# "Make Our First Program"

Hey, Everybody This is the first scratch class about how to use the scratch program. It's a wonderful program that will give you plenty of fun and enjoyment out of it, And I hope to teach you a little bit about how to use it.

(https://scratch.mit.edu)
So as you can see, I'm here at the scratch home page and the first thing you're going to need to do is to **sign in** if you have an account or just to join scratch.
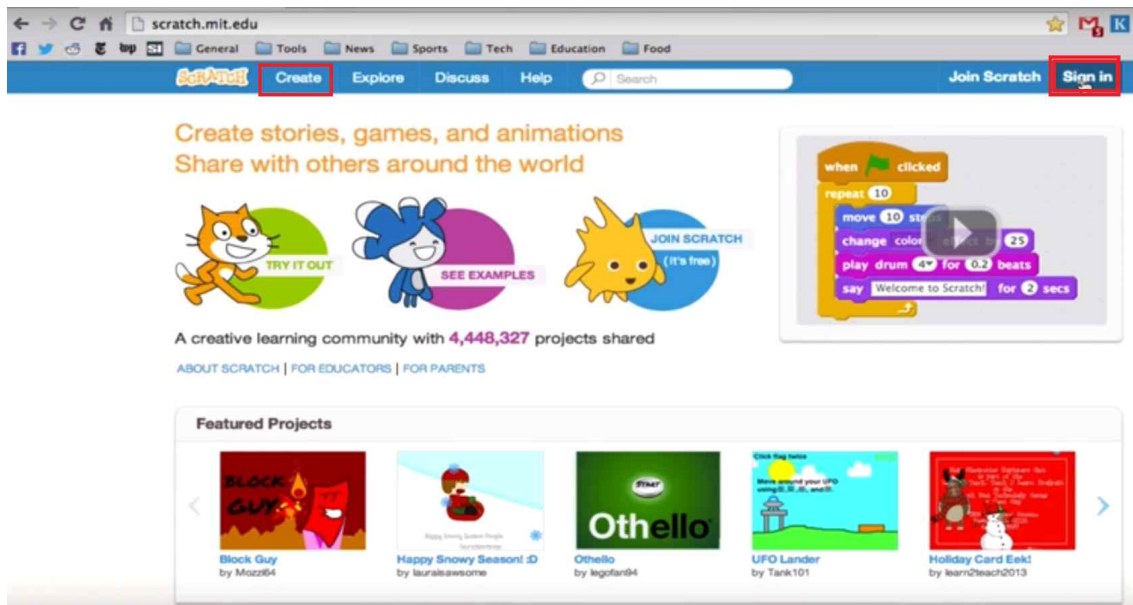
I'm going to sign in now once we get in here, scratch gives us a variety of options but what we are going to do because we are going to make something now is that we are going to press the "**create**" button and this will bring us to general layout which allows us to make a variety of projects here in scratch.

Now when you first look at, it seems a bit overwhelming but once you start to kind of get into it and understand what everything does it becomes much simpler and you start to see what you could do with it.
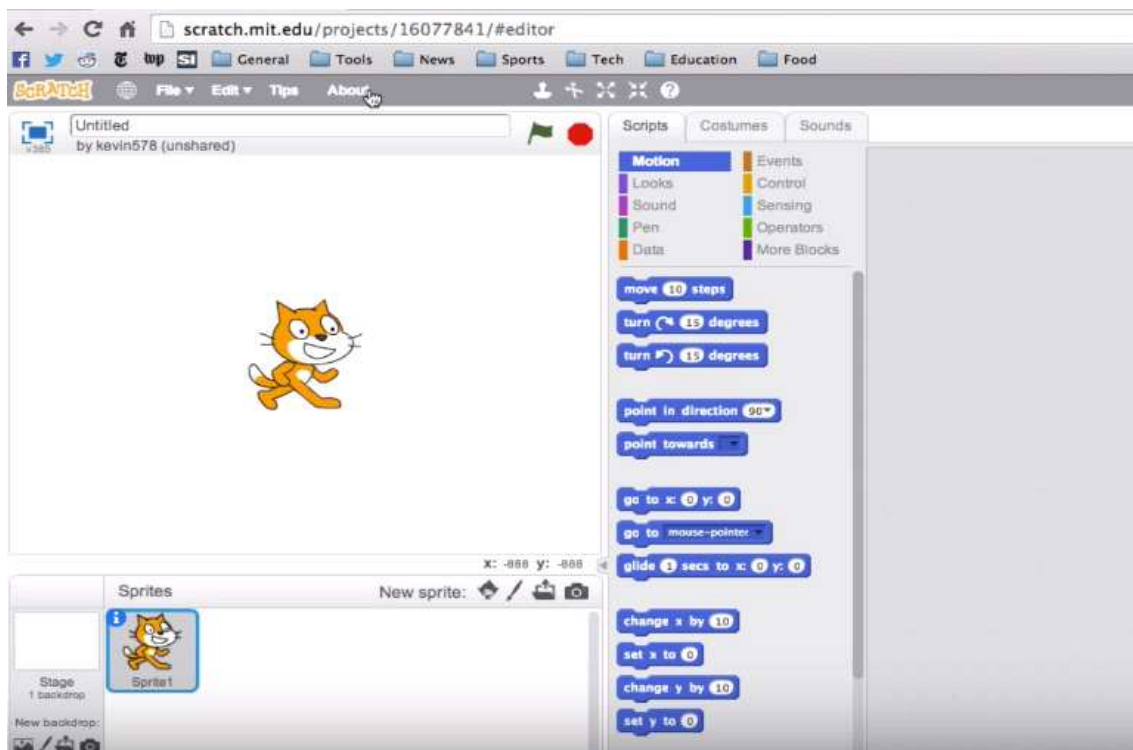
So the main character here in scratch is **this guy** right here I believe his name is **scratchy** and he is what's called a **sprite** you can see it says sprite down here and this is sprite once these and this will be the character to our animation or a game whatever we are making we can control him over here,

