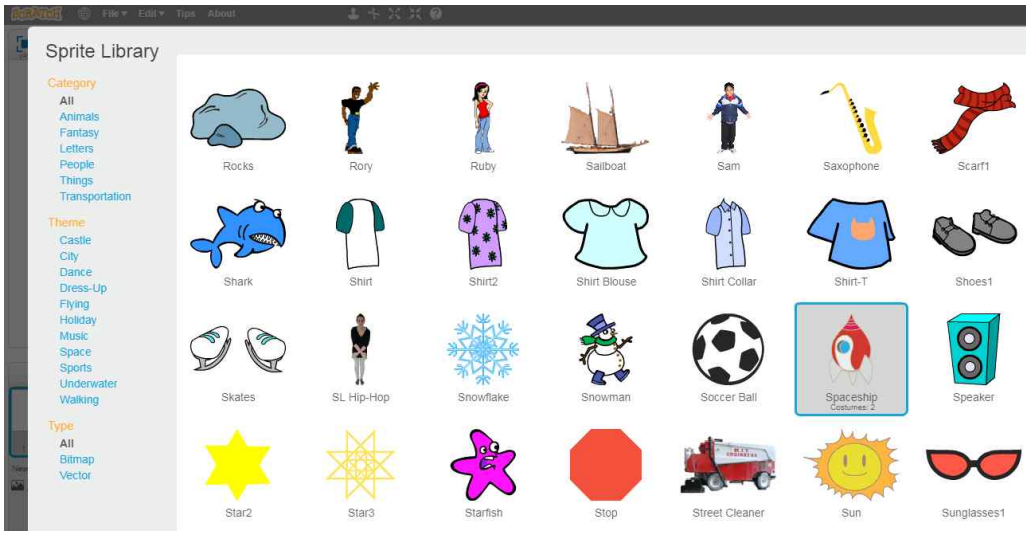
Make a Basic Game

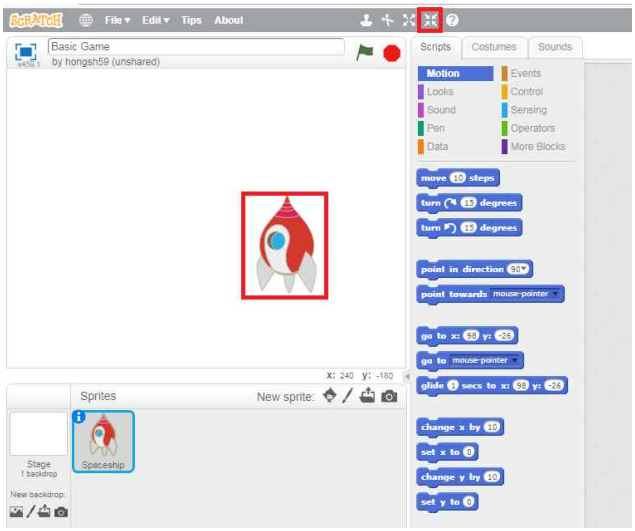
Hey students!! This time we are going to make simple game here now, and some of the skills that we will be learning **how to move our sprites** around with user input so instead of just having them move this way in some predetermined fashion as like studying "Make Our First Program" last class,

We will be able to allow the user to decide which way they want to move these sprites, we will also learn how to keep score and learn how to make a little shooting effect among some other things so here I am on the scratch home page.

I'm going to go to create and I'm always going to title my game first. So I don't get a bunch of untitled in my folder and you could title it whatever you want, but I think I will title it **"Basic Game"** OK and I don't need this guy right here so I'm going to get rid of them so I want to import a new sprite and you can pick whatever you want, It doesn't really matter but for the purpose of this game right here.

