Language 1:

Our first program is written in Small Basic and will have a Scout enter his name and Rank.

1)      Open Microsoft Small Basic

2)      Starting at line 1 Type in the sample program text

TextWindow.WriteLine("What is your name?")

name = TextWindow.Read()

TextWindow.WriteLine("What is your Scout rank?")

rank = TextWindow.Read()

TextWindow.WriteLine(name + ", is a Scout with the " + rank + " rank.")

3)      Press the Run Triangle Button or F5.

4)      Debug your program if needed.

5)      Modify the program with your enhancements and run the modification.

An idea to modify your program is to add a conditional statement like this:

**If** rank = "scout" **Then**

  TextWindow.WriteLine("You're off to a good start!")

**EndIf**

**If** rank = "tenderfoot" **Then**

  TextWindow.WriteLine("Making progress!  Congrats!")

**EndIf**

What else can you think of?

Optional:

6:

' This is a comment. Comments help others understand your code.  
Turtle.Move(100)  
Turtle.TurnRight()  
Turtle.Move(100)  
Turtle.TurnRight()  
Turtle.Move(100)  
Turtle.TurnRight()  
Turtle.Move(100)  
Turtle.TurnRight()

7:

' Using a for loop is much easier than repeating lines of code:  
For i = 1 To 4  
  Turtle.Move(100)  
  Turtle.TurnRight()  
EndFor

8:

' This makes a cool design:  
moveamt = 100  
For i = 1 To 20  
  moveamt = moveamt + 10  
  Turtle.Move(moveamt)  
  Turtle.TurnRight()  
EndFor

Language 2:

JavaScript

1. Create a new Folder: **c:\projects\temp\** with windows explorer.
2. Open Visual Studio Code
3. Create a new file with File -> New File
4. Type the following in the window

function calcFtoC() {

var tempF = document.getElementById('inputTemp').value;

var tempC = ( 5 / 9 \* (tempF - 32)).toFixed(1);

    if(tempC < 7.2) {

var myActionText="Take long-johns!";

}

else {

if(tempC > 26.6) {

var myActionText = "Take sunscreen!";

}

else {

var myActionText = "Just have fun!";

}

}

newText = "If the temperature is " + tempF + "&deg;F (" + tempC +" &deg;C): " + myActionText;

document.getElementById('calcAnswer').innerHTML = newText;

}

1. File-> Save As -> **c:\projects\temp\calcFtoC.js**
2. Create a New File with File -> New File
3. Type the following in the window:

<!DOCTYPE html>

<html>

<head>

<title>Example JS Program</title>

<script src='calcFtoC.js' type='text/javascript'></script>

</head>

<body>

<h1>Example JavaScript Program</h1>

    <h2>Enter Temperature (&deg;F):

     <input type="text" id="inputTemp"/>

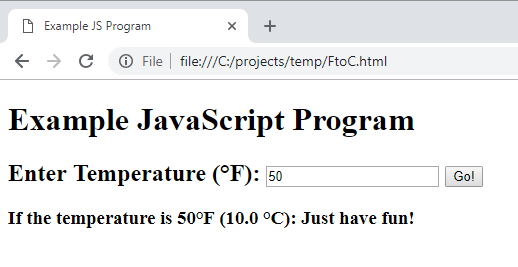
     <input type="button" value="Go!" onclick="calcFtoC();" />

    <h3 id="calcAnswer"></h3>

</body>

</html>

1. File-> Save As -> **c:\projects\temp\FtoC.html**
2. Open [**file:///C:/projects/temp/FtoC.html**](file:///C:/projects/temp/FtoC.html)in Chrome
3. Test by entering 50 in the textbox and pressing GO. When done it should look like this:



3. Once you understand how this works, then can you add a new feature where you can convert Gallons to Litres? If too difficult then try change the message you receive based on the temperature.

Hints:

a. There are 3.7854 liters in a gallon...

b. You will make a change to the HTML and to the calcFtoC.js files to add this new feature

Language 3:

Python on Raspberry Pi (Linux)

Part 1:

1. Click on the Raspberry icon.

2. Click Programming.

3. Click "Thonny Python IDE".

4. In the top window enter the program below. Click the play button to run it. Watch the bottom panel (where the output is). It may take a second.

5. Do you get the same results each time? If not, why not?

import random

insults = (

'stinky',

'blubbering',

'toothless'

)

print("You are " + random.choice(insults))

Part 2:

You can get input from the keyboard as follows:

name = input("Enter your name:")

See if you can modify the program to insult the person by name!

Note: If you are using an older version of Python (e.g., 2.7), use raw\_input instead of input.

Part 3 (optional):

The variable titled "insults" is a list. Add more insults to the list (lousy, rotten, …). See if you can make the output like this:

"<Name>, you are a rotten fool"

Part 4 (optional):

Can you think of anything else to do to this program? Suggestion: add a ! to the end.

Part 5 (optional, after everyone else is done with parts 1 and 2):

Program Minecraft through Python:

1. Open Minecraft from the Games menu.

2. Start a game, create a new world, wait for the world to generate.

3. Press tab to release the mouse from Minecraft.

4. Create a new file in Thonny and enter the code below.

5. Save and run.

from mcpi import minecraft

mc = minecraft.Minecraft.create()

mc.postToChat("Hello world")

You should see "Hello World" in the Minecraft chat window.

Try this program to create a block by your player:

x, y, z = mc.player.getPos()

mc.setBlock( x+1, y, z, 1)

The last '1' is the block type, Here are some other block types:

Air: 0

Grass: 2

Dirt: 3

Fill a whole area with blocks:

x, y, z = mc.player.getPos()

mc.setBlocks(x+1, y+1, z+1, x+11, y+11, z+11, 1)

Make flowers where you walk:

from mcpi.minecraft import Minecraft

from time import sleep

mc = Minecraft.create()

flower = 38

while True:

x, y, z = mc.player.getPos()

mc.setBlock(x, y, z, flower)

sleep(0.1)

Note: Program 3 parts 1-4 was modified from a document created by Eric Silva of Hawk Mountain Council, part 5 was modified from a document created by Ken Simone.