If you see this area, this is the **scripts area** and this controls what he does and how he does it, So here we have **motion** it controls how he moves and **looks** how he **sound** the different sounds that he makes. He could draw with a **Pen, Data, Events** are something you probably want to wait until later to understand, this **controls** when things happen this controls just waiting and looping things and this controls

Sensing menu use If he's touching something and a bunch of other things and **Operators** menu is some math right here, but this time we're typically are just going to focus on most of the **motion** where you're going to get him to move around and so what we will do right now is we're just going to get a quick background here. So right this background is just pure white there's nothing there but if we were to click over here on **stage.** we'll be brought over to this area and we click over here on backdrops,
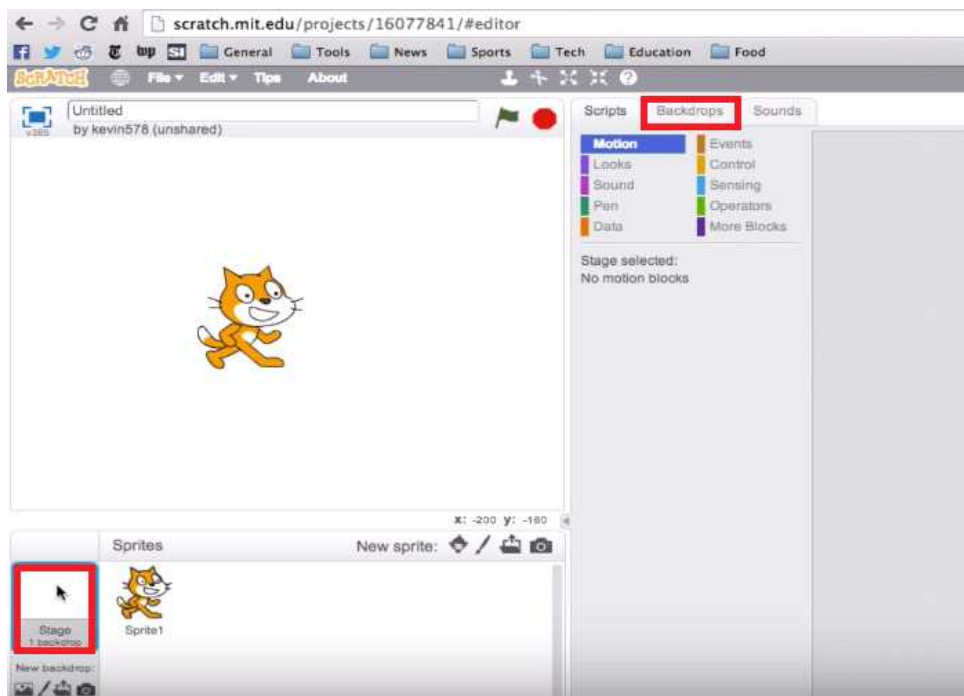
We'll be brought over to this area and we click over here on **backdrops**, The backdrop is the area that is seen behind them as the background you can choose as many as you want but from now. we're just going to choose one to illustrate a point. So I'm going to choose **a backdrop from the library** right here and there's all these interesting background but I'm going to go down this one way on the bottom.
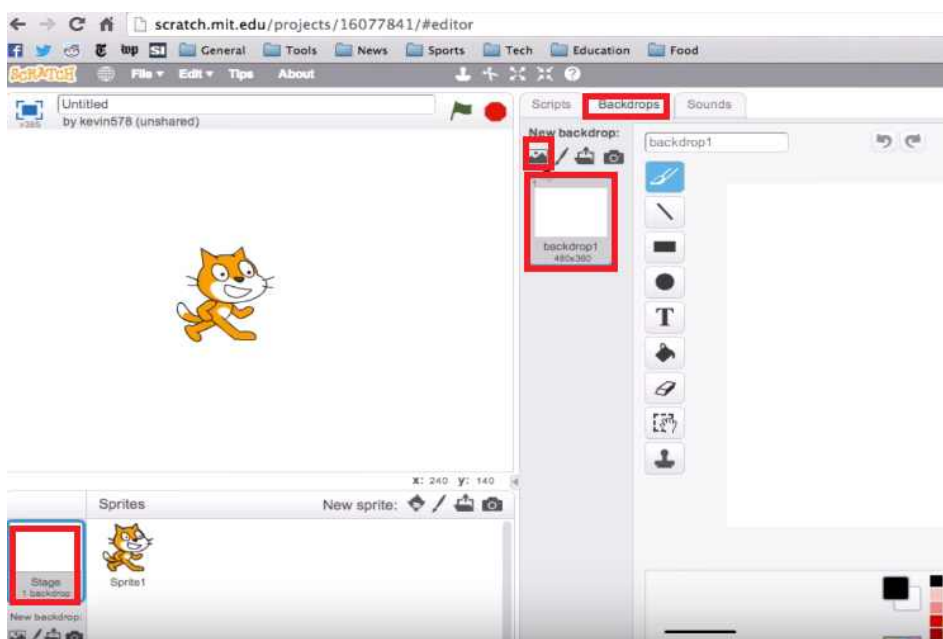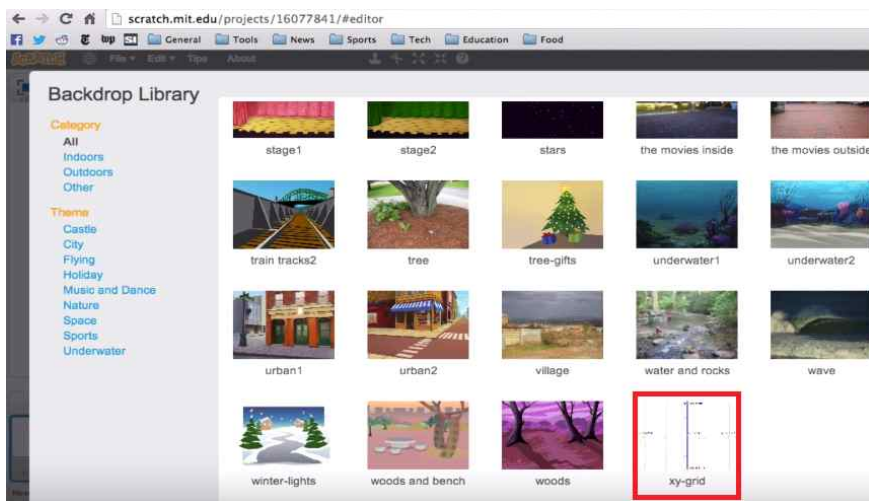
This is our X-Y grid and this controls all the motion that we can do here in scratch, In scratch how he moves is controlled based on X and Y axis, so for example this would be x 100, this would be x 200, this would be x negative 100 and this would be x negative 200.

