

# crazy coding

learning to code with python in minecraft



## Script 1 - Step 1

### Say hello to Poopyhead, the turtle

```
import turtle          # import everything from the turtle module
canvas = turtle.Screen()    # get a canvas to draw on
poopyhead = turtle.Turtle() # create a new turtle named poopyhead
```

## Script 1 - Step 2

### Poopyhead turns a strange color

```
import turtle          # import everything from the turtle module
canvas = turtle.Screen()    # get a canvas to draw on
canvas.setup(400,200)      # set the canvas width and height
poopyhead = turtle.Turtle() # create a new turtle named poopyhead
poopyhead.shape("turtle")  # set poopyhead's shape
poopyhead.color("purple")  # set poopyhead's color to purple
```

## Script 1 - Step 3

### Poopyhead takes its first steps

```
import turtle          # import everything from the turtle module
canvas = turtle.Screen()    # get a canvas to draw on
canvas.setup(400,200)      # set the canvas width and height
poopyhead = turtle.Turtle() # create a new turtle named poopyhead
poopyhead.shape("turtle")  # set poopyhead's shape
poopyhead.color("purple")  # set poopyhead's color to purple
poopyhead.forward(50)       # move poopyhead forward by 50 pixels
```

## Script 1 - Step 4

### Poopyhead does a square dance

```
import turtle          # import everything from the turtle module
canvas = turtle.Screen()    # get a canvas to draw on
canvas.setup(400,200)      # set the canvas width and height
poopyhead = turtle.Turtle() # create a new turtle named poopyhead
poopyhead.shape("turtle")  # set poopyhead's shape
poopyhead.color("purple")  # set poopyhead's color to purple
poopyhead.forward(50)       # move poopyhead forward by 50 pixels
poopyhead.left(90)          # move poopyhead forward by 100 pixels
poopyhead.forward(50)       # move poopyhead forward by 100 pixels
poopyhead.left(90)          # move poopyhead forward by 100 pixels
poopyhead.forward(50)       # move poopyhead forward by 100 pixels
poopyhead.left(90)          # move poopyhead forward by 100 pixels
poopyhead.forward(50)       # move poopyhead forward by 100 pixels
poopyhead.done()            # poopyhead is done
```

## Script 2

### Turtle power, turtle flower

```
import turtle # import the turtle module

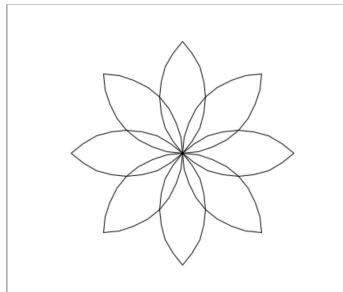
# give the turtle superpowers
turtle.hideturtle() # make the turtle invisible
turtle.speed('fastest') # make the turtle go superfast
turtle.tracer(False) # make the turtle's pen invisible

# function to draw one petal
def petal(radius,steps): # name and parameters for the function
    turtle.circle(radius,90,steps) # draw the top of the petal
    turtle.left(90) # turn
    turtle.circle(radius,90,steps) # draw the bottom of the petal

# variables
num_petals = 8 # the number of petals in the flower
steps = 8 # the length of each petal
radius = 100 # the width of each petal

# draw the flower
for i in xrange(num_petals): # use a for-loop
    turtle.setheading(0) # the direction the turtle is facing
    turtle.right(360*i/num_petals) # turn the turtle before placing a leaf
    petal(radius,steps) # call the petal function

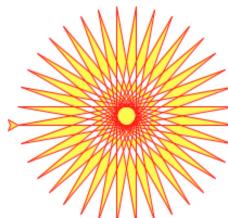
turtle.tracer(True)
turtle.done()
```



