**Python**

**Lists (**[Documentation](http://docs.python.org/tutorial/datastructures.html))**:**

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| Creating a List |  | a = ['cat','dog'] |
| Referencing a List | a[0] – 'cat'  a[1] - 'dog' | |
| Adding to a List | a.append('bird')  #adds bird to the end of the list  ['cat', 'dog', 'bird'] | |
| Finding an item in a list | a.index('dog') – returns 1 | |

**Functions: A function returns a value. It can have input in a parameter () or not.**

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| **Defining Functions** | def function\_name(input):  #indented code  #(4 spaces or 1 tab) return output  **OR**  def functionName()  #variable is declared at  the top of code.  variableName = 3\*\*3  return variableName | def circle\_area(radius): area = 3.14\*(radius\*\*2) return area  def newWord():  random.shuffle(wizzard\_list)  word=(wizzard\_list[0])  return word |
| **Calling Functions** | function\_name(input) Output  **OR**  function\_name() | circle\_area(5)  # returns78.5  OR  newWord()  #returns a random word from a list |
| Input/Output | print(3+7) 10  >>> print 'Hi' Hi | >>> age = input("How old are you? ") How old are you? 30  >>> print age 30 |
| Formatting | #Convert to an integer  int(3.14) 3 | #Convert into a string of characters.  >>> 'I am ' + str(age) + 'years old' 'I am 30 years old' |
| Formatting |  | #Convert a string into an int.  >>> age = input('How old are you?')  age = int(age)  print(' You were born in ',2015-age, 'years old') |

**Control Flow** [Documentation](http://docs.python.org/tutorial/controlflow.html)

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| While | #initialize test variable while (test is true):  #run indented code  #increment test variable | number = 0  while (number < 5): print number  number = number + 1 |
| For | for variable in list: print variable | for number in range(0,5): print variable |
| If/Else | if a < b:  #do this indented code else:  #do this indented code | if 1 < 2:  print "Yes" else:  print "No" |

# Other Useful Modules

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| [**Python**](http://docs.python.org/library/math.html) **Concept** | **Python Code** | |
| Use **len** to tell how many characters are in a String. |  | word = 'computer'  letters = **len**(word) |
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| *Random*  [Documentation](http://docs.python.org/library/random.html) |  |  |
| from random import \* |  |  |
| randint(1,10) |  |  |
|  |  |  |
| randint(1,10) |  |  |
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