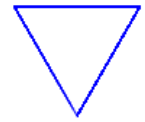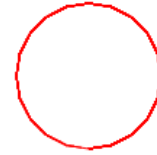# UMD STEM Workshop 2023
Week Two: Turtle Graphics
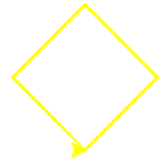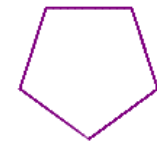
Basic Shapes

```
import turtle
Screen = turtle.Screen()#sets up turtle screen

#circle
turtle.pu()#pen up
turtle.goto(-75,75)#goes to coordinate
turtle.pd()#pen down
turtle.color("red")#set pen color
turtle.circle(50,360)#radius of 50

#triangle
turtle.pu()
turtle.goto(75,75)
turtle.pd()
turtle.color("blue")
turtle.circle(50, 360, 3)

#pentagon
turtle.pu()
turtle.goto(-75,-75)
turtle.pd()
turtle.color("purple")
turtle.circle(50,360,5)

#square
turtle.pu()
turtle.goto(75,-75)
turtle.pd()
turtle.color("yellow")
turtle.circle(50,360,4)
```

Olympics Logo

```python
#Draw Olympics logo with Python Turtle
import turtle
screen = turtle.Screen()

turtle.pensize(3)
turtle.pencolor("green")
turtle.circle(50)

turtle.penup()
turtle.setposition(-120, 0)
turtle.pendown()
turtle.pencolor("yellow")
turtle.circle(50)

turtle.penup()
turtle.setposition(60, 60)
turtle.pendown()
turtle.pencolor("red")
turtle.circle(50)

turtle.penup()
turtle.setposition(-60, 60)
turtle.pendown()
turtle.pencolor("black")
turtle.circle(50)

turtle.penup()
turtle.setposition(-180, 60)
turtle.pendown()
turtle.pencolor("blue")
turtle.circle(50)
```
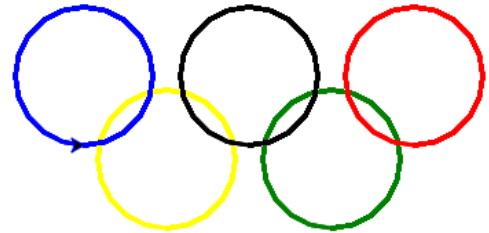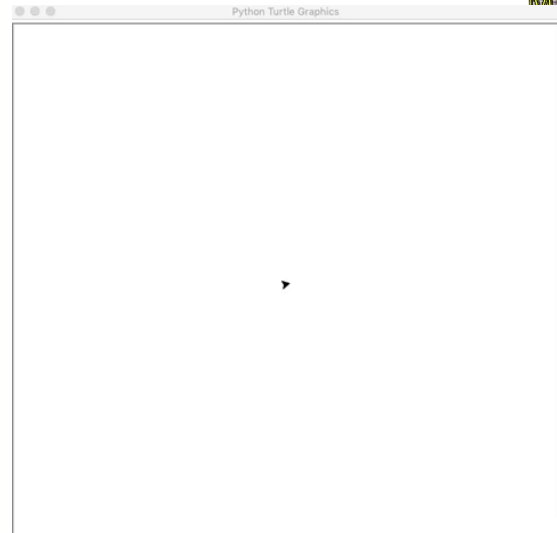
Circles within circles (Loops)

```
import turtle
screen = turtle.Screen()

n = 10
while n <= 40:
 turtle.circle(n)
 n = n + 10


*****Alternate solution (for loop):
for i in range(1,5):
   turtle.circle(10*i)
```

Spirograph Challenge (example)

```
import turtle
screen= turtle.Screen()
turtle.speed(0)

a=0
while (a < 36):
 turtle.forward (100)
 turtle.left(120)
 turtle.forward(100)
 turtle.left(120)
 turtle.forward(100)
 turtle.left(130)
 a = a+1
```

*Note: Make sure you have indentations in your code for the loops!

Check these out!

Activity #1: More shapes:
https://repl.it/@EddieFang/Activity-1-Shapes#main.py

Activity #2: Concentric Circles:
https://repl.it/@EddieFang/Turtle-Activity-2b-Concentric-Circles#main.py

Activity #3: Solar System:
https://repl.it/@EddieFang/Turtle-Activity-3-Solar-System#main.py

Activity #4: More Spirographs
https://repl.it/@PossumLee/coolSpirograph