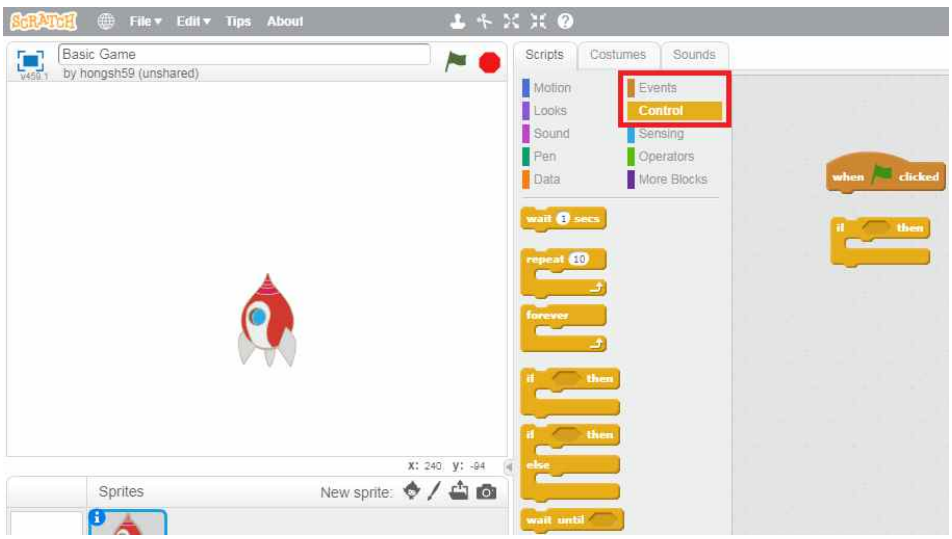


I'm going to pick **the spaceship** first which should be in transportation there we go. OK and that is too big for my game, so if you go up here you could either grow it or you shrink it and **I want to shrink it**. so I'm going to click on that and then if I go to the spaceship just click it will make it as small as I want and if I make it too small like that I could go here to grow and make it grow until I have it just.

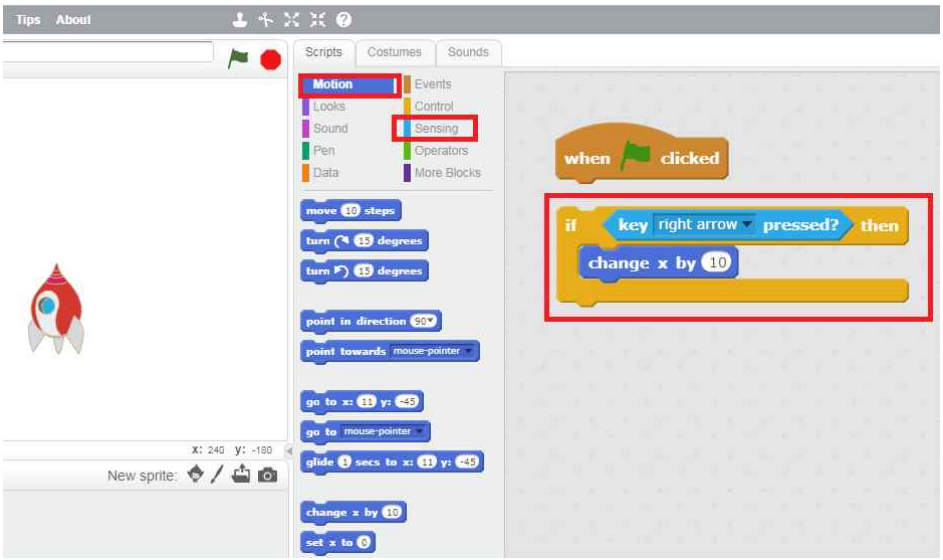


So what we're going to do is we want for the user to be able to control the spaceship by using the arrow keys. If we call from last time, direction in scratch is controlled on the X axis which is the horizontal plane and the y axis which is the vertical plane.

So knowing that, we are going to go here to Events and we always start off everything with our little green flag clicked and we are going to go to one(Control) of these statements right here. This is a conditional statement where if something happens then this thing happens.

