

# Island Navigation

We're making a game so a user can give compass bearings and number of steps to move by in order to navigate around the island.

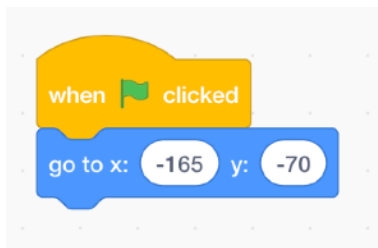
Start Point:

<https://scratch.mit.edu/projects/364494213/editor/>

## STEP 1 - Start Position

Add a green flag clicked block to the Red Dot sprite.

Then give it a starting position where X is **-165** and Y is **-70**

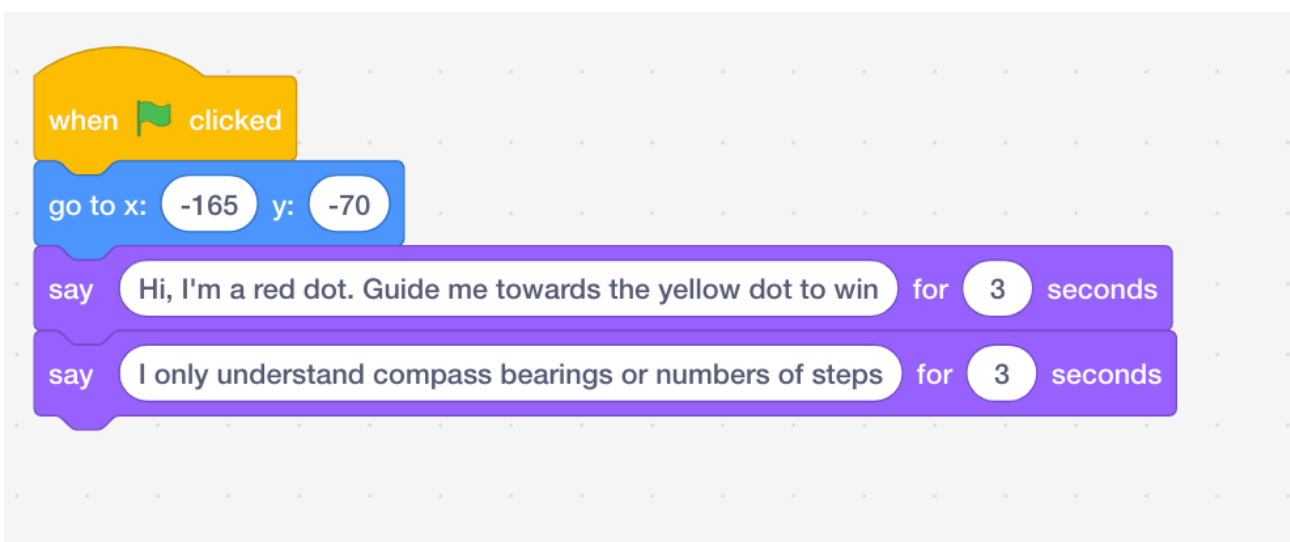


Scratch calculates where everything is located using X and Y co-ordinates. X is for horizontal position, Y is for vertical position.

## STEP 2 - User Information

We need to make sure people understand how this game works.

Add two 'Say' blocks from the purple 'looks' menu. Make sure they have the same words the as the ones below!



## Compass Code

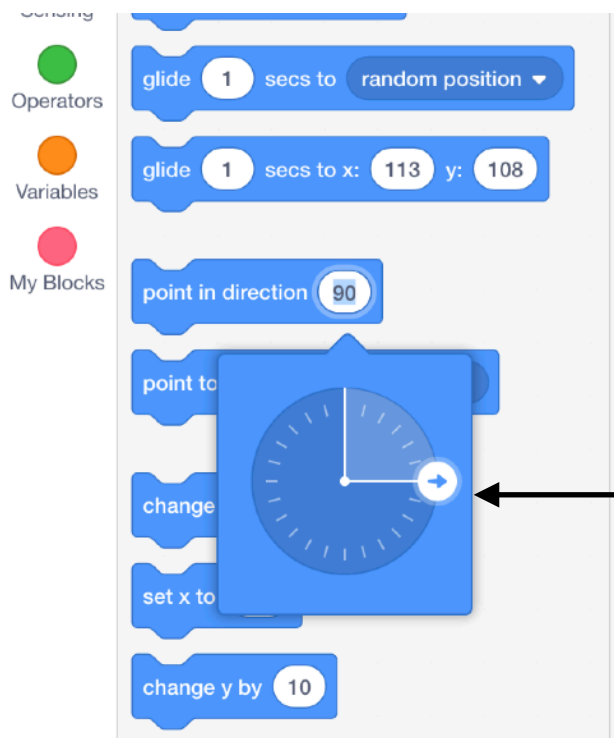
\*\*\*\* This explanation is not part of the program \*\*\*\*

