

EDUPYTHON

Minecraft Collection

A collection of projects taken from
NCS Computing Hack Pack Volume 1

Hide a diamond, Find a diamond



The Sand Drop



Walking on ice 2.0



Hide a diamond. Find a diamond (Dan Aldred)

Page 1

Objective

Hide a diamond in the Minecraft world, use the 'set camera code to show a birds eye view. It's your quest to seek out the treasure.

Getting Started

1. Start by going into the Raspberry Pi menu and clicking on games, then Minecraft Pi. Select Start Game then Create New. Press ESC on your keyboard and minimise the window.
2. Double click on the EduBlocks desktop icon to open up the program. You are now ready to start coding.

Let's Code

Now its time to build our code. We can drag our code blocks from the EduBlocks toolbar which is on the left hand side of the screen. Our first 3 blocks of code can be found in the General Tab and the Minecraft Tabs, take a look, they are colour co-ordinated. Drag the blocks onto the workspace as shown in the diagram.

```
from mcpi.minecraft import Minecraft
import time
mc = Minecraft.create()
```

In this section of code we are importing the Minecraft Module from the Minecraft Pi Library. We are importing time. The 3rd block creates a connection to the Minecraft server.

Hide a diamond. Find a diamond (Dan Aldred)

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Let's Code

Our next 4 blocks can all be found in the Minecraft commands section of the toolbar. Drag them over to the workspace and connect to the previous blocks . When entering text into blocks click inside - you can tab across.

```
mc.postToChat(" Here is the dimond block i have hidden ")
```

```
mc.setBlock( 50 , 25 , 11 , 57 )
```

```
mc.camera.set Fixed ( )
```

```
mc.camera.setPos( 50 , 30 , 11 )
```



In this section of code we are firstly sending a message to the Minecraft server using `postToChat` to display the message. – Here is the block I have hidden. Then we are setting the position of where to hide the block and the camera position just above it using the x, y and z co-ordinates.

Hide a diamond. Find a diamond (Dan Aldred)

Let's Code

For this next block we need to go to the general edublock section of the toolbar and select the time block. Drag this block onto the workspace and connect to the previous blocks. Click inside the time block and enter the number 10 (this means 10 seconds)

```
time.sleep( 10 )
```

This block allows us to set a sleep within our code. It will allow the above code for our message and camera to be displayed for 10 seconds before the rest of the code runs.

For our final 2 blocks we need to go back to the Minecraft General blocks. Drag them onto the workspace and attach to the previous blocks.

```
mc.postToChat(" Go find it ")  
mc.camera.set Normal ( )
```

Now for the final 2 blocks, the first sends a message to the Minecraft server using postToChat to display the message – “Go find it” The second tells our camera to go back to normal setting.

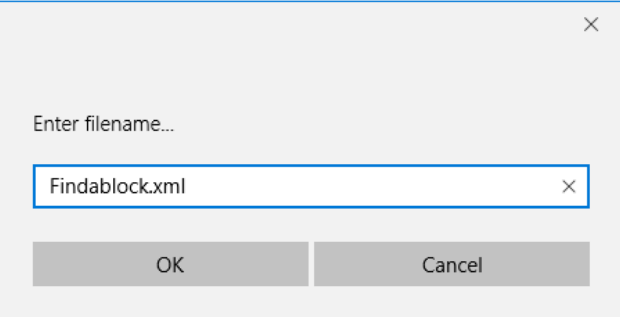
Hide a diamond. Find a diamond (Dan Aldred)

Page 4

Save your code

```
from mcpi.minecraft import Minecraft
import time
mc = Minecraft.create()
mc.postToChat(" Here is the dimond block i have hidden ")
mc.setBlock( 50 , 25 , 11 , 57 )
mc.camera.set Fixed ()
mc.camera.setPos( 50 , 30 , 11 )
time.sleep( 10 )
mc.postToChat(" Go find it ")
mc.camera.set Normal ()
```

Before we run our code, lets save it. Click on the save button in the top right hand corner of the EduBlocks window.