OK, so left-right horizontal is x the higher the number, the further right. It is the lower the number the further left. It is up and down is controlled by the Y axis so this would be Y 100, Y 200, Y negative 100, Y negative 200.

And if you tell scratch to go to X point and a Y point, he will go to that so for example, if you wanted him go to here you would just write x 100 and y 100, so let's take a look at how we can do that we want to go over here to the **scripts** area and right now we are in **motion** which is what we want him to do.
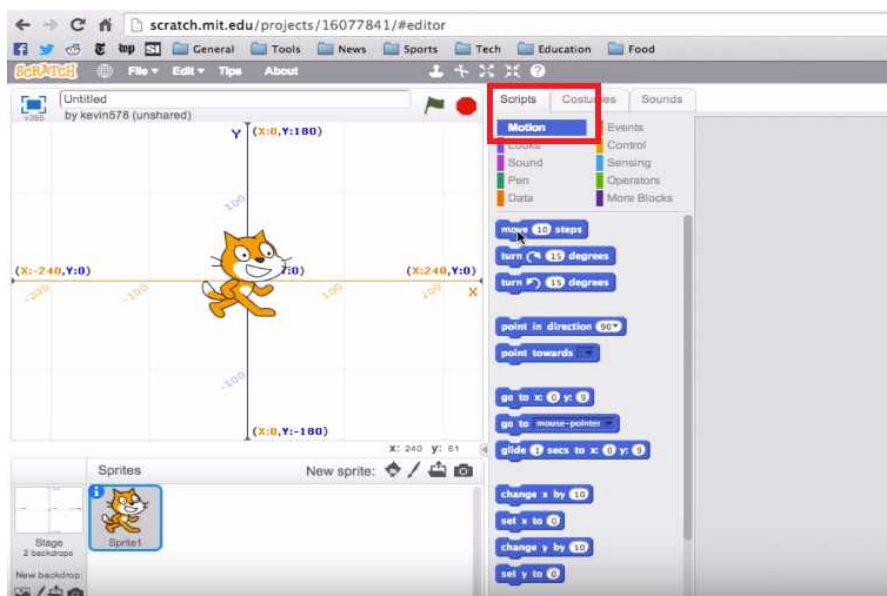
So there's all these different commands here but what we're going to do we're just going to go down to this one and it says go to X 0 and Y 0, and we can control if you change the X 100, and Y 100 like we had before and you were to click on it.
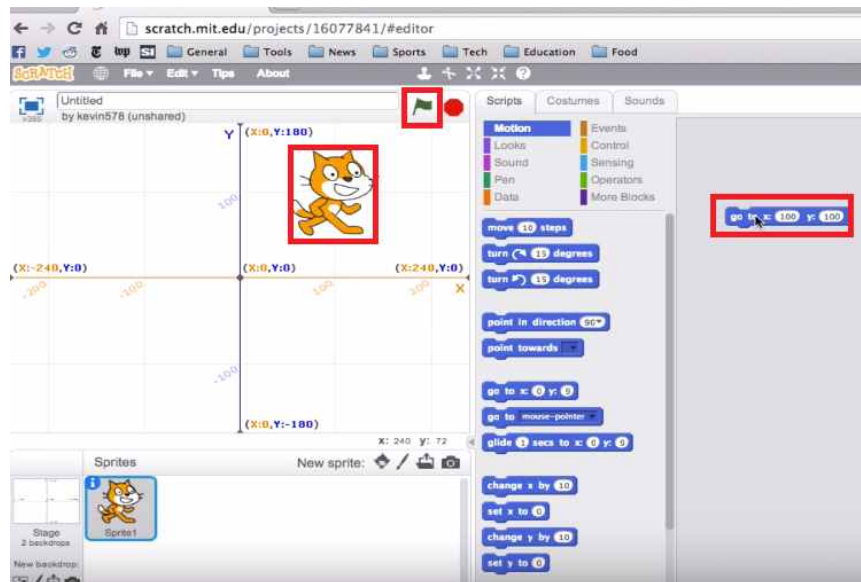
He will go up there now what scratch does that is very nice that if you move scratch to a certain area they will change the x and Y points so that you just have to drag it out so if I want to go up here, see that automatically change it to X 134 and Y 17, so I am going to draw just a little square with scratch.

So when I have them go up here and then I am going to have them go down here and this will change and I'm going to drag this out here and then I'm going to bring them down over here, I'm going to drag it out and finally I'm going to bring him up, drag this out.
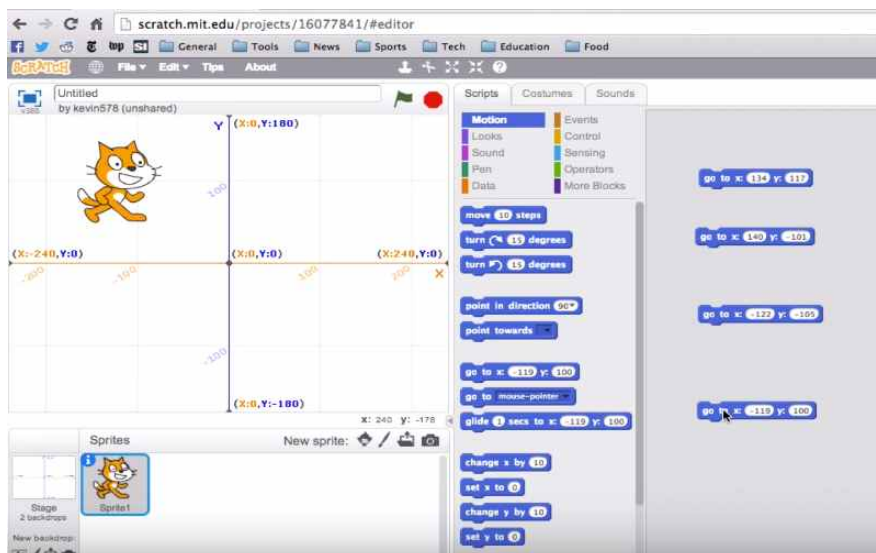
So now as I press each one of these it will cause scratch to go to the spot where he was. when I drag it out, so if I go here you'll go right there then down to there then over there and finally up to here and now you could see there's a kind of like puzzle pieces and if you were to snap them together they will all go in unison however if we press this right here we don't see anything happen and that's because this is all happening instantaneously so what we need to do is we need to bring out this little thing called **weight** so if we have a little wait one second is too long but if we haven't weight point one second in between each of these commands.

We will start to see how he moves, so let's bring out point one and what you could do to make things easier is just if you **right click** and press **duplicate it** will go like that so right click duplicate and we're just going to snap these right in between and snap it right in between and now you should be able to see scratch move around like so perfect and if you were to keep on pressing it.

