

Vocabulary

Variable	Hold a value and be change
String	A list of character such as number, letter and symbols
Integer number	Whole number/counting number
Float number	The number in decimal
Syntax	Grammar/Structure of language
Modulo	Find the remainder
Boolean	True/False

Function

print()	Show the information that you want on the screen
int()	Change number to be number integer
float()	Change number to be decimal number
input()	Gain information from user
str()	A list of number, letter and symbols
len()	The length of the string
#	Comment, no effect

Forever While Loop

```
while True: # forever
    user_input = input('Enter a number: ')
    number = int(user_input)
    print ('The number squared is', number ** 2)
```

Conditional While Loop

```
count = 0 # start at zero
while count < 10: # loop while count is less than 10
    print(count) #will print numbers 0 - 9
    count = count + 1 # must increase count
```

Lists

```
mylist = [2,3,4,5] # create a list
#select an item from a list
print (mylist[0]) #selects first item and displays 2
# len() determines the length of the list
print (len(mylist)) # displays 4
mylist.append(5) # adds an item to the end of the list
```

Multiplication and Exponents

string * number	Combine that string
string* string	CRASH!
number * number	Multiply (Math)
string ** string	CRASH!
number ** number	Exponent (Math)
string ** number	CRASH!

Math

==	equal to
!=	no equal to
<	less than
>	more than
<=	less than or equal to
>=	more than or equal to
%	Modulo, Find the remainder

Addition

string + string	Combine together
string + number	CRASH!
number + number	Addition (Math)

Convert number to hexadecimal

```
while True:
#get a number from the user
    user_number = input("Please enter a number: ")
    #convert to integer
    number = int(user_number)
    hex_string = ''
```

Convert number to hexadecimal (cont)

```
while (number > 0):#the number is greater than 0)
    remainder = number % 16
#use Modulo %
    if remainder == 10:
        remainder = 'A'
    elif remainder == 11:
        remainder = 'B'
    elif remainder == 12:
        remainder = 'C'
    elif remainder == 13:
        remainder = 'D'
    elif remainder == 14:
        remainder = 'E'
    elif remainder == 15:
        remainder = 'F'
    hex_string = str(remainder) + hex_string
#remainder + hex string
    number = number // 16#must use // when you divide
    #after the loop print the hex string
    print ("Hexadecimal string is 0x" + hex_string)
#expected output - 5 = 101
#excepted output - 3 = 11
#excepted output - 2 = 10
```

Reverse Word

```
while True:
word = input("Please enter a word")
index = 0
reverse = ''
while int(index) < len(word):
reverse = word[index] + (reverse)
index = int(index) + 1
print ("Reverse: ", reverse)
```

Create function

```
# how to create a function
def nameOfFunction (myvar1, myvar2): #
parameters or arguments
    print ("hello") #must indent each line that
is part of the function
    return myvar1 + myvar2
# function call
nameOfFunction ('hi', 'there') # a value for
each argument
#write a function
# name : areaOfTriangle
# parameters : base height
# return : area
def areaOfTriangle (base, height):
    area = 0.5*base*height
    return area
```

Decision Making/Conditional Statements

```
if 3 < 2: #if statement must compare two
Booleans
    print ('3 is less than 2')
elif 4 < 2: #can have 0 or more elif statements
    print ('4 is less than 2')
elif 5 < 2:
    print ('5 is less than 2')
else: #can have 0 or 1 else statement at the
end
    print ('none of the above are True')
```

