Minecraft at Christmas

Project 1 - Christmas gifts

Christmas is a time of giving and receiving of gifts and this is also true in the Minecraft world. These tasks help you place different coloured blocks around your Minecraft world. Each of these tasks build upon the one before and I suggest you save each task with a different file name.

Start a new python file and save it as gift.py

Start with this first piece of code and type it in really carefully.

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

Task 1 – place a simple present

Underneath the first 5 lines of code type the next three lines very carefully.

```
x,y,z = mc.player.getPos()
x+=2
mc.setBlocks(x,y,z,x+1,y+1,z+1,block.WOOL.id,1)
```

You will need to save it by pressing Ctrl+S before running the code.

Select Run followed by Run Module or press F5

If you are ready to move on to task 2 save your file using File > Save As and call it gift2.py

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Task 2 – place a simple present and give it a random colour

Make the following changes to your code, I have highlighted them in red.

```
x,y,z = mc.player.getPos()
x+=2
list = [1,2,3,4,5,6,7,8,9,10,11,12,13,14]
c=random.choice(list)
mc.setBlocks(x,y,z,x+1,y+1,z+1,block.WOOL.id,c)
```

When you are ready to run the code you will need to save it again by pressing Ctrl+S before running the code.

Select Run followed by Run Module or press F5

Task 3 – Random blocks which change colour

Having one colour block is fun but how about ones which constantly change colour. Save you file as gift3.py and make the changes below. Remember to save before carrying on.

```
x,y,z = mc.player.getPos()
x+=2

while True:
    list = [1,2,3,4,5,6,7,8,9,10,11,12,13,14]
    c=random.choice(list)
    mc.setBlocks(x,y,z,x+1,y+1,z+1,block.WOOL.id,c)
    time.sleep(0.5)
```

Task 4 – Random blocks which move with you

With just a small change of the code we can make the blocks move with us. Before carrying on save your file as gift4.py and make the changes below. Remember to save before carrying on.

```
while True:
    x,y,z = mc.player.getPos()
    x+=2
    list = [1,2,3,4,5,6,7,8,9,10,11,12,13,14]
    c=random.choice(list)
    mc.setBlocks(x,y,z,x+1,y+1,z+1,block.WOOL.id,c)
    time.sleep(1)
```

Task 5 – Random blocks in the ground which move with you.

Our final task in the Christmas present section is to put the blocks into the ground and magically make them appear under you. Again save the code but this time as gift5.py. Carefully make the changes below and then run the code again. Don't forget to save the code before you move on.

```
while True:
    x,y,z = mc.player.getPos()
    list = [1,2,3,4,5,6,7,8,9,10,11,12,13,14]
    c=random.choice(list)
    mc.setBlock(x,y-1,z,block.WOOL.id,c)
```

You are now ready to move onto project 2 – building yourself a gingerbread house

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Project 2: Build yourself a gingerbread house

Everyone needs a nice gingerbread house at Christmas and in the Minecraft world we will be using brown wool to build our house.

Start up a new python 3 window and save the file as ginger.py

Carefully type in the code below.

Check each line after you have typed it in.

```
## Gingerbread house by Spencer Organ
import mcpi.minecraft as minecraft
import mcpi.block as block
mc=minecraft.Minecraft.create()
x,y,z=mc.player.getPos()
x+=2
mc.setBlocks(x,y,z,x+6,y+3,z+6,block.WOOL.id,12)
mc.setBlocks(x+1,y-1,z+1,x+5,y+2,z+5,block.AIR)
mc.setBlocks(x+1,y-1,z+1,x+5,y-1,z+5,block.WOOL.id,1)
mc.setBlocks(x,y,z+3,x,y+1,z+3,block.AIR.id)
y+=3
mc.setBlocks(x+1,y+1,z,x+5,y,z+6,block.WOOL.id,12)
mc.setBlocks(x+2,y+2,z,x+4,y+1,z+6,block.WOOL.id,12)
mc.setBlocks(x+3,y+3,z,x+3,y+2,z+6,block.WOOL.id,12)
mc.setBlocks(x+3,y+4,z,x+3,y+5,z,block.WOOL.id,12)
```

Hint: There 8 lines of code which are very similar, why not copy the first one and paste it and make the small changes each time?

Save your file by pressing **Ctrl+S**

Go back to your Minecraft world and find an empty space. To escape from Minecraft and return to IDLE you need to press the **Tab** key.

Select **Run** then **Run Module** or press **F5**

Assuming that there are no errors in the code you should get a gingerbread house with roof and chimney ready for you to decorate.

Why not decorate your gingerbread house and add more detail on the inside or build a whole village of gingerbread houses.

Going a bit deeper:

I have used brown wool for the walls and orange wool for the base. You can customise the colour our of the blocks by changing the number at the end of block.WOOL.id,**12**

0: White	1: Orange	2: Magenta	3: Light Blue	4: Yellow	5: Lime
6: Pink	7: Grey	8: Light grey	9: Cyan	10: Purple	11: Blue
12: Brown	13: Green	14: Red	15:Black		

Once you have built your gingerbread houses you are ready to move onto the next step - adding a Christmas Tree.

Project 3 - Building a Christmas Tree

I hope you had some fun building a gingerbread house, now it is time to add some Christmas trees to our world.