So you can see just him go around forever and forever but we don't want to keep pressing it so what we can do to make him go around without having to make us keep on doing this is just take this little **forever block** right here and if you snap it on like that all you have to do is press forever and he will go around forever like that you press stop sign and he will stop.
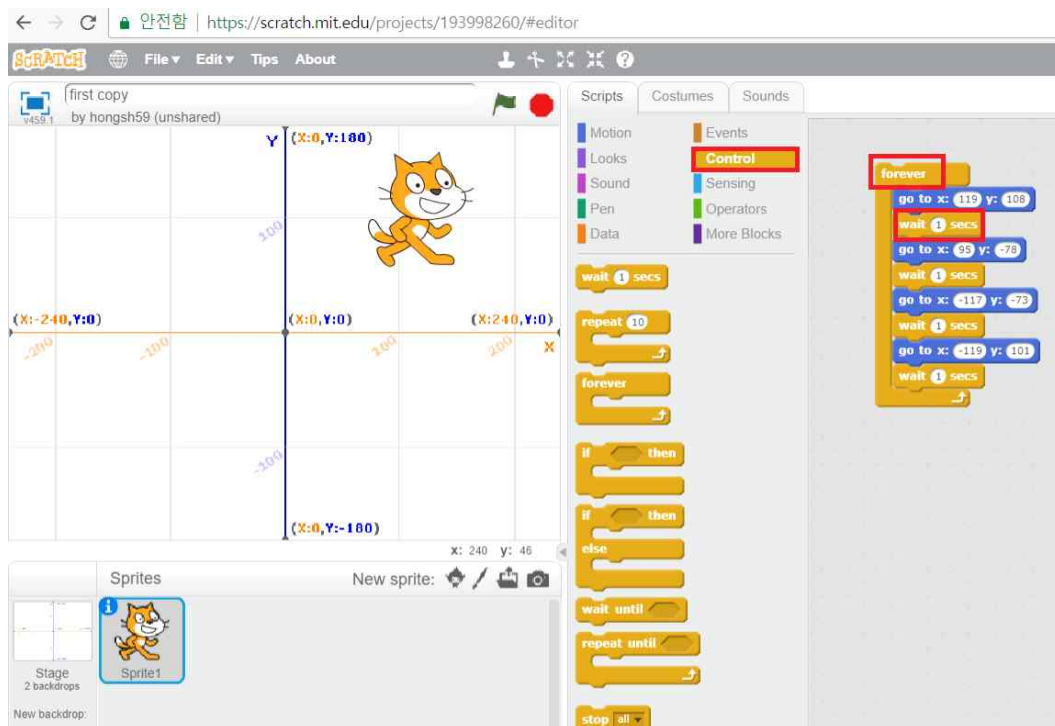
Now in scratch the way to start most of these game is with this little **green flag** up here and what we want to do is for him to do something when we press the green flag so what we have to do is to go up to **events** and we need to get this when green is clicked and we just snap it on right there and now if we press the green flag he will just go around forever like that until we pressed a little stop button.
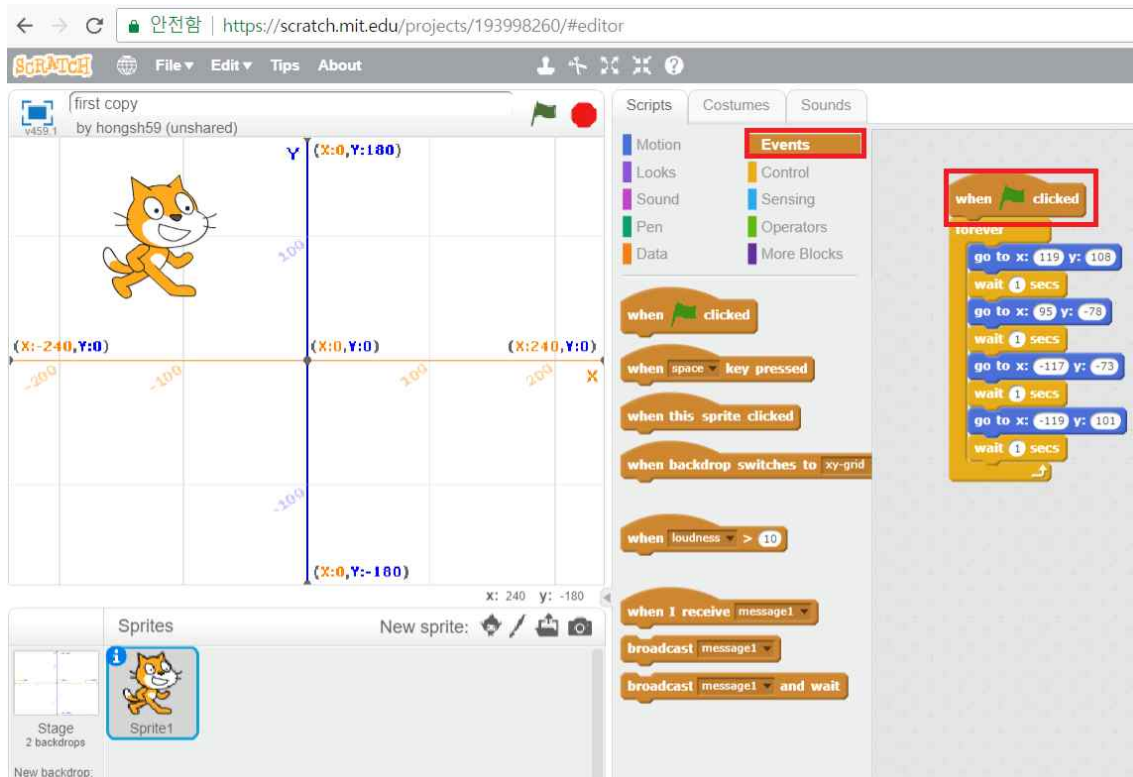
So that's great but now we want to see evidence of which he's been so we're going to go with this little pen thing and this will cause scratch to draw so you have pen down or pen up.

