**Outline**

t.b.d.

**Objectives**

* tbd

**Materials**

* tbd

**Level 0: Teacher Demo of Sample Programs**

1. Sample program #1 is an example of a "Syntax Error". Follow the teacher demo and explain the characteristics of a syntax error. Consider the following criteria:  
   1. Did the program have an error before starting to run?  
      yes
   2. Did the program encounter an error before it finished running?  
      no
   3. Did the program do what it was supposed to do?

no

1. Sample program #2 is an example of a "Run-time Error". Follow the teacher demo and explain the characteristics of a run-time error. Consider the following criteria:  
   1. Did the program have an error before starting to run?  
      no
   2. Did the program encounter an error before it finished running?  
      yes
   3. Did the program do what it was supposed to do?

no

1. Sample program #3 is an example of a "Logic Error". Follow the teacher demo and explain the characteristics of a logic error. Consider the following criteria:  
   1. Did the program have an error before starting to run?  
      no
   2. Did the program encounter an error before it finished running?  
      no
   3. Did the program do what it was supposed to do?

No two black circles were drawn

**Level 1: Syntax Errors**

1. Research the definition of the word "Syntax". Summarize its meaning below and how it relates to computer languages and programming.

: a character or string incorrectly placed in a command or instruction that causes a failure in execution.

1. Research the definition of a "Syntax Error" related to computer programming. Summarize this definition below.

bad input on line 7

1. Explain why Sample Program #1 is an example of a "Syntax Error".

LINE 7 IS NOT RIGHT!!!!!!!!!!!

1. Find and correct the syntax errors in Sample Program #1. Provide a listing of your corrected program below.
   * Use a "#" at the beginning of each line containing an error   
     to "Comment Out" the bad code

import turtle

myPen = turtle.Turtle()

circleColors = [(196,196,0),(196,0,196),(0,196,196)]

def drawCircle(rgb) :

# myPen.down(

myPen.color(rgb)

myPen.begin\_fill()

myPen.circle(8)

myPen.end\_fill()

myPen.up()

myPen.forward(22)

circleNumber = 0

for circleIndex in range(3) :

drawCircle(circleColours[circleNumber])

circleNumber = circleNumber + 1

* + List the corrected code line underneath the commented out error line

1. import turtle
2. myPen = turtle.Turtle()
3. circleColors = [(196,196,0),(196,0,196),(0,196,196)]
4. def drawCircle(rgb) :
5. myPen.down()
6. myPen.color(rgb)
7. myPen.begin\_fill()
8. myPen.circle(8)
9. myPen.end\_fill()
10. myPen.up()
11. myPen.forward(22)
12. circleNumber = 0
13. for circleIndex in range(3) :
14. drawCircle(circleColours[circleNumber])
15. circleNumber = circleNumber + 1

**Level 2: Run-time Errors**

1. Research the definition of a "Run-time Error" related to computer programming. Summarize this definition below.

A runtime error is a program error that occurs while the program is running

1. Explain why Sample Program #2 is an example of a "Run-time Error".

Because list indexes are out of range

1. Find and correct the run-time errors in Sample Program #2. Provide a listing of your corrected program below.
   * Use a "#" at the beginning of each line containing an error   
     to "Comment Out" the bad code
2. import turtle
3. myPen = turtle.Turtle()
4. #circleColours = [(196,196,0),(196,0,196),(0,196,196)]
5. def drawCircle(rgb) :
6. myPen.down()
7. myPen.color(rgb)
8. myPen.begin\_fill()
9. myPen.circle(8)
10. myPen.end\_fill()
11. myPen.up()
12. myPen.forward(22)
13. circleNumber = 1
14. for circleIndex in range(4) :
15. drawCircle(circleColours[circleNumber])
16. circleNumber = circleNumber + 1