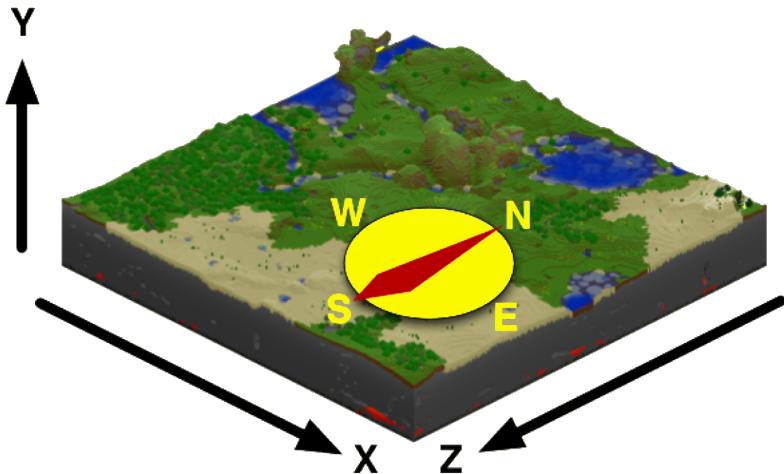
## Script 3

### Bart art

```
import turtle
bart = turtle.Turtle()
bart.color("red", "yellow")
bart.begin_fill()
while True:
    bart.forward(200)
    bart.left(170)
    if abs(bart.pos()) < 1:
        break
bart.end_fill()
bart.done()
```



# Minecraft Coordinates



## Script 4 - Step 1 Where am I?

```
import mcpi.minecraft as minecraft      # import minecraft module
world = minecraft.Minecraft.create()    # create a connection to the minecraft world
position = world.player.getTilePos()     # get the location of your game character

print position.x                        # Where am I between West and East
print position.y                        # Where am I between Earth and Sky
print position.z                        # Where am I between North and South
```

## Script 4 - Step 2 Send your position to Minecraft chat

```
import mcpi.minecraft as minecraft      # import minecraft module
world = minecraft.Minecraft.create()    # create a connection to the minecraft world
position = world.player.getTilePos()     # get the location of your game character

print position.x                        # where am I between West and East
print position.y                        # where am I between Earth and Sky
print position.z                        # where am I between North and South

world.postToChat(position.x + position.y + position.z) # send my position to minecraft chat
```

## Script 4 - Step 3

### Handling errors

```
import mcpi.minecraft as minecraft          # import minecraft module
world = minecraft.Minecraft.create()        # create a connection to the minecraft world
position = world.player.getTilePos()         # get the location of your game character

print position.x                            # where am I between West and East
print position.y                            # where am I between Earth and Sky
print position.z                            # where am I between North and South

# send my position to minecraft chat
world.postToChat(str(position.x) + position.y + position.z)
```

## Script 4 - Step 4

### Converting numbers to text

```
import mcpi.minecraft as minecraft          # import minecraft module
world = minecraft.Minecraft.create()        # create a connection to the minecraft world
position = world.player.getTilePos()         # get the location of your game character

print position.x                            # where am I between West and East
print position.y                            # where am I between Earth and Sky
print position.z                            # where am I between North and South

# send my position to minecraft chat
world.postToChat(str(position.x) + str(position.y) + str(position.z))
```

## Script 4 - Step 5

### Formatting text

```
import mcpi.minecraft as minecraft          # import minecraft module
world = minecraft.Minecraft.create()        # create a connection to the minecraft world
position = world.player.getTilePos()         # get the location of your game character

print position.x                            # where am I between West and East
print position.y                            # where am I between Earth and Sky
print position.z                            # where am I between North and South

# send my position to minecraft chat
world.postToChat(str(position.x) + " " + str(position.y) + " " + str(position.z))
```

## Script 4 - Step 6

### Making text easy to read

```
import mcpi.minecraft as minecraft          # import minecraft module
world = minecraft.Minecraft.create()        # create a connection to the minecraft world
position = world.player.getTilePos()         # get the location of your game character

print position.x                            # where am I between West and East
print position.y                            # where am I between Earth and Sky
print position.z                            # where am I between North and South

# send my position to minecraft chat
world.postToChat("x=" + str(position.x) + ", y=" + str(position.y) + ", z=" + str(position.z))
```