Type in the file name dialogue box lets call it **Findablock.xml** then click ok.

Hide a diamond. Find a diamond (Dan Aldred)

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Run your code

Now it's time to run our code. Click on the run button in the top right hand corner of the EduBlocks window. Then click on the Minecraft tab to return to our Minecraft world. Now go and seek the hidden treasure.



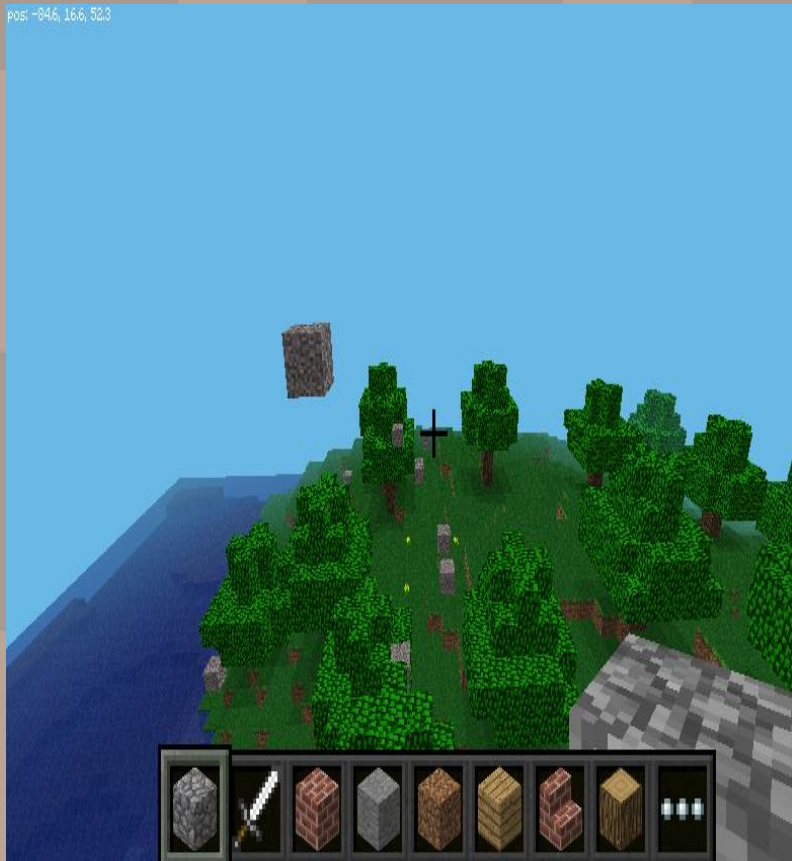
Outcome

In this tutorial we have learnt how to import libraries, talk to the Minecraft server - in order to display a message and use variables. We have also used knowledge of the x, y and z co-ordinates to firstly hide a block and then find it.

Challenge: Can you change the location of the block & add a congratulations message when the block is located?

EQUALLOWS

Minecraft Collection



The Sand Drop

www.edupython.co.uk
www.allaboutcode.co.uk

The Sand Drop (Dan Aldred)

Page 1

Objective

There are some strange things happening in the Minecraft world. Watch out because as you walk around random blocks of sand are dropping out of the sky. Don't let them hit you or else it's game over.

Getting Started

1. Start by going into the Raspberry Pi menu and clicking on games, then Minecraft Pi. Select Start Game then Create New. Press ESC on your keyboard and minimise the window.
2. Double click on the EduBlocks desktop icon to open up the program. You are now ready to start coding.

Let's Code

Now its time to build our code. We can drag our code blocks from the EduBlocks toolbar which is on the left hand side of the screen. Our first 2 blocks of code can be found in the Minecraft General Tab, take a look, they are colour co-ordinated. Drag the blocks onto the workspace as shown in the diagram.

```
from mcpi.minecraft import Minecraft  
mc = Minecraft.create()
```

In this section of code we are importing the Minecraft Module from the Minecraft Pi Library. The 2nd block creates a connection to the Minecraft server.