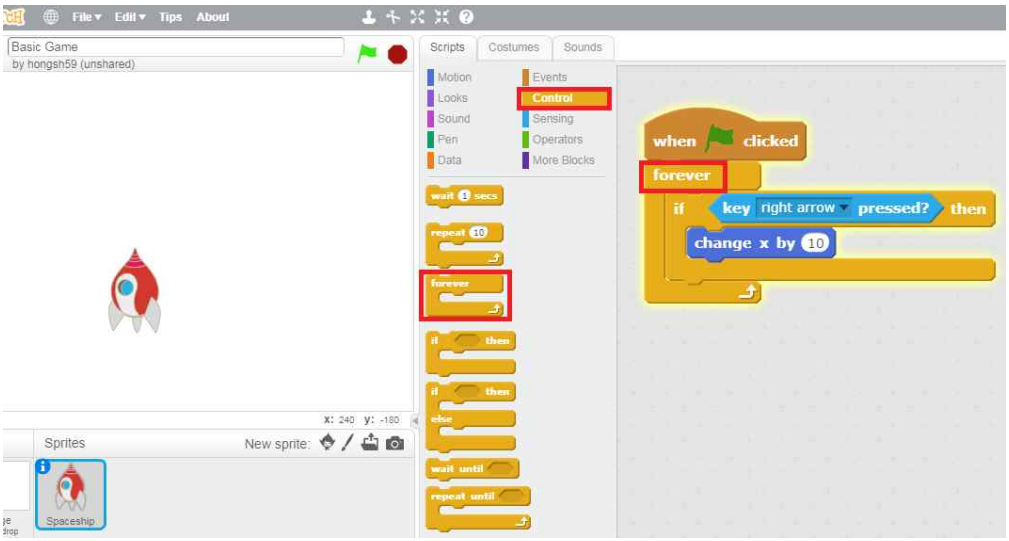


So if I go to sensing and I go to space keep rest, I don't want that but if I click this little arrow, the right arrow. So if the right arrow is pressed then I want something to happen now if I go over here I could see this change x, I want to change x by 10.



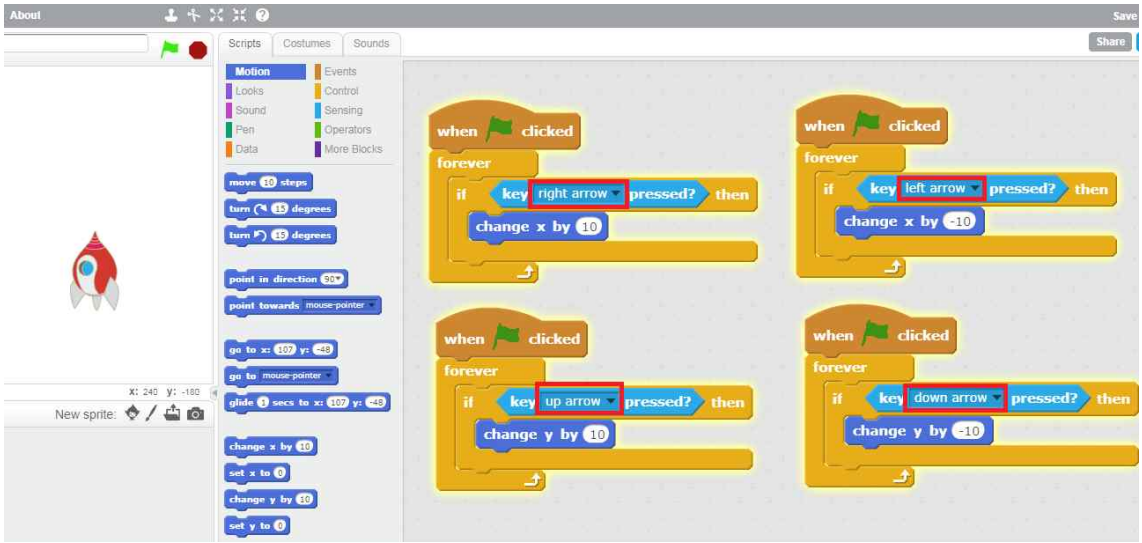
So now if the right arrow key is pressed, then it's going to change X by 10. Now a common mistake is just if you click it like there that's not going to work because if it only happens if you press the right arrow key at the precise moment that you click the green flag and we don't want that so we want forever when the green flag is clicked forever if the right arrow is pressed that we want to change X by 10 and now I'm going to press the green flag and you can see as I press the right arrow on the key board, it moves to the right.

