Raspberry Pi – Minecrat API

Tutor Notes

1. Run Minecraft and IDLE (Not IDLE 3) – Check everyone has these running.

2. "Start Game", "Create New" on Minecraft – Check everyone is familiar with controls:

Esc	Pause / Menu	W	Forward
Tab	Free Mouse to Display	A	Left
E	Block Inventory	S	Backward
1 – 8	Select Item in Quickbar	D	Right
Space	Jump / Ascend	Shift	Sneak / Decend

   Double tap space to toggle flying mode on / off.

   Mouse: Left = Destroy Blocks, Right = Place Blocks, Wheel = Select from Quickbar

3. Initial check of Python → Minecraft operation.

   a. Let Python "know" about Minecraft:

      ```
      from mcpi import minecraft
      ```
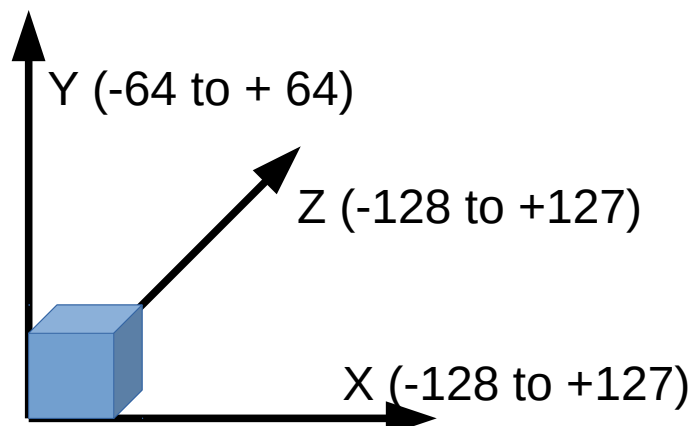
   b. Make a connection from Python to Minecraft:

      ```
      mc = minecraft.Minecraft.create()
      ```

   c. Send a command to Minecreaft

      ```
      mc.postToChat("Hello Minecraft")
      mc.player.getTilePos()
      mc.getBlock(x, y, z)
      ```

4. Describe Co-ordinate System (NB: Previous line printed x, y, z; y is vertical)

Y (-64 to + 64)

Z (-128 to +127)

X (-128 to +127)

5. We can now use this knowledge to place blocks into the Minecraft world:

```
mc.setBlock(x, y, z, 44)
for z in range(min, max):
    mc.setBlock(x, y, z)
```

6. Walk through of Sample Programs in the following order (likely to only have time for the first three or four):

   a. details.py   Roughly the previous steps as a program.

   b. steps.py   Introduces a for-loop.

   c. makeland.py   Introduces creating a cube of blocks.

   d. drop_flowers.py   Introduces a while loop and sleep.

   e. pyramid.py   Slightly more complex example.

   f. playerEvent.py   Shows how to take action when a player reaches a certain location.

   g. blockEvent.py   Shows how to take action when a block is hit.

   h. castle.py   Shows how to construct more complex buildings.

7. Ask students to pick one or more of the above examples, and to save it as a new program (File->Save As) and then modify it as they wish. Suggestions a made at the end of each program.

Resources:

Programming Python: http://www.codecademy.com/en/tracks/python

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

Raspberry Pi Blog: http://www.raspberrypi.org/blog/