The Sand Drop (Dan Aldred)

Let's Code

Our next 2 blocks can be found in the General section of the toolbar. Drag them over to the workspace and connect to the previous blocks . When entering text into blocks , click inside - you can tab across.

```
import time
```

```
pos = mc.player.getTilePos()
```

This first block imports the time library. The 2nd block is a variable it allows us to shorten a command, in this case when we want to get the players position we just need to enter pos.

The next block can also be found in the General section of the toolbar. Drag them over to the workspace and connect to the previous blocks. Enter text as shown.

```
while mc.getBlock(pos.x, pos.y, pos.z)!=13 :
```

This block is a while loop, this is a way of looping through commands until the condition is met.

This next block can be found in the Minecraft commands on the toolbar. We need to click it inside our while loop.

```
mc.setBlock( pos.x , pos.y+25 , pos.z , 13 )
```

This next block allows us to set the co-ordinates for our sand block.

The Sand Drop (Dan Aldred)

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Let's Code

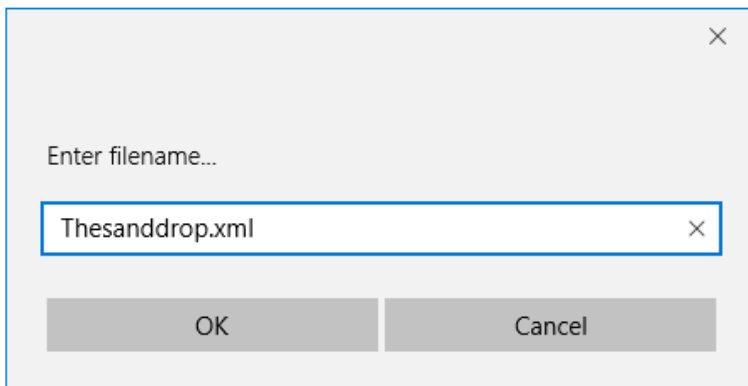
The next 2 blocks can be found in the General section of the toolbar. Drag them over to the workspace and attach to the previous blocks inside the while loop.

```
time.sleep( 1 )
```

```
pos = mc.player.getTilePos()
```

This first block is a sleep which allows a pause in this case for 1 second before the rest of the code runs. The 2nd block, which we have already met before is a variable it allows us to shorten a command, in this case when we want to get the players position we just need to enter pos.

Save your code



Enter filename...

Thesanddrop.xml

OK Cancel

Before we run our code, lets save it. Click on the save button in the top right hand corner of the EduBlocks window. Type in the file name dialogue box lets call it **Thesanddrop.xml** then click ok.

The Sand Drop (Dan Aldred)

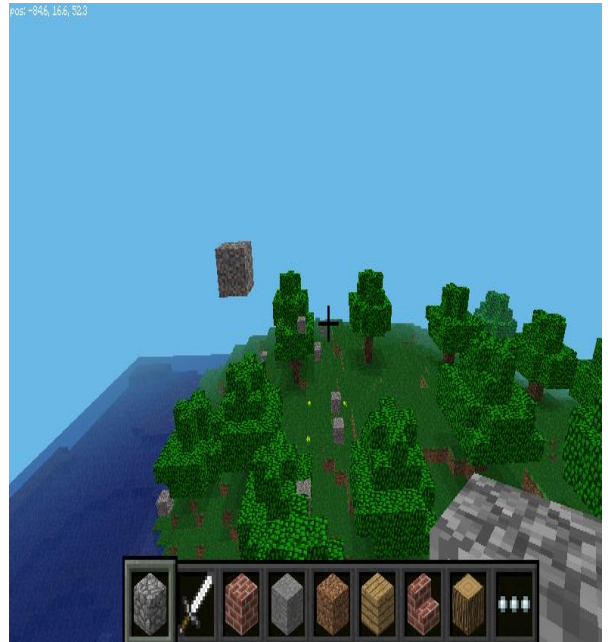
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Run your code

Now it's time to run our code. Click on the run button in the top right hand corner of the EduBlocks window.

