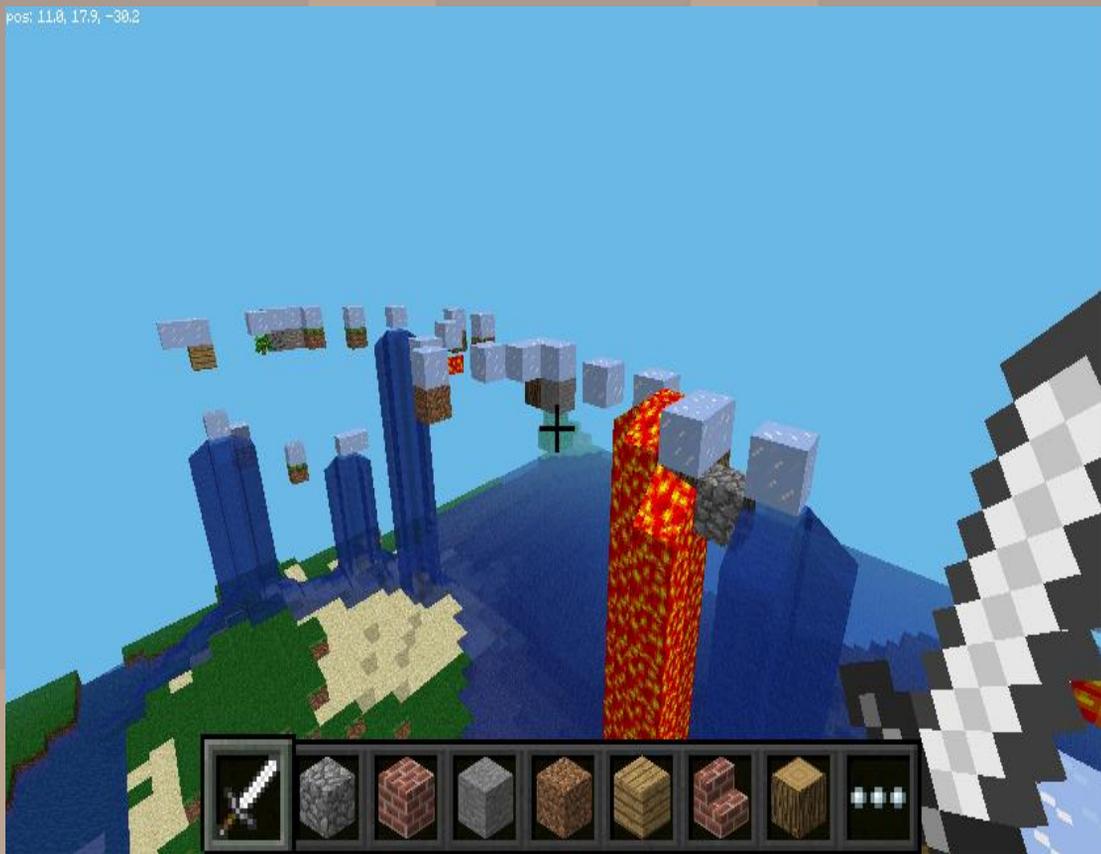


# EDUVALOONS

## Minecraft Collection

pos: 118, 179, -382



Walking on ice 2.0

[www.edupython.co.uk](http://www.edupython.co.uk)  
[www.allaboutcode.co.uk](http://www.allaboutcode.co.uk)

# 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 Basic Tab and 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
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 Basic 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 mcp 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 Basic 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 Basic 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 (MCS: Computing)

Page 4

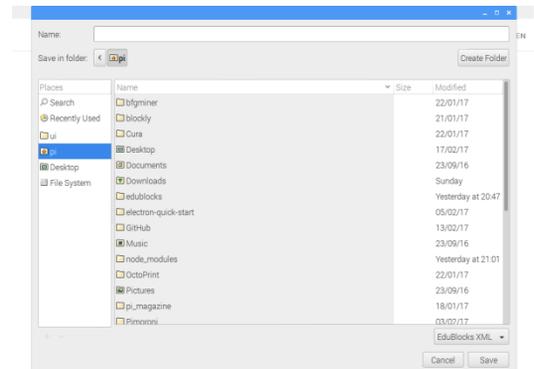
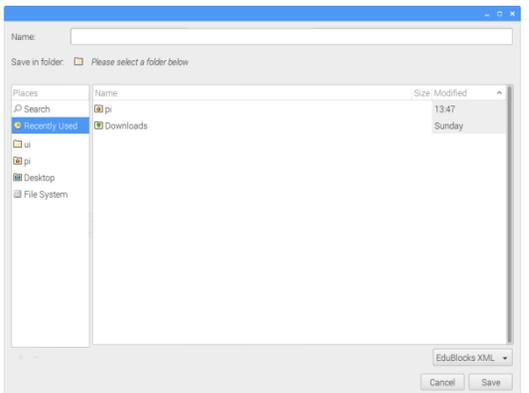
Save your code

```
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.

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

Type in the file name box lets call it **Walkingonice** then click save.



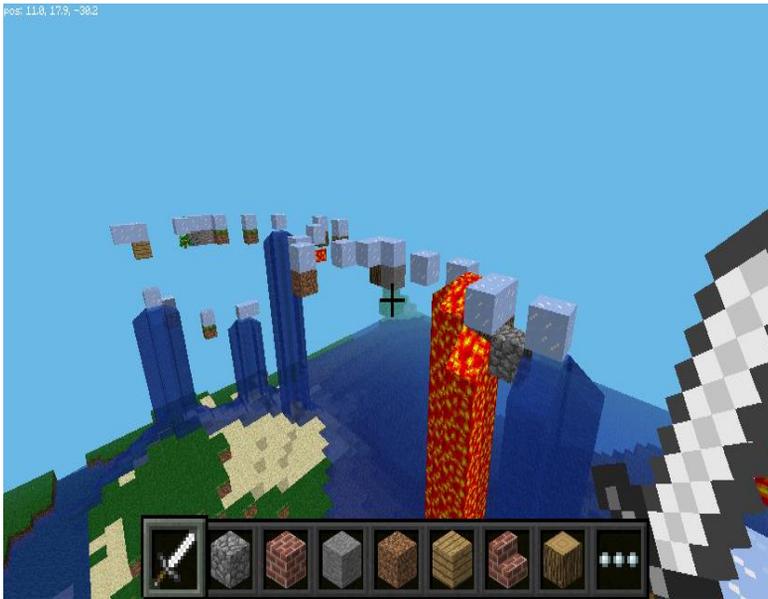
# Walking on ice 2.0 (MCS: Computing)

Page 5

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?**