List the corrected code line underneath the commented out error line   
import turtle

myPen = turtle.Turtle()

circleColours = [(196,196,0),(196,0,196),(0,196,196)]

def drawCircle(rgb) :

myPen.down()

myPen.color(rgb)

myPen.begin\_fill()

myPen.circle(8)

myPen.end\_fill()

myPen.up()

myPen.forward(22)

circleNumber = 1

for circleIndex in range(4) :

print(circleNumber)

drawCircle(circleColours[circleNumber])

circleNumber = circleNumber + 1

1. Explain the difference between a "syntax error" and a "run-time error".

**A syntax error is something that’s wrong in the line and makes it so that the program doesn’t run**

**A run time error occurs during the run of the program**

**Level 3: Logic Errors**

1. Research the definition of a "Logic Error" related to computer programming. Summarize this definition below.
2. Explain why Sample Program #3 is an example of a "Logic Error".
3. import turtle
4. myPen = turtle.Turtle()
5. circleColours = [(196,196,0),(196,0,196),(0,196,196)]
6. def drawCircle(rgb) :
7. myPen.down()
8. myPen.begin\_fill()
9. myPen.circle(8)
10. myPen.end\_fill()
11. myPen.up()
12. myPen.forward(22)
13. numOfCircles = 3
14. for circleIndex in range(3) :
15. circleNumber = numOfCircles - circleIndex - 1
16. drawCircle(circleColours[circleNumber])

line seventeen the range was to I made it three . their were three circles but thee range was only 2

1. Find and correct the logic errors in Sample Program #3. Provide a listing of your corrected program below.
   * Use a "#" at the beginning of each line containing an error   
     to "Comment Out" the bad code

List the corrected code line underneath the commented out error line   
import turtle

myPen = turtle.Turtle()

circleColours = [(196,196,0),(196,0,196),(0,196,196)]

def drawCircle(rgb) :

myPen.down()

myPen.begin\_fill()

myPen.circle(8)

myPen.end\_fill()

myPen.up()

myPen.forward(22)

numOfCircles = 3

for circleIndex in range(3) :

circleNumber = numOfCircles - circleIndex - 1

drawCircle(circleColours[circleNumber])

1. Explain the difference between a "logic error" and a "syntax error".
2. **Syntax Error**. ... Unlike logic **errors**, which are **errors** in the flow or logic of a program, **syntax errors** are small grammatical **mistakes**,
3. Explain the difference between a "logic error" and a "run-time error".

**A run time error occurs while the program is running and a logic error is code that makes no sense.**

**Level 4: Your Sample Program**

1. Create a sample program to show the different types of programming errors. Provide your program listing below.
   * Your program must be of your own design and must be different from the sample programs provided in this module.
   * Your program must contain at least one example of each of: a syntax error, a run-time error, and a logic error.
   * Provide the corrected code in a comment underneath the error code (using a "#" at the beginning of the comment line).
2. myPen = turtle.Turtle()
3. - myPen.forard(100) # myPen.forward(100
4. myPen.left(-90) # myPen.left(90)
5. myPen.forward(100)
6. myPen.left(90)
7. myPen.forward(100)
8. myPen.left(90)
9. myPen.forward( 100) # myPen.forward(100)

**SAMPLE PROGRAM #1 - Syntax Error**

import turtle

myPen = turtle.Turtle()

circleColors = [(196,196,0),(196,0,196),(0,196,196)]

def drawCircle(rgb) :

myPen.down(

myPen.color(rgb)

myPen.begin\_fill()

myPen.circle(8)

myPen.end\_fill()

myPen.up()

myPen.forward(22)

circleNumber = 0

for circleIndex in range(3) :

drawCircle(circleColours[circleNumber])

circleNumber = circleNumber + 1

**SAMPLE PROGRAM #2 - Run-time Error**

import turtle

myPen = turtle.Turtle()

circleColours = [(196,196,0),(196,0,196),(0,196,196)]

def drawCircle(rgb) :

myPen.down()

myPen.color(rgb)

myPen.begin\_fill()

myPen.circle(8)

myPen.end\_fill()

myPen.up()

myPen.forward(22)

circleNumber = 1

for circleIndex in range(4) :

# drawCircle(circleColours[circleNumber])

circleNumber = circleNumber + 1

**SAMPLE PROGRAM #3 - Logic Error**

import turtle

myPen = turtle.Turtle()

circleColours = [(196,196,0),(196,0,196),(0,196,196)]

def drawCircle(rgb) :

myPen.down()

myPen.begin\_fill()

myPen.circle(8)

myPen.end\_fill()

myPen.up()

myPen.forward(22)

numOfCircles = 3

for circleIndex in range(2) :

circleNumber = numOfCircles - circleIndex - 1

drawCircle(circleColours[circleNumber])