# Minecraft Turtle Cheat sheet

```
import mcturtle.minecraftturtle as minecraftturtle
import mcturtle.minecraft as minecraft
import mcturtle.block as block

mc = minecraft.Minecraft.create()                      # create a connection to the minecraft world
pos = mc.player.getPos()                             # get the location of your game character
steve = minecraftturtle.MinecraftTurtle(mc,pos)      # name your turtle and put it near your game character

steve.penblock(block.WOOL.id, 1)                      # tell the turtle what block you want to build with
steve.speed(10)                                      # how fast your turtle will build
steve.forward(10)                                     # turtle build 10 bricks forward
steve.backward(5)                                     # turtle build 5 bricks backward
steve.right(90)                                      # turtle turn right 90 degrees
steve.left(45)                                       # turtle turn left 45 degrees
steve.up(30)                                         # turtle pitch up 30 degrees
steve.down(10)                                        # turtle pitch down 10 degrees
steve.penup()                                         # turtle stop building
steve.pendown()                                      # turtle start building again
steve.setposition(0,0,0)                             # set the turtle's xyz position
steve.setx(0)                                         # set the turtle's x position
steve.sety(0)                                         # set the turtle's y position
steve.setz(0)                                         # set the turtle's z position

turtlePos = steve.position                          # get the turtle's xyz position
print turtlePos.x                                 # get the turtle's x position
print turtlePos.y                                 # get the turtle's y position
print turtlePos.z                                 # get the turtle's z position

print steve.isdown()                               # find out if the pen is down
steve.setheading(90)                                # set the turtle's heading (angle)
steve.setverticalheading(90)                         # set the turtle's vertical headings (angle)
steve.home()                                         # return the turtle to the position it started in
```

## Script 5 Clear the World

```
# Import specific Minecraft libraries
import mcpi.minecraft as minecraft
import mcpi.block as block

mc = minecraft.Minecraft.create()

# Set lower half of world to Sandstone
mc.setBlocks(-128,0,-128,128,-128,128,block.SANDSTONE.id)

# Set upper half to air
mc.setBlocks(-128,1,-128,128,128,128,block.AIR.id)
```

## Script 6

### Turtle Square

```
import mcturtle.minecraftturtle as minecraftturtle
import mcturtle.minecraft as minecraft
import mcturtle.block as block

mc = minecraft.Minecraft.create()          # create a connection to the minecraft world
pos = mc.player.getPos()                   # get the location of your game character
steve = minecraftturtle.MinecraftTurtle(mc,pos) # name your turtle and put it near your game character
steve.penblock(block.WOOL.id, 1)            # tell the turtle what block you want to build with

steve.forward(5)                          # turtle build 5 bricks forward
steve.right(90)                         # turtle turn right 90 degrees
steve.forward(5)                          # turtle build 5 bricks forward
steve.right(90)                         # turtle turn right 90 degrees
steve.forward(5)                          # turtle build 5 bricks forward
steve.right(90)                         # turtle turn right 90 degrees
steve.forward(5)                          # turtle build 5 bricks forward
steve.right(90)                         # turtle turn right 90 degrees
steve.forward(5)                          # turtle build 5 bricks forward
```

## Script 7 - Part 1

### A functional turtle square

```
import mcturtle.minecraftturtle as minecraftturtle
import mcturtle.minecraft as minecraft
import mcturtle.block as block

mc = minecraft.Minecraft.create()          # create a connection to the minecraft world
pos = mc.player.getPos()                   # get the location of your game character
steve = minecraftturtle.MinecraftTurtle(mc,pos) # name your turtle and put it near your game character
steve.penblock(block.WOOL.id, 1)            # tell the turtle what block you want to build with

def square(self, side):
    self.forward(side)                      # turtle build 5 bricks forward
    self.right(90)                         # turtle turn right 90 degrees
    self.forward(side)                      # turtle build 5 bricks forward
    self.right(90)                         # turtle turn right 90 degrees
    self.forward(side)                      # turtle build 5 bricks forward
    self.right(90)                         # turtle turn right 90 degrees
    self.forward(side)                      # turtle build 5 bricks forward

square(steve, 5)                          # tell steve the turtle to draw a square 5 blocks long
```