We want to make sure that the pen is down so that we can see where he's going and we want to set the pen to a certain size, so go down here to set pen size make sure it change pen size why don't people make that mistake when they first do this but you want to add set pens as well so it'll keep on getting bigger and bigger and go in here and change it to 10 so we set the pen size or we put the pen down we set it to 10 and we're going to put these inside the forever loop we want each time he does this we want to clear and finally we want to set the pen color to something so right now it's on brown if I were to click on this and then go all over.
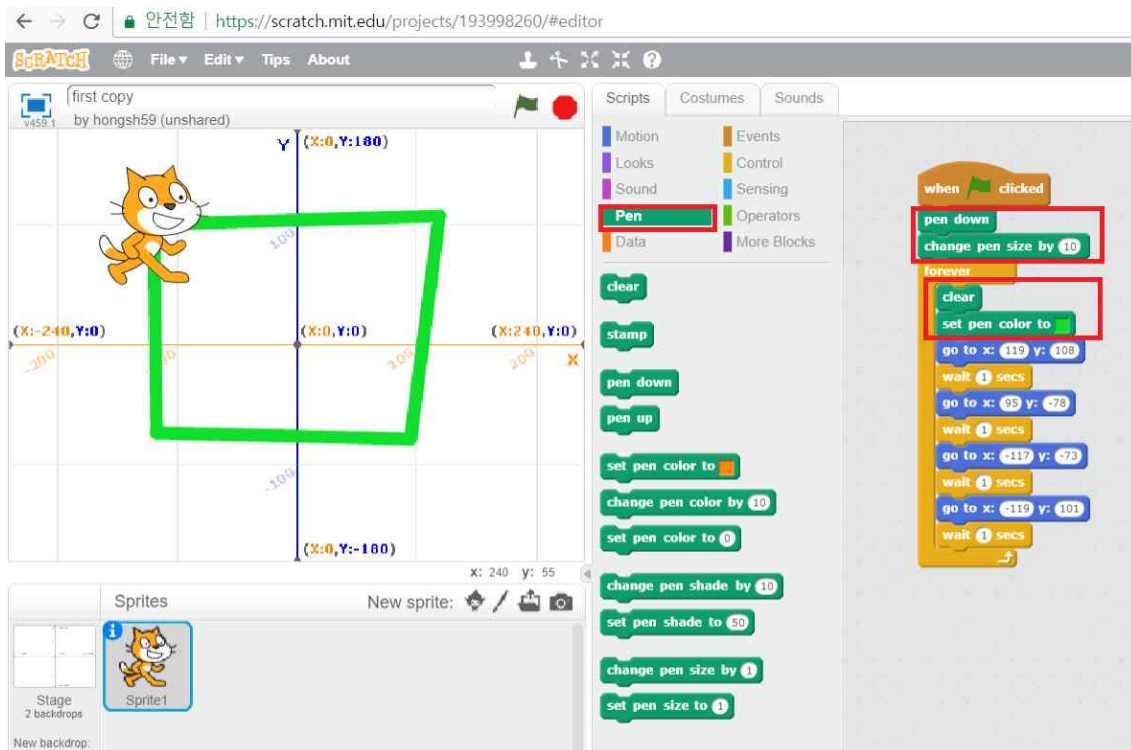
Try to go on this will change the color so whatever the mouse is over will cause the color to change so let's say I want him to be I want the pen color to be,

Let's do green now that I click it will set the pen color to green so now. When I click this green flag, the pen will go down it will set it to 10 then forever each time will do this will clear it will set the pen color to green and will go to all the spots while waiting in between.

Let's see if this works there we go it is a slightly off little square so now that I see that it's a little off, I can reaccess of what I want to do so what I'm going to do is stop them. I could see that he's a little off.

so I am going to take it out like this I'm going to fix my spray I'm going to get rid off this because it does not work properly and I'm going to have it go down here and hopefully that will work properly so I'm going to go back to motion and I'm going to go here and I'm going to do is just put it right back in and that should work so let's see if there and that works a little better still not perfect but it works well enough so going to X&Y is one way you can make scratch move.

however if you want to do it a little more smoothly and make it look like he's walking what you could do is you could do the glide feature and the glide works exactly the same as the move if you bring them up to a spot.