Hey students!! Are you with me?

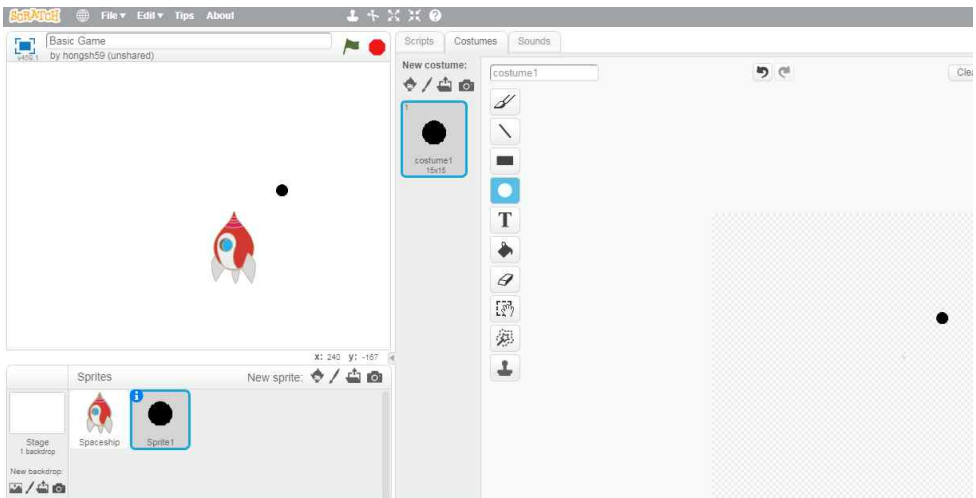


And I'm going to duplicate this and I'm going to switch a little bit I'm going to go if the left arrow is pressed then I want to change x by negative 10, so I can go back and forth like that and that controls my spaceship now I also want to go up and down.

So remembering that going up and out is controlled by the Y axis, I am going to duplicate this one time and duplicate this one time and changing x isn't going to work for up and down, so I want to get rid of those and I want to go back to motion and I want to get change y so now if the up arrow is pressed I want to change Y by 10, if the down arrow is pressed I want to change Y by negative 10 and you'll see that when I press one of these keyboards, I can control my spaceship in which direction I choose. OK. Here we go.



So now what we're going to do is we have our spaceship but we are going to have swarm of butterflies coming at us. so we want to do something with these butterflies besides just trying to avoid them we want to be able to shoot a little ball at them to try to knock them off their course so we need to make that ball and I'm going to paint this sprite and make sure, it is in the filled in and over. It'll look **a little funky.** 5:10

