**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?  
      Didn’t start running because of error
   2. Did the program encounter an error before it finished running?  
      Not applied because the program failed on the question
   3. Did the program do what it was supposed to do?

Not applied because the program failed on question a

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?  
      it started to run
   2. Did the prograg encounter an error before it finished running?  
      Yes, it didn’t make the last circle
   3. Did the program do what it was supposed to do?

The program didn’t do wheat it supposed to do because, it only makes 2 ant the third

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?  
      Started to run
   2. Did the program encounter an error before it finished running?  
      no, stopped producing circle and the color is black
   3. Did the program do what it was supposed to do?

No the program didn’t do what it was supposed to do

**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.

 the syntax of a computer language is the set of rules that defines the combinations of symbols that are considered to be a correctly structured document or fragment in that language

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

A syntax error is an error in the [source code](https://techterms.com/definition/sourcecode) of a program

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

There was an unclosed bracket missing

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
   * List the corrected code line underneath the commented out error line
2. import turtle
3. myPen = turtle.Turtle()
4. circleColors = [(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 = 0
14. for circleIndex in range(3) :
15. drawCircle(circleColors[circleNumber])
16. 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.

An error that occurs during the execution of a program. In contrast, compile-time errors occur while a program is being compiled. Runtime errors indicate bugs in the program or problems that the designers had anticipated but could do nothing about.

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

It is an example of a run-time error because it does the first couple of commands and then stops.

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

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

myPen = turtle.Turtle()

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

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

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

Syntax error does not draw anything And runtime drew the first couple and then failed.

**Level 3: Logic Errors**

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

A logic error (or logical error) is a mistake in a program's code that results in incorrect or unexpected behavior

1. Explain why Sample Program #3 is an example of a "Logic Error".

Code 3 is a logical error because it drew two black dots

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
2. Explain the difference between a "logic error" and a "syntax error".

Syntax doesn’t draw anything and logic error drew 2 circle but in black

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

**logic error has drew black circles and the run-time error drew the colored circle but not the last one**

**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).

**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])