You can find all the project code here
https://github.com/coderdojo-newtampa/pi-mcpi-basics

Minecraf Pi Edition!

Today we're going to use our python skills to program on the Minecraft Pi edition game that comes installed in Raspbian (Raspbian is one of the the operating systems that runs on the Pi)

A few things to remember:

- Minecraft Pi edition is not the same as the Minecraft game
- It only supports creative mode
- Multiplayer is limited to 5 people
- It's a lot of fun to program in!

The mcpi API

API means (Application Programming Interface). It's a library with a set of objects and functions we can use to interact with Minecraft. We'll be using the mcpi library for all of these execises.

Hello World!

From the menu or command line use idle3, **File->New File** and type in this program (save it as helloworld.py)

c

```
1  #
2  # Hello world in the Minecraft window
3  #
4  import mcpi.minecraft as minecraft
5
6  mc = minecraft.Minecraft.create()
7  mc.postToChat("Hello world!")
```

Hello World! (continued)

Now start Minecraft from the “games” menu, make sure you start a new game. Once you can see the world, run your program from IDLE by using the **Run->Run Module** menu option.

You should see your message in the game!

```
1  #
2  # Hello world in the Minecraft window
3  #
4  import mcpi.minecraft as minecraft
5
6  mc = minecraft.Minecraft.create()
7  mc.postToChat("Hello world!")
```

Line 4, imports the library
Line 6 connects to the game
Line 7 sends chat commands

Flower trail

Let’s do another program. In IDLE File->New File, create a new program called flowers.py

```
1  #
2  # Add flowers to the world!
3  #
4  import mcpi.minecraft as minecraft
5  import mcpi.block as block
6  import time
7
8  mc = minecraft.Minecraft.create()
9
10 while True:
11     pos=mc.player.getPos()
12     mc.setBlock(pos.x,pos.y,pos.z, block.FLOWER_YELLOW.id)
13     time.sleep(0.1)
```

Again, run the program with Run->Run Module. Move your character, you should see a trail of flowers wherever the character walks!

Drawing a rectangle

Create a new file called rectangle.py in IDLE (File->New File).

Now copy this code, it shows you how to set blocks

```
#
# Draw a rectangle
#
# Slightly above player
#

import mcpi.minecraft as minecraft
import mcpi.block as block

mc = minecraft.Minecraft.create()

pos = mc.player.getPos()
x=pos.x + 3
y=pos.y + 2
z=pos.z

mc.setBlocks(x,y,z, x+6,y+3,z, block.MOSS_STONE.id)
```

Code above will draw a rectangle, on the right you can see the codes/names for all the blocks available in the game. Try them out!

You can find these and more on the rest of the API here:

http://www.stuffaboutcode.com/p/minecraft-api-reference.html

AIR = Block(0)
STONE = Block(1)
GRASS = Block(2)
DIRT = Block(3)
COBBLESTONE = Block(4)
WOOD_PLANKS = Block(5)
SAPLING = Block(6)
BEDROCK = Block(7)
WATER_FLOWING = Block(8)
WATER = WATER_FLOWING
WATER_STATIONARY = Block(9)
LAVA_FLOWING = Block(10)
LAVA = LAVA_FLOWING
LAVA_STATIONARY = Block(11)
SAND = Block(12)
GRAVEL = Block(13)
GOLD_ORE = Block(14)
IRON_ORE = Block(15)
COAL_ORE = Block(16)
WOOD = Block(17)
LEAVES = Block(18)
GLASS = Block(20)
LAPIS_LAZULI_ORE = Block(21)
LAPIS_LAZULI_BLOCK = Block(22)
SANDSTONE = Block(24)
BED = Block(26)
COBWEB = Block(30)
GRASS_TALL = Block(31)
WOOL = Block(35)
FLOWER_YELLOW = Block(37)
FLOWER_CYAN = Block(38)
MUSHROOM_BROWN = Block(39)
MUSHROOM_RED = Block(40)
k(247)

GOLD_BLOCK = Block(41)
IRON_BLOCK = Block(42)
STONE_SLAB_DOUBLE = Block(43)
STONE_SLAB = Block(44)
BRICK_BLOCK = Block(45)
TNT = Block(46)
BOOKSHELF = Block(47)
MOSS_STONE = Block(48)
OBSIDIAN = Block(49)
TORCH = Block(50)
FIRE = Block(51)
STAIRS_WOOD = Block(53)
CHEST = Block(54)
DIAMOND_ORE = Block(56)
DIAMOND_BLOCK = Block(57)
CRAFTING_TABLE = Block(58)
FARMLAND = Block(60)
FURNACE_INACTIVE = Block(61)
FURNACE_ACTIVE = Block(62)
DOOR_WOOD = Block(64)
LADDER = Block(65)
STAIRS_COBBLESTONE = Block(67)
DOOR_IRON = Block(71)
REDSTONE_ORE = Block(73)
SNOW = Block(78)
ICE = Block(79)
SNOW_BLOCK = Block(80)
CACTUS = Block(81)
CLAY = Block(82)
SUGAR_CANE = Block(83)
FENCE = Block(85)
GLOWSTONE_BLOCK = Block(89)
BEDROCK_INVISIBLE = Block(95)
STONE_BRICK = Block(98)
GLASS_PANE = Block(102)
MELON = Block(103)
FENCE_GATE = Block(107)
GLOWING_OBSIDIAN = Block(246)
NETHER_REACTOR_CORE = Block(247)

More examples on github!

To get all the examples, get them from github.
From the console/command line type:

> cd
> git clone https://github.com/coderdojo-newtampa/pi-mcpi-basics.git

Go in this order;
> cd pi-mcpi-basics
> cd basic

In there run any of the programs either from idle3 or by typing
> python3 helloword.py (or any of the programs here, for a list type “ls”)

When done, type
> cd ..
> cd shapes
> python3 rectangle.py (or any of the programs here, for a list type “ls”)

Run programs with idle3 or python3 from console
> cd ..
> cd games
> python3 dodge.py

This last program is a game where you have to run away from a giant cube!