## Script 7 - Part 2

### A functional turtle box

```
import mcturtle.minecraftturtle as minecraftturtle
import mcturtle.minecraft as minecraft
import mcturtle.block as block

mc = minecraft.Minecraft.create()
pos = mc.player.getPos()
steve = minecraftturtle.MinecraftTurtle(mc,pos)

steve.penblock(block.WOOL.id, 0)
steve.speed(10)

def square(self, side):
    self.forward(side)
    self.right(90)
    self.forward(side)
    self.right(90)
    self.forward(side)
    self.right(90)
    self.forward(side)

def box(self, side):
    for i in range(side):
        square(self, side)
        self.right(90)
        self.up(90)
        self.forward(1)
        self.down(90)

box(steve, 5)
```

## Script 8 - Part 1 Turtle circles

---

```
import mcturtle.minecraftturtle as minecraftturtle
import mcturtle.minecraft as minecraft
import mcturtle.block as block

mc = minecraft.Minecraft.create()          # create a connection to the minecraft world
pos = mc.player.getPos()                   # get the location of your game character
steve = minecraftturtle.MinecraftTurtle(mc,pos) # name your turtle and put it near your game character
steve.penblock(block.WOOL.id, 1)            # tell the turtle what block you want to build with

def circle(self):
    for i in range(12):                    # define a circle function
        self.forward(5)                   # create a for loop to run 12 times
        self.right(30)                   # turtle build 5 bricks forward
                                         # turtle turn right 30 degrees

circle(steve)                            # tell steve the turtle to draw a square 5 blocks long
```

## Script 8 - Part 2 Towering turtle

---

```
import mcturtle.minecraftturtle as minecraftturtle
import mcturtle.minecraft as minecraft
import mcturtle.block as block
import math

mc = minecraft.Minecraft.create()
pos = mc.player.getPos()
steve = minecraftturtle.MinecraftTurtle(mc,pos)

steve.penblock(block.WOOL.id, 0)
steve.speed(10)

def circle(self):
    for i in range(12):
        self.forward(2)
        self.right(30)

def circularwalls(self):
    for i in range(12):
        circle(self)
        self.up(90)
        self.forward(1)
        self.down(90)

circularwalls(steve)
```

## Script 8 - Part 3 Leaning tower turtle

---

```
import mcturtle.minecraftturtle as minecraftturtle
import mcturtle.minecraft as minecraft
import mcturtle.block as block
import math

mc = minecraft.Minecraft.create()
pos = mc.player.getPos()
steve = minecraftturtle.MinecraftTurtle(mc, pos)

steve.penblock(block.WOOL.id, 0)
steve.speed(10)

def circle(self):
    for i in range(30):
        self.forward(2)
        self.right(12)

def leaningtower(self):
    for i in range(12):
        circle(self)
        self.up(90)
        self.forward(1)
        self.down(90)
        self.right(90)
        self.forward(1)
        self.left(90)

leaningtower(steve)
```

## Script 9 Welcome to the orange carpet

---

```
# import the libraries
import mcpi.minecraft as minecraft
import mcpi.block as block
import time

# open a connection
mc = minecraft.Minecraft.create()

# variables for the blocks to use as a carpet
blockId = block.WOOL.id
blockData = 1

# function that draws the carpet
def buildCarpet(locx, locy, locz, size, blockId, blockData):
    mc.setBlocks(locx + 1, locy - 1, locz + 1, locx + size, locy - 1, locz + size, blockId, blockData)

# get the original position of your game character
orig = mc.player.getTilePos()

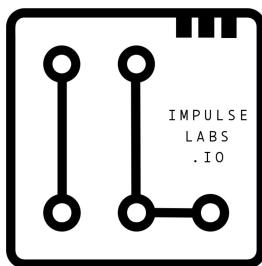
# ...and build the carpet near the game character
buildCarpet(orig.x, orig.y, orig.z, 3, blockId, blockData)

# never ending loop to sense when you walk onto the carpet
while True:
    # we don't want to waste too much electricity
    time.sleep(2)

    # get your game character's current position
    pos = mc.player.getTilePos()

    # if your game character is on the carpet, we send a chat message
    if pos.x > orig.x and pos.x < orig.x + 3 + 1 and pos.z > orig.z and pos.z < orig.z + 3 + 1:
        print("x=" + str(pos.x) + " y=" + str(pos.y) + " z=" + str(pos.z))
        mc.postToChat("Welcome to the orange carpet!")
```





# IMPULSE LABS

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