**STAR GAZING WITH PYTHON TURTLE (Part 1) - Create a Star**

**Introduction:** This worksheet is written to create bite size chunks of the Club Leader Resources – Constellation program.

**Start:**

1. Setup and assemble the Raspberry Pi (RPi) environment:
   1. Connect RPi to a monitor, keyboard and mouse
   2. Power up the RPi module
   3. Observe the start-up script
2. Login and enter password
3. Start the GUI by typing ‘startx’
4. Open the Python 3 programming environment IDLE3
5. Click on **File** and **Open** **New Window**
6. Click on **File** and **Save As** andnaming itStar\_Turtle\_01.py

**Coding:**

*[Note the use of the comment # (hashtag) this will add further information about the code behaviour. Be careful to observe the use of capital and small letters.]*

1. Enter the following code into the new window:
2. Before you start to write your program import the Turtle Library

import turtle #Import the Turtle Library

1. Next create a window to display the turtle window. Assign this to a variable.

wn = turtle.Screen() #wn = variable; note Screen has a capital S

1. Give your turtle a name.

t = turtle.Turtle() #t is the name of the turtle (use your own name if #preferred); note Turtle() has a capital T

1. Draw a Star

for side in range (5):

t.left(144)

t.forward(100)

wn.exitonclick()

for i in range(4): #for i in range(4) means repeat a number of

#sequences 4 times. The : (colon)indicates an

#indent of four spaces needs to be inserted

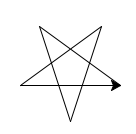
#before entering the follow code.

t.forward(50) #moves turtle forward 50 points

t.right(90) #turns turtle 90o

wn.exitonclick() #shuts the turtle graphics window

1. Save and run the code



1. Give a star some colour – add this code

def drawStar(starSize): # define drawStar(starSize):

t.fillcolor("Red") # change the colour of the turtle to Red

t.begin\_fill() # begin the fill sequence for the shape

for side in range (5): # amend the code in step 5

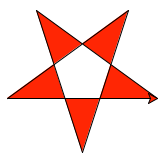
t.left(144)

t.forward(starSize)

t.end\_fill() # end the fill sequence for the shape

drawStar(150)

1. Save this module as Star\_Turtle\_02.py and run the code



1. What shape is produced when the sequence is changed to 8 and the angle 45o ?
2. Challenges: Create similar shapes by changing the values in the code

Complete Code:

#fill a star with a basic colour and variable size

import turtle

wn = turtle.Screen()

t = turtle.Turtle()

def drawStar(starSize): #define 'drawStar' with a 'starSize'

t.fillcolor("Red") #set the starfill colour to Red

t.begin\_fill() #starting point for the star fill

for side in range (5):

t.left(144)

t.forward(starSize) #move the star forward 'starSize' steps

t.end\_fill() #end point for the star fill

drawStar(150) #start the drawStar sequence 150 steps

wn.exitonclick()