Scratch has a built in compass!

Go to the **'motion'** menu and find **'point in direction'** block

Click on the white field that says 90

A pop up appears:



This works just like a compass. You can pass it values for **degrees of rotation** between **0** and **360** and it will point the sprite in that direction.

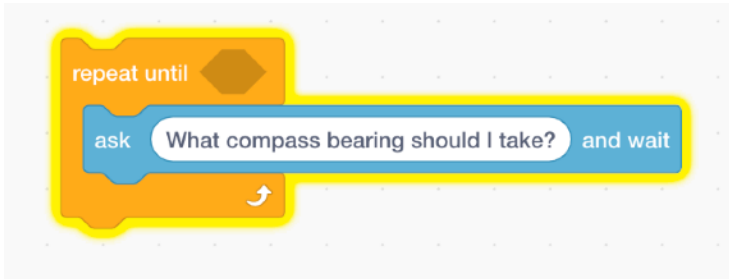
Watch out though. Sometimes it changes the value you type in. Try typing in **270** and press return. It changes it to **-90** !!

We don't need to worry about this. It won't affect the program we're making because we don't need to see these values. We just need to know that the program will work!

### STEP 3 - Direction

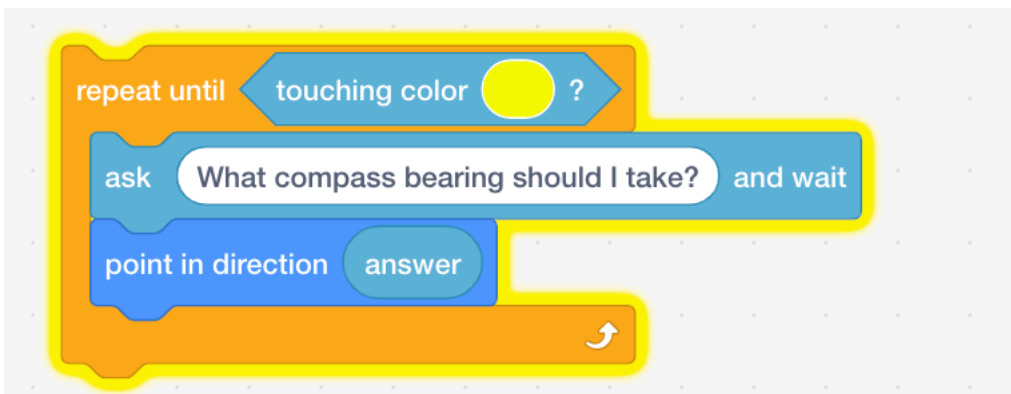
Add a '**repeat until**' block from the orange control menu.

Inside that, put an '**ask**' block from the sensing menu.

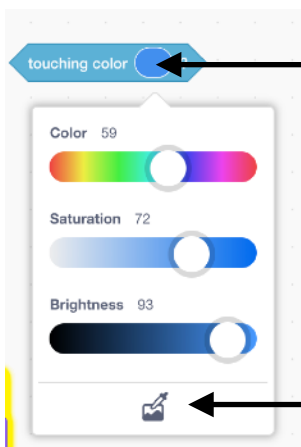


Find the blue '**point in direction**' block and put the '**answer**' block inside it.

This will store the compass bearing the user gives. It's stored in the '**answer**' block. This will make the sprite go in that direction.