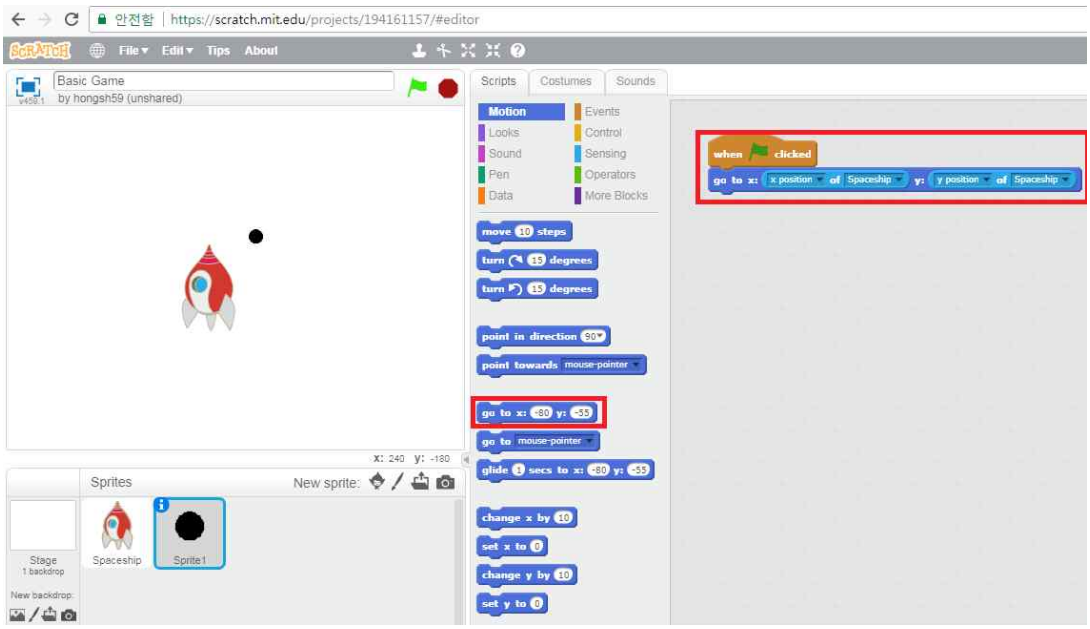


So go over there and I had a black one pick whatever color you want and let's see how it looks. It could be a little smaller, so I'm using my shrink tool and I'm gonna make that looks good, OK.

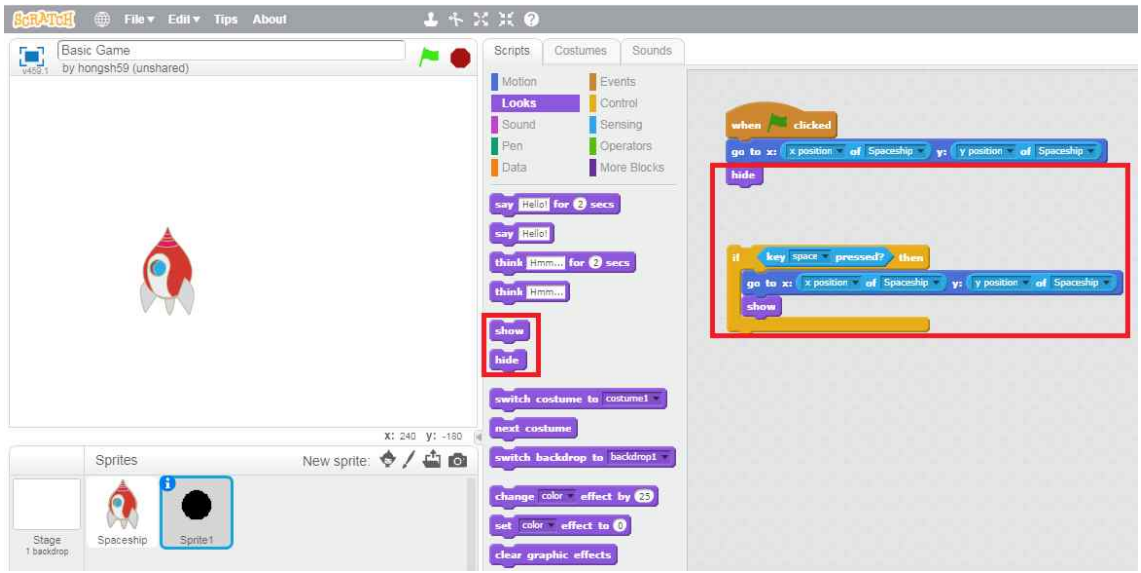
Now what we want to happen to this is that this like we can't just have go to a X one point and Y one point because we need to have it always be moving around with the ship.