Then click on the Minecraft tab to return to our Minecraft world. Now go and walk around the Minecraft world but watch out for those falling blocks of sand.

```
from mcpi.minecraft import Minecraft
mc = Minecraft.create()
import time
pos = mc.player.getTilePos()
while mc.getBlock(pos.x, pos.y, pos.z)!=13 :
    mc.setBlock( pos.x , pos.y+25 , pos.z , 13 )
    time.sleep( 1 )
    pos = mc.player.getTilePos()
```



Outcome

In this tutorial we have learnt how to import libraries. We have used a forever loop & variables . We have also looked at block ID's for Minecraft and used knowledge of the x, y and z co-ordinates to allow us to drop blocks of sand from the sky.

Challenge: Can you change the sand block for random blocks?

EQUALLOWS

Minecraft Collection

pos: 118, 179, -382



Walking on ice 2.0

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Walking on ice 2.0 (MCS: Computing)

Page 1

Objective

In this project we will code the Minecraft world so that when Steve walks he will walk on ice with random blocks placed underneath. If one of these blocks happens to be TNT it will activate the lava.

Getting Started

1. Start by going into the Raspberry Pi menu and clicking on games, then Minecraft Pi. Select Start Game then Create New. Press ESC on your keyboard and minimise the window.
2. Double click on the EduBlocks desktop icon to open up the program. You are now ready to start coding.

Let's Code

Now its time to build our code. We can drag our code blocks from the EduBlocks toolbar which is on the left hand side of the screen. Our first 5 blocks of code can be found in the General Tab and the Minecraft Tabs, take a look, they are colour co-ordinated. Drag the blocks onto the workspace as shown in the diagram.

```
from mcpi.minecraft import Minecraft
from mcpi import block
import time
import random
mc = Minecraft.create()
```

In this section of code we are importing the Minecraft Module from the Minecraft Pi Library. We are importing blocks , time & r andom. The 5th block creates a connection to the Minecraft server.

Let's Code

Our next 2 blocks can be found in the General section of the toolbar. Drag them over to the workspace and connect to the previous blocks . When entering text into blocks , click inside - you can tab across.

```
blockTypeList = [46,0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17]  
while True:
```

In this section of code we are firstly generating a list of all known block types ID's for mcpi that we want to use. The second block is a while loop, this is a way of looping through commands until the condition is met in this case it will always be true and will run forever.

The next 5 blocks can also be found in the General section of the toolbar. Drag them over to the workspace and connect to the inside of your while true block.

```
time.sleep( 0.4 )  
pos = mc.player.getPos()  
x = pos.x  
y = pos.y  
z = pos.z
```

In this section of code we are adding a sleep to allow a short pause before our next bit of code runs. The blocks after the sleep are variables they allow us to use a shortened command, for example every time we want to talk about the X co-ordinate position we can just use X

Let's Code

The next 2 blocks can be found in the Minecraft commands section of the toolbar. Drag them over to the workspace and attach to the previous blocks inside the while loop.

```
mc.setBlock( x , y-1 , z , 79 )
```

```
mc.setBlock( x , y-2 , z , random.choice(blockTypeList) )
```

These blocks are allowing us to place down an ice block directly underneath Steve and to also place a random block underneath the block of ice.

We now need 2 more blocks , this time from the General section of the toolbar. Drag them over to the workspace and attach to the previous blocks inside the while loop.

```
blockTwoBelow = mc.getBlock(x,y-2,z)
```

```
if blockTwoBelow == 46 :
```

The first block is a variable for the location of block 2 (our random block.) The second block is an if statement saying if block 2 equals block ID 46 (TNT) then do the following.

