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| **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:  // setup runs once  void setup(){  size(240,140);  }  //draw runs on a loop  void draw(){  background(255);  spaceShip(mouseX, mouseY);    }  void spaceShip(int x, int y) {  fill(176,39,227);  ellipse(x,y,40,75);  fill(176,39,227);  fill(0);  rect(x-30,y+10,10,3);  rect(x+20,y+10,10,3);  fill(176,39,227);  ellipse(x-31,y+15,15,30);  ellipse(x+33,y+15,15,30);  fill(0);  rect(x-2,y-50,3,13);  fill(176,39,227);  ellipse(x-.5,y-55,10,10);  fill(194,236,237);  ellipse(x,y-20,15,25);  fill(255,0,21);  rect(x-33,y+31,5,8);  rect(x+31,y+31,5,8);  fill(255,141,0);  rect(x-32,y+31,3,6);  rect(x+32,y+31,3,6);  fill(255,234,0);  rect(x-32,y+31,2,4);  rect(x+32,y+31,2,4);  } |

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| **Key Terms: (lookup each language and write a short description of each)** | |
| **C++** | An object-oriented programming language that is an extension of the C language. Meant for a semi experienced programmer but can be used for lower or higher level programmer |
| **C#** | An object-oriented programming very similar to C++ except it combines C++ with the easy programming of Visual Basic. Also similar to Java |
| **Java** | A general-purpose computer programming language designed to produce programs that will run on any computer system |
| **Python** | An object-oriented programming language that is known for its clear syntax and easy readability |
| **Javascript** | An object-oriented computer programming language commonly used to create interactive effects within web browsers |
| Type Safety | The extent to which a programming language discourages or prevents type errors in order to perform operations |
| Interpreted | A computer program that directly executes or performs instructions written in a programming or scripting language without having them previously compiled into a machine language program |
| Procedural | A subtype of imperative programming based upon the concept of procedure calls |
| Compiled | A programming language whose implementations are typically compilers and not interpreters. It is a vague term |

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|  | **C++** | **C#** | **Java** | **Python** | **Javascript** |
| Intended Use | Make programs more organized and easier to read and maintain | Write code that can be made easy and fun to use | Write programming able to be used across many different platforms | Has an emphasize on code readability and using as few lines of code as possible | A scripting language written into an HTML so you are able to open it in a browser |
| Strongly Typed | A statically typed langauge | A statically typed language | A statically typed language | A dynamically typed language | A strongly typed language |
| OS’s | OS | Microsoft | Cross platform | Web | Web |
| Industry | Computer programming, Video game development, etc. | Computer programming, industrial automation, etc. | Computer programming, database, software testing, etc. | Computer programming, data analysis, etc. | Computer programming, software industry, etc. |
| **Atoms or Bits** | Both | Bits | Both | Bits | Bits |
| Current Version | C++17 | 6.0. | Java 8 | Python 3.8.3 | ECMAScript 2017 |
| Official Standard | <https://isocpp.org/std/the-standard> | <https://docs.microsoft.com/en-us/dotnet/csharp/language-reference/index> | <https://docs.oracle.com/javase/7/docs/> | <https://www.python.org/> | <https://www.javascript.com/> |

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| **History and Background of the Language you are interested in:** |
| I am considering going into Python because of all the things you are able to do with it, especially with the Raspberry Pi which is the programming language it uses. Python is also known for being a easy to read and quick program and something I think I would enjoy |

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| public class Puppy { |
| public class Puppy {  int puppyAge;    public Puppy(String name) {  // This constructor has one parameter, *name*.  System.out.println("Name chosen is :" + name );  }  public void setAge( int age ) {  puppyAge = age;  }  public int getAge( ) {  System.out.println("Puppy's age is :" + puppyAge );  return puppyAge;  }  public static void main(String []args) {  /\* Object creation \*/  Puppy myPuppy = new Puppy( "tommy" );  /\* Call class method to set puppy's age \*/  myPuppy.setAge( 2 );  /\* Call another class method to get puppy's age \*/  myPuppy.getAge( );  /\* You can access instance variable as follows as well \*/  System.out.println("Variable Value :" + myPuppy.puppyAge );  }  } |

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

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