Add a '**touching color**' block inside repeat until. It might not start out yellow. We are going to set the colour to yellow so that when the red dot reaches the yellow dot (the destination) the game will stop.



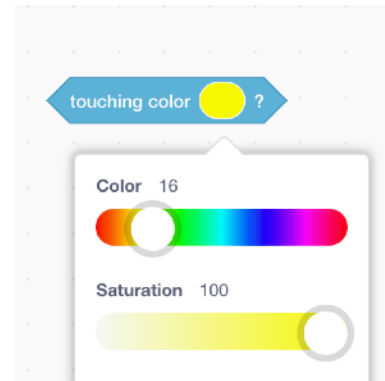
First, click in the colour field.

Then click here ...  
It will create a "magnifying colour picker tool"



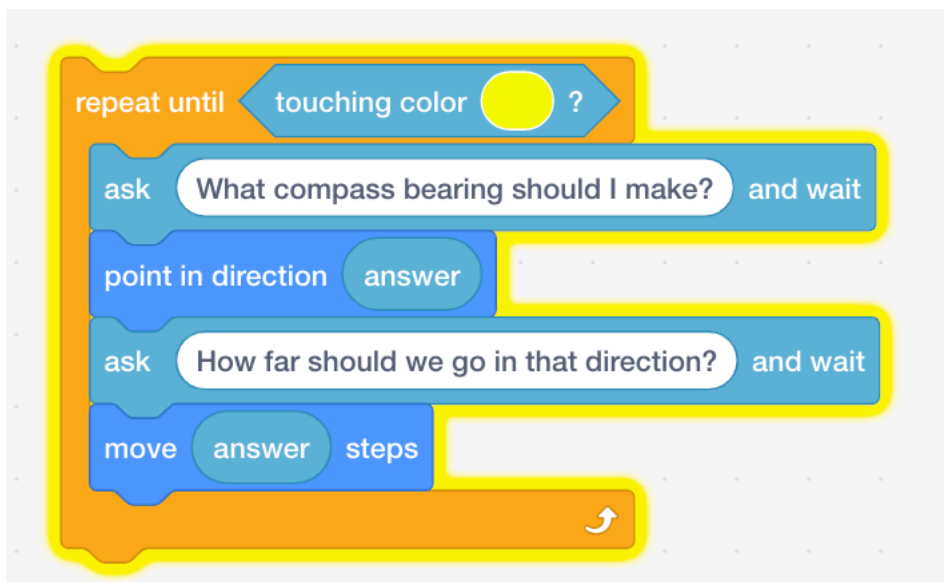
Hover over the colour you want to set. Then click.

It will look like this:



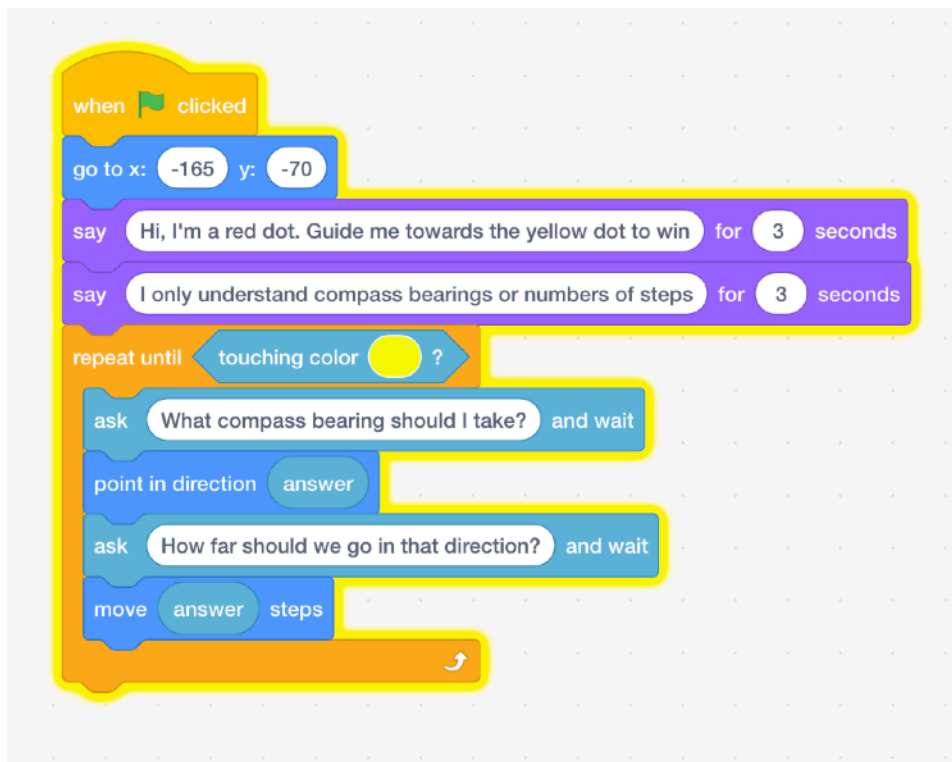
Once you've set the colour add a second question asking how far to go.