So what we can do for that is when the green flag is clicked we're going to have go to X and Y, but what we want to do is if you go to sensing, you can see the X position of sprite 1 and if you click here, you could have Y position direction constant name and **sprite 2** and we want this to follow our spaceship so go to X position of spaceship.

So it's for x it's going to go to whatever X position of my spaceship is it will go there and then If I do this with Y position. So now no matter where I put my spaceship the ball will go there.



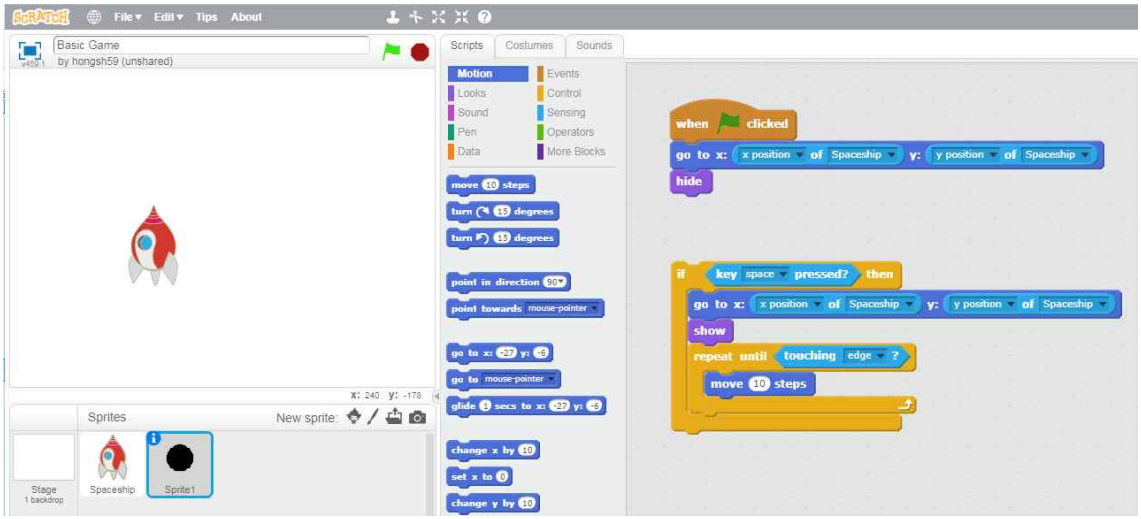
OK now we don't want the ball just sticking out there so we want to make sure it's hiding so I'm going to go up here and **click hide**, and now we're going to do another conditional statement where if for this case I'm going to have it be the space key, if the space key is pressed then we want to make sure once again it is going to the X position and the Y position of the spaceship and we want it we had hit it before so we want to make sure that it's showing up, so we want to show it and then so there's two ways of movement in scratch.



You can do what we did with the spaceship which is controlling the X and Y with the left and right arrow and but we could also do something called steps and that's what we're going to I'm we're purposely using both of these just so you can kind of feel around with them and see **which one** you like to use better and **which one** works better for whatever particular game that you are working on.