The block will change so now I'm going to bring it out here I don't need to do the wait in between because the glide takes a certain amount of time you can see glide 1 second, x 10 and y 17 that's a bit too long so I'm going to do point 5.

Now I want him to glide down to here and so I'm going to move him down there and then press the glide right there and put it in point 5 and now this should make it look like a little house there we go and let's give the hell its make it.
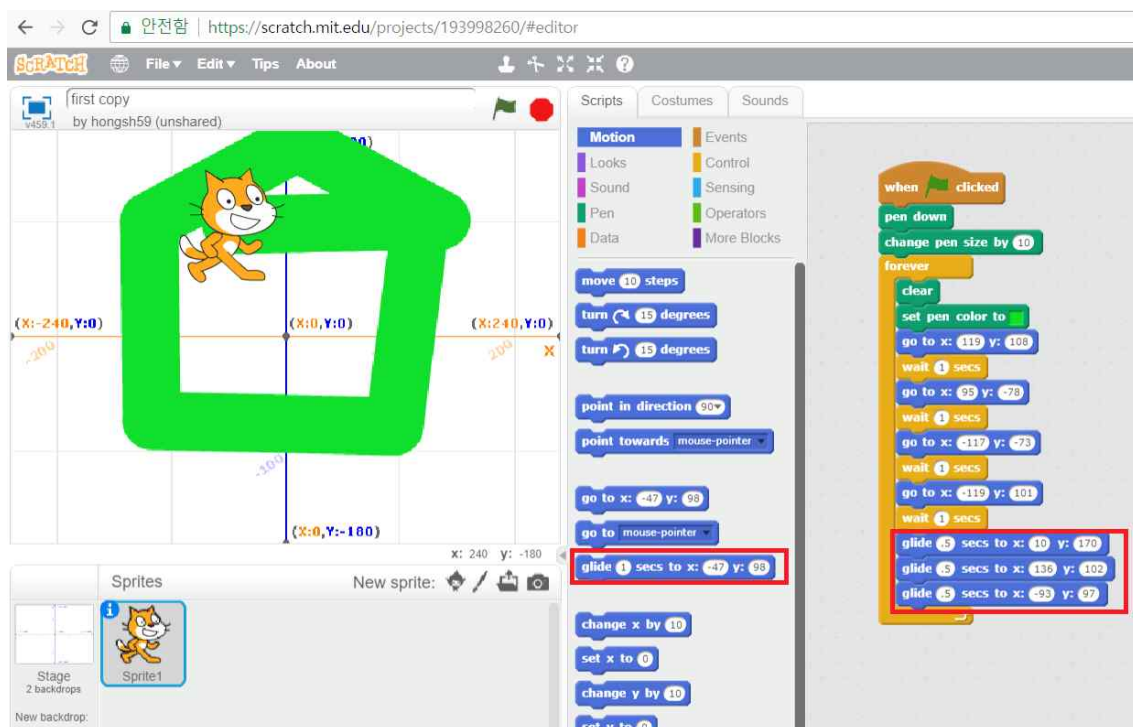

Once he's over here I want him to come back over and glide one more time so it gives our roof a little foundation there show us one more time. Boom Boom Boom alright.

