

Grade Seven Computer Programming

Loops in Python with Turtle

One of the time saving features computers have is the ability to repeat tasks quickly and accurately. Repetitive tasks can be done by using *Loops*. Essentially, a *loop* is a section of code that is repeated several times as defined by the programmer and/or user. For our purposes, we will learn the syntax of the *for* loop. The syntax is as follows:

```
for variable in range (x,y):  
    variable can be any variable as long as it is not one of the Python commands  
    x is the lower limit (the start of the loop)  
    y is the upper limit (the end of the loop)
```

Enter the following examples:

Example 3

```
# syntax of the "for" loop  
import turtle  
for count in range (0,10):  
    print ("I will never cut Brenda's hair again."),count  
# end program
```

Example 2

```
# syntax of the "for" loop  
import turtle  
for count in range (1,10):  
    print ("I will never cut Brenda's hair again."),count  
# end program
```

Example 3

```
# syntax of the "for" loop  
import turtle  
for count in range (1,11):  
    print ("I will never cut Brenda's hair again."),count  
# end program
```

Study and enter the following examples.

Using Loops

```
1 # using loops
2 import turtle
3 t=turtle.Turtle()
4 t.speed(10)
5 length=100
6 height=10
7 for repeat in range(0,10):
8     t.forward(length)
9     t.right(90)
10    t.forward(height)
11    t.right(90)
12    t.forward(length)
13    t.left(90)
14    t.forward(height)
15    t.left(90)
16 # end
```

Rectangular Spiral

```
1 # spirals with Turtle
2 import turtle
3 t=turtle.Turtle()
4 t.speed(15)
5 length=0
6 for repeat in range(0,100):
7     length=length+2
8     t.forward(50+length)
9     t.right(90)
10    t.forward(50+length)
11    t.right(90)
12    t.forward(50+length)
13    t.right(90+2)
14 # end
```