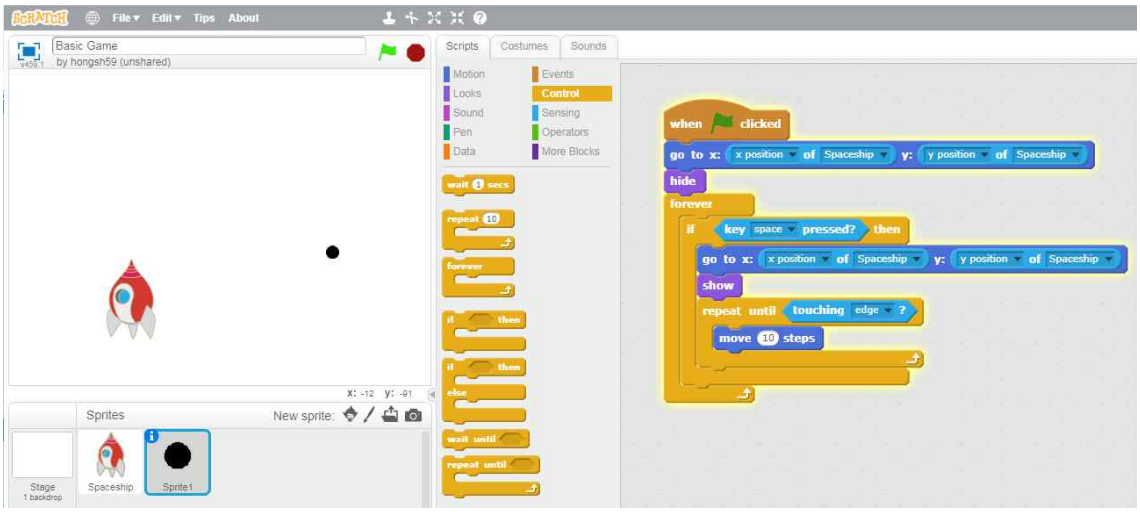
So what a step does if you go over here to motion you can see turn 15 degrees point and 90 degrees and this 360 degrees, you could have the ball point in any direction or you could have any sprite point in any direction and what the move certain amount of steps does is that whatever direction it's pointing in it will move in that direction so if you are going 90 degrees and you're moving 10 steps, it will go in that 90 degrees , the change X and Y don't have any bearing on this.

So that's what we're going to do for this so I want to move 10 steps, now I don't want it to just move 10 steps one time and stop because that would yeah did it's going to be really slow. So I want it keep on going until it does something and that one thing is going to be touching the wall. so if I go up to repeat until and then back to sensing touching the edge, It will do this. So now if I go here show until it is touching the edge, it is going to continuously move ten steps and it will repeat the ten steps over and over again if you were go to 20 steps, it would go quicker. If you go to fives steps it would go slower.

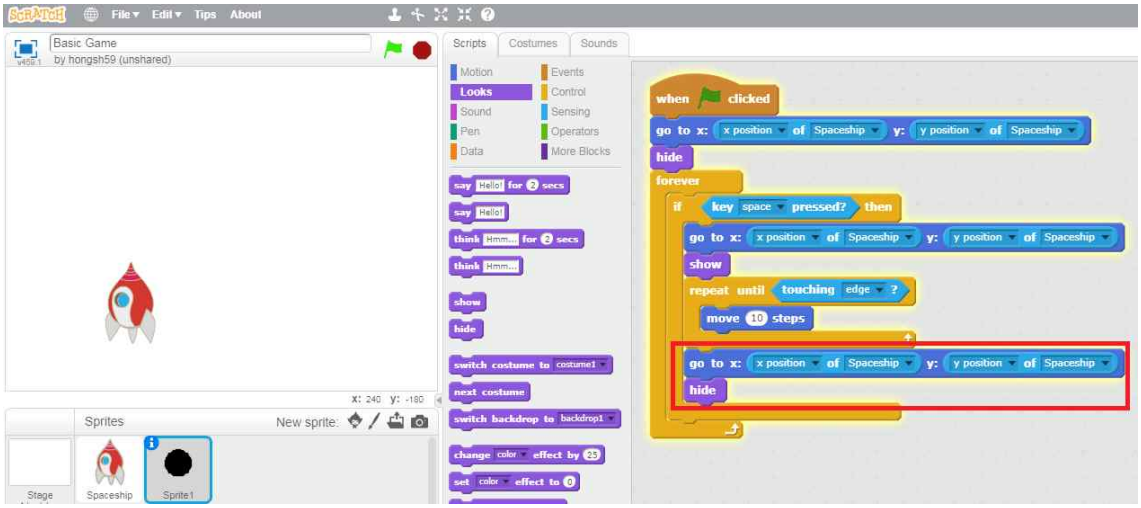


so I want to wrap this in a forever loop because just like before we want the space key to trigger these events forever not just at the precise moment that this green flag is clicked.

