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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:  class Ship {  // Member Variables  int x, y, hitbox, lives;  float hp;  boolean alive;  PImage sImage;  String image;  // Constructor  Ship(int x, int y, int hitbox, String image) {  this.x = x;  this.y = y;  this.hitbox = hitbox;  this.image = image;  hp = 100.0;  alive = true;  sImage = loadImage(image);  }  // Set Ship Location  void setLocation(int x, int y) {  this.x = x;  this.y = y;  }  // Display Method  void display() {  image(sImage, x-displayWidth\*0.034, y-displayHeight\*0.085);  }  // Behavior Methods  void shoot() {  }  } |

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| **Key Terms: (lookup each language and write a short description of each)** | |
| **C++** | An expanded version of C, used for object oriented programming, one of the most popular programming languages for graphical applications, |
| **C#** | Good for working with the .NET framework and its APIs. Mainly used for developing desktop applications. Used alongside languages like ASP in web development. |
| **Java** | Can run on any computer with a Java Runtime Environment (JRE) installed. Used to create computer applications. |
| **Python** | Can be used for developing desktop GUI applications, websites, and web applications. Can also be used for desktop applications. |
| **JavaScript** | An object oriented computer programming language commonly used to create interactive effects within web browsers. JavaScript code is written into an HTML page. |
| Data Type Safety | The extent to which a programming language discourages/prevents data type errors |
| Interpreted | A programming language for which most of its instructions are executed directly, without previously compiling it into machine-language. |
| Procedural | A programming language that follows a set of commands in an order |
| Compiled | A programming language where its code is compiled into machine-language, then executed. |

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|  | **C++** | **C#** | **Java** | **Python** | **JavaScript** |
| Intended Use | Hardware + Software | Software | Software | Software | Software |
| Strongly Typed | Yes | …Yes? The internet seems to be conflicted on this one | Yes | Yes | no |
| OS’s | Mac, Windows, Linux | Mac, Windows, Linux | Mac, Windows, Linux | Mac, Windows, Linux | Mac, Windows, Linux |
| Industry Examples  (titles) | Adobe Systems, Google apps, etc. | Stackoverflow, etc. | OpenOffice, Minecraft, etc. | YouTube, Dropbox, Spotify, Reddit, etc. | Netflix, PayPal, eBay, etc. |
| **Hardware or Software** | Both | Software | Software | Software | Software |
| Current Version | 17 | 7.3 | 8 | 3.7.2 | 1.8.5 |
| Official Standard (official website) | https://isocpp.org/ | https://docs.microsoft.com/en-us/dotnet/csharp/ | https://java.com/en/ | https://www.python.org/downloads/ | https://www.javascript.com/ |

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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.) |

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| **Assignment:** |
| Rewrite Class from Starter (see above):  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.)  class Ship {  // Member Variables  int x, y, hitbox, lives;  float hp;  boolean alive;  PImage sImage;  String image;  // Constructor  Ship(int x, int y, int hitbox, String image) {  this.x = x;  this.y = y;  this.hitbox = hitbox;  this.image = image;  hp = 100.0;  alive = true;  sImage = loadImage(image);  }  // Set Ship Location  void setLocation(int x, int y) {  this.x = x;  this.y = y;  }  // Display Method  void display() {  image(sImage, x-displayWidth\*0.034, y-displayHeight\*0.085);  }  // Behavior Methods  void shoot() {  }  } |

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

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