**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 areadef newWord(): random.shuffle(wizzard\_list) word=(wizzard\_list[0]) return word |
| **Calling Functions** | function\_name(input) Output**OR**function\_name() | circle\_area(5) # returns78.5ORnewWord()#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 = 0while (number < 5): print numbernumber = 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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