This time, use the '**move steps**' block and put another '**answer**' block inside.



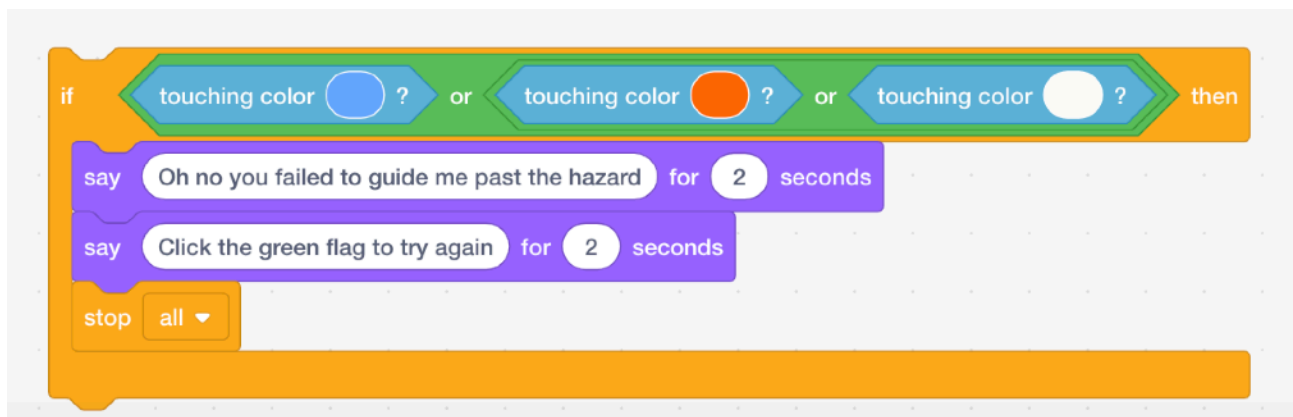
Join that up with the code you made before.

Check that your code looks like this:



#### STEP 4

Now we need to add code so that the ISLAND HAZARDS work.



Can you work out what this is going to do?

There are 9 blocks here:

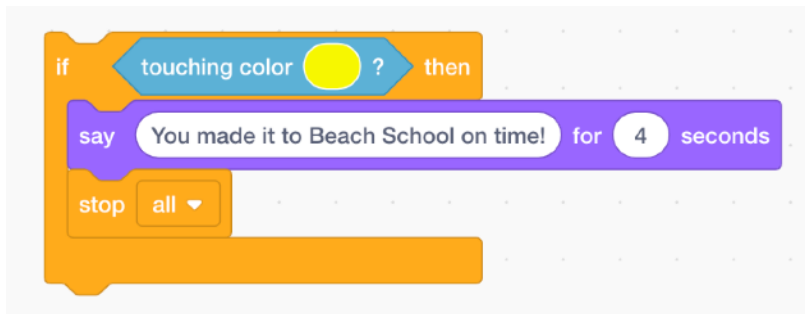
- 2 x green 'or' blocks
- 3 x light blue 'touching color' blocks
- 1 x orange 'if then' block
- 2 x purple 'say' blocks
- 1 x orange 'stop all' block

The two green or blocks go inside each other.