The final 2 blocks can be found in the Minecraft commands section of the toolbar. Drag them over to the workspace and attach to the previous blocks inside the while loop.

```
mc.setBlock( x , y-2 , z , 46 , 1 )
```

```
mc.setBlock( x , y-1 , z , 10 )
```

These 2 blocks are telling us that if block 2 (our random block) is ID 46 (TNT) then activate block 10 (Lava) this will happen each time because it is inside a forever loop.

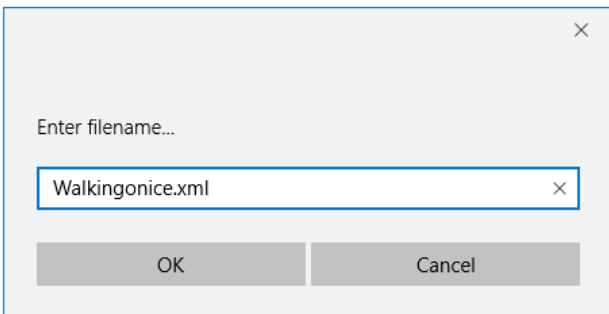
Walking on ice 2.0 (MC5: Computing)

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Save your code

```
from mcpi.minecraft import Minecraft
from mcpi import block
import time
import random
mc = Minecraft.create()
blockTypeList = [46,0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17]
while True:
    time.sleep( 0.4 )
    pos = mc.player.getPos()
    x = pos.x
    y = pos.y
    z = pos.z
    mc.setBlock( x , y-1 , z , 79 )
    mc.setBlock( x , y-2 , z , random.choice(blockTypeList) )
    blockTwoBelow = mc.getBlock(x,y-2,z)
    if blockTwoBelow == 46 :
        mc.setBlock( x , y-2 , z , 46 , 1 )
        mc.setBlock( x , y-1 , z , 10 )
```

Before we run our code, lets save it. Click on the save button in the top right hand corner of the EduBlocks window.

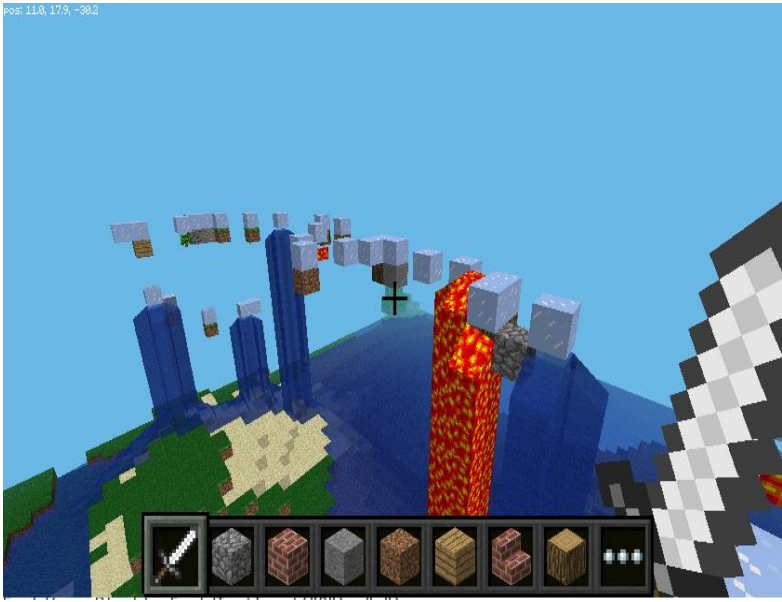


Type in the file name dialogue box, lets call it **Walkingonice.xml** then click ok.

Run your code

Now it's time to run our code. Click on the run button in the top right hand corner of the EduBlocks window.

Then click on the Minecraft tab to return to our Minecraft world. Now go and walk on ice but watch out for the TNT.



Outcome

In this tutorial we have learnt how to import libraries, time & random. We have used a forever loop , variables and an if statement. We have also looked at block ID's for Minecraft and used knowledge of the x, y and z coordinates to allow us to drop random blocks and activate any TNT ones into lava.

Challenge: Can you change the lava block to water?