OK and that is just a simple way of making things on scratch if you could do a lot of different stuff with this. Now if you want to change the pen so say you want to red with only the roof being red you could just put the color to red right there and as it goes through this code it will do everything in the green but then when it gets down to here to the glide part it will switch over to red and then it will cause the latter part to go in red right there. OK
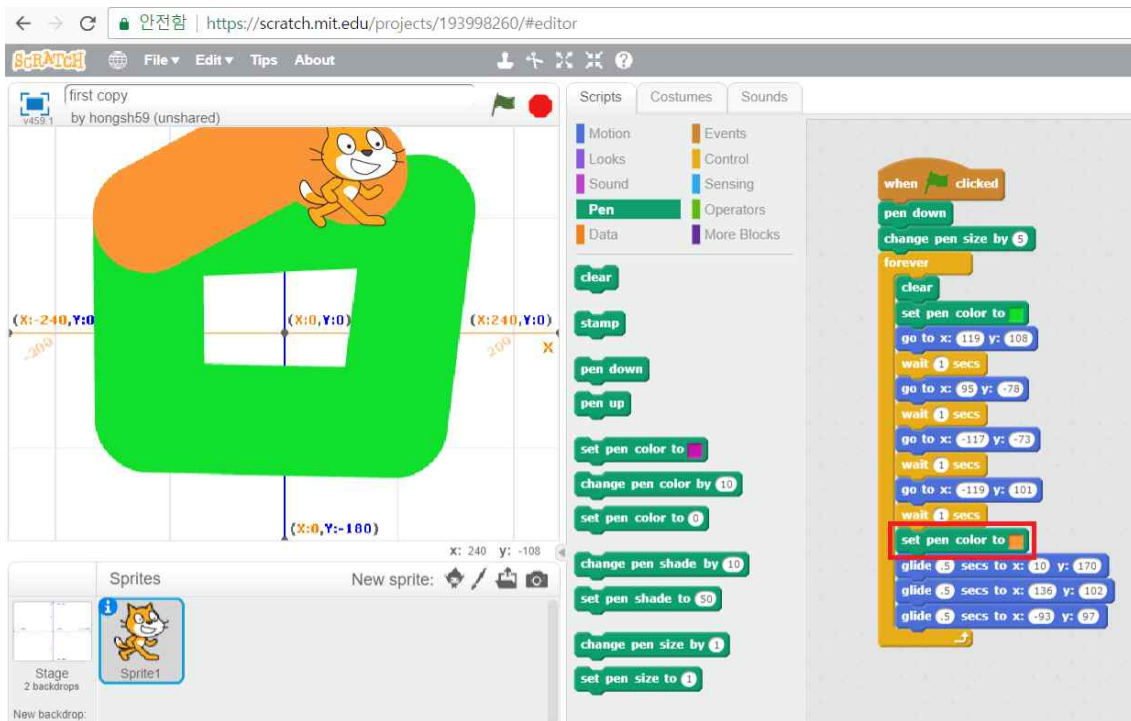
Finally because this background while illustrative helpful and informative it is a bit bland and boring if you want to change the background you can go over to stage.
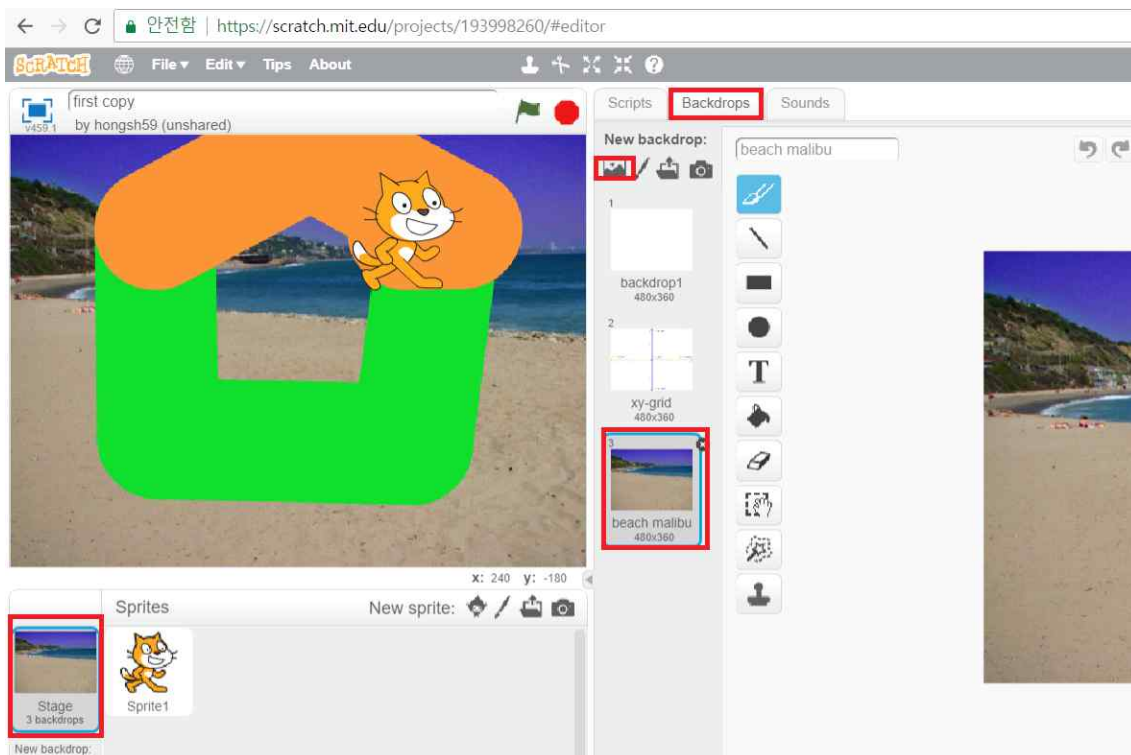
Click on **background** and you can get a new one from the **library** and let's have them scratch build a house on Malibu. he can be a real estate developer and that is a beautiful house that I'm sure anyone would want in Malibu and that pretty much does it so now if you want to play around with different shapes, different backgrounds you could try to see if you could do anything different there but I hope that is a good introduction to scratch programming and there will be many other projects to follow, so we can have a more complex and you will learn how to do a lot more stuff.

Let's save our file, It's name is **first_script**..
Let's have a rest time.