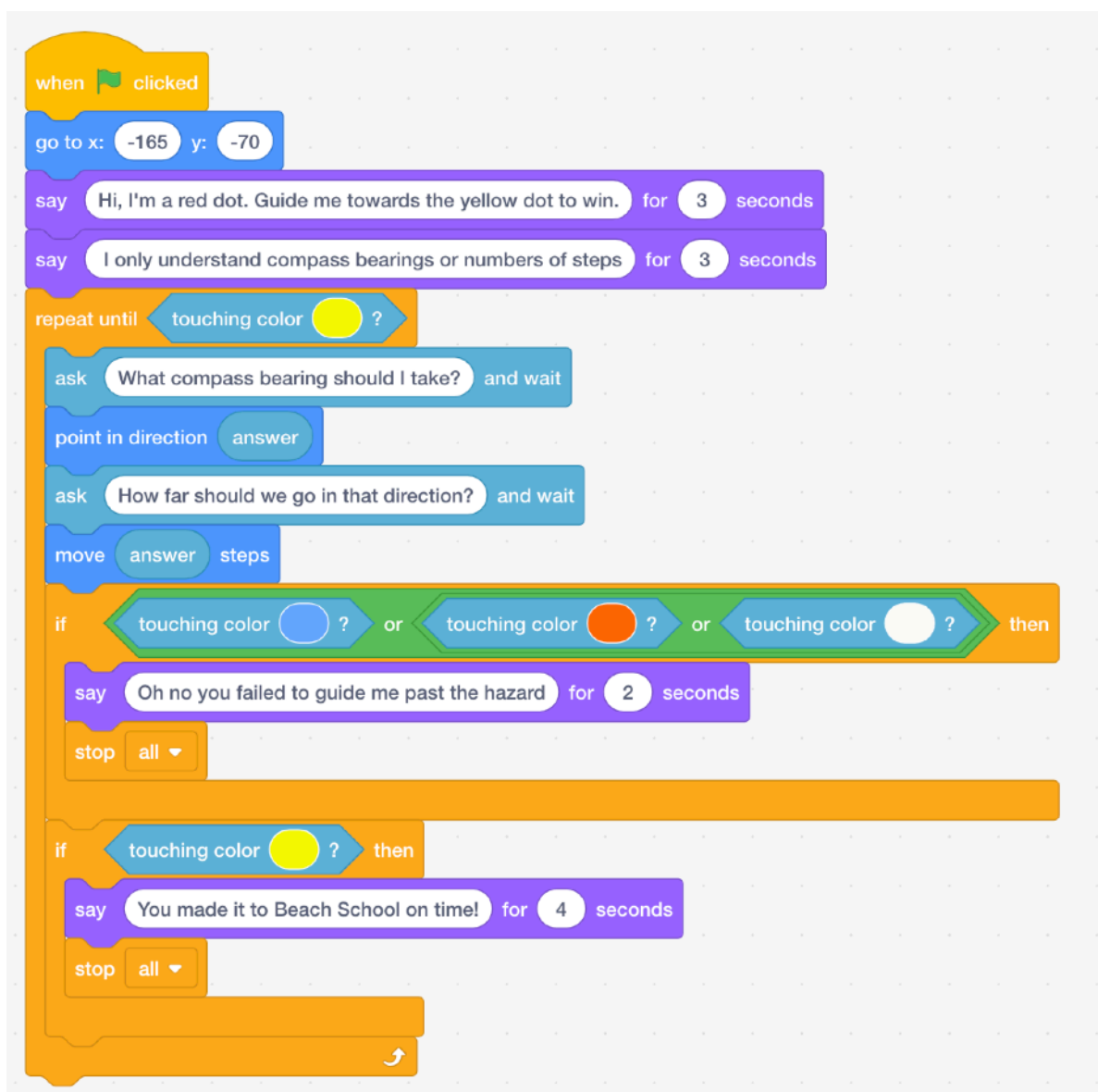
Set the three 'touching color' blocks to the colours of the HAZARDS : the lava, the skull & the sea.

## STEP 5

Last step: add these blocks at the bottom of the program so that a message appears when the user successfully guides their Red Dot to the destination.



The finished program looks like this:



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