y-30,16,32);      // Draw Zoog's legs  stroke(0);  line(x-10,y+50,x-20,y+60);  line(x+10,y+50,x+20,y+60);  //moon  fill(#3A8310);  ellipse(750,2001,3001,3001);  //clouds  fill(255);  ellipse(100,100,75,50);  ellipse(110,110,75,50);  ellipse(120,100,75,50);  ellipse(130,115,75,50);  ellipse(140,95,75,50);  ellipse(740,100,75,50);  ellipse(750,110,75,50);  ellipse(760,100,75,50);  ellipse(770,115,75,50);  ellipse(780,95,75,50);  ellipse(400,100,75,50);  ellipse(410,110,75,50);  ellipse(420,100,75,50);  ellipse(430,115,75,50);  ellipse(440,95,75,50);    //sun  fill(#F0E61D);  ellipse(1420,85,150,150);    } |

Notes (Points of interest, mistakes, lessons learned, web resources, and thoughts):

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