These two projects add some Christmas tree fun to your world.

Task 1 – A basic Christmas Tree

Start with a new file and save it as christmas_tree1.py

```
x,y,z = mc.player.getPos()
x+=2

mc.setBlock(x+3,y,z,block.WOOD.id)
mc.setBlock(x+3,y+1,z,block.WOOD.id)
mc.setBlocks(x,y+2,z,x+6,y+2,z,block.LEAVES.id)
mc.setBlocks(x+1,y+3,z,x+5,y+3,z,block.LEAVES.id)
mc.setBlocks(x+2,y+4,z,x+4,y+4,z,block.LEAVES.id)
mc.setBlocks(x+3,y+5,z,x+3,y+5,z,block.LEAVES.id)
```

Our Christmas Tree was fun but not very flashy so our final project adds a random colour changing wool block to the top of the tree.
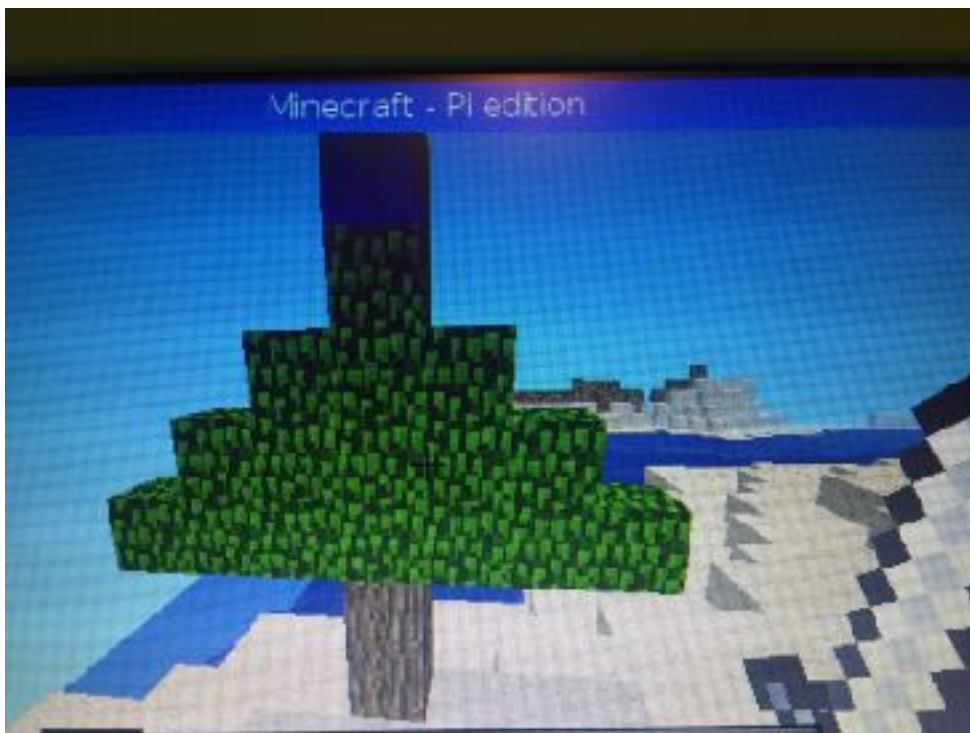
Task 2 - Christmas Tree with flashing block on top

Before making the changes save your file as christmas_tree2.py

```
x,y,z = mc.player.getPos()
x+=2
mc.setBlock(x+3,y,z,block.WOOD.id)
mc.setBlock(x+3,y+1,z,block.WOOD.id)
mc.setBlocks(x,y+2,z,x+6,y+2,z,block.LEAVES.id)
mc.setBlocks(x+1,y+3,z,x+5,y+3,z,block.LEAVES.id)
mc.setBlocks(x+2,y+4,z,x+4,y+4,z,block.LEAVES.id)
mc.setBlocks(x+3,y+5,z,x+3,y+5,z,block.LEAVES.id)

list=[1,3,5,7,10,13]

while True:
    c=random.choice(list)
    mc.setBlocks(x+3,y+6,z,x+3,y+6,z,block.WOOL.id,c)
    time.sleep(0.5)
```

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Extension Project 4: Adding some candy canes to your Christmas world.

Start up a new python 3 window and save the file as candy.py

Carefully type in the code below.

Check each line after you have typed it in.

```python
import mcpi.minecraft as minecraft
import mcpi.block as block
import random
mc = minecraft.Minecraft.create()
mc.postToChat("Candy Cane time")
flavours=[1,2,3,4,5,6,7,8,9,10,11,12,13,14]
movex=[2,3,6,8]
movez=[1,4,6,7]
p=mc.player.getTilePos()
for a in range (0,5):
        shift_x=random.choice(movex)
        shift_z=random.choice(movez)
        p.x+=shift_x
        p.z+=shift_z
        mc.setBlock(p.x+1,p.y+4,p.z,block.WOOL.id,2)
        mc.setBlock(p.x+2,p.y+4,p.z,block.WOOL.id,3)
        mc.setBlock(p.x+2,p.y+3,p.z,block.WOOL.id,4)
        for i in range(0,5):
                c=random.choice(flavours)
                mc.setBlock(p.x,p.y+i,p.z,block.WOOL.id,c)
```