So if I press the green flag, this ball should go to the spaceship. It's going to hide and now wherever I move my spaceship. If I press my space key, it's going to that X position of the spaceship and the Y position, it's going to show and until it touches the edge is going to move ten steps so let's see how this works OK.

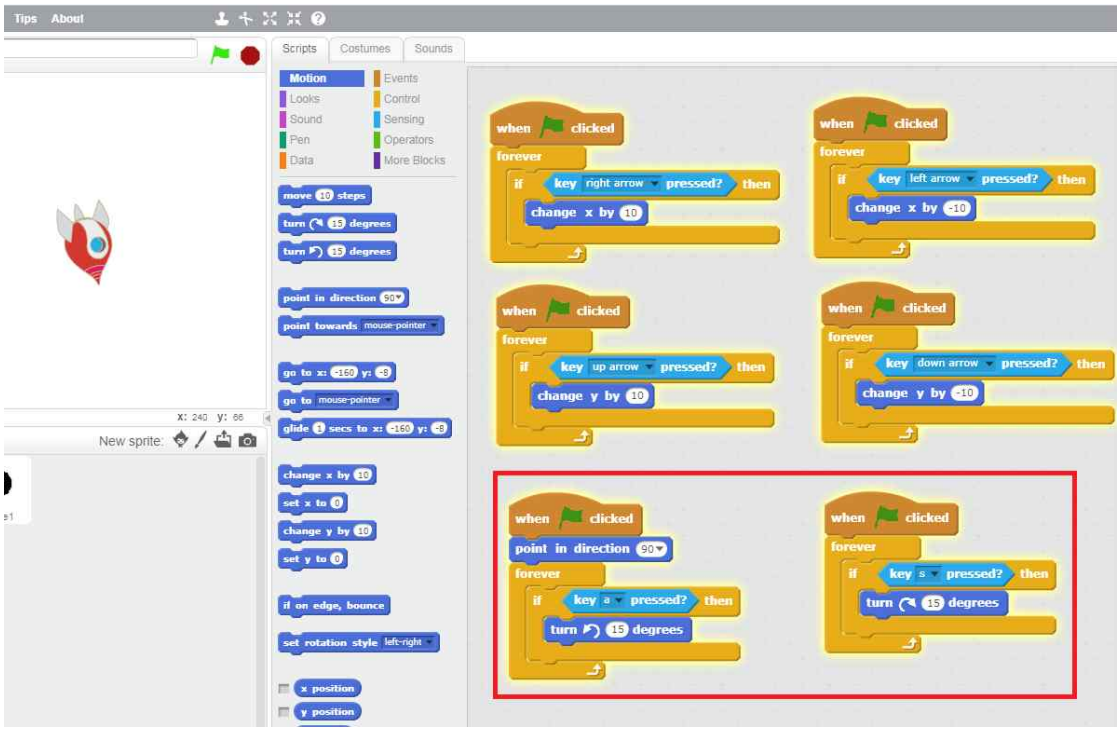


So it's going sideways right now but that's because of the direction that it is pointing in. we need to affect it so that whatever direction the spaceship pointing in is the direction that it will move.



So I'm going to finish up this real quick. I'm going to have it go to hide right there and then I'm going to have it go back. I'm going to get have it go back to where it was before OK. So that's the movement for that but as you could see before it was moving in the wrong direction and that's no good.

So let's have it point in certain direction based on what directions we choose so I'm going to go back to my spaceship here and I'm going to have my spaceship if I press the "a", I want to turn to the left. if I press the "s", I want to turn to the right.



So I'm going to go to as always when my green flag is clicked and I want to start off the game making sure it is pointing like that, so I'm going to have a point 90 degrees that's in the direction that it's currently and if I were to have it do any of these different ones it would point in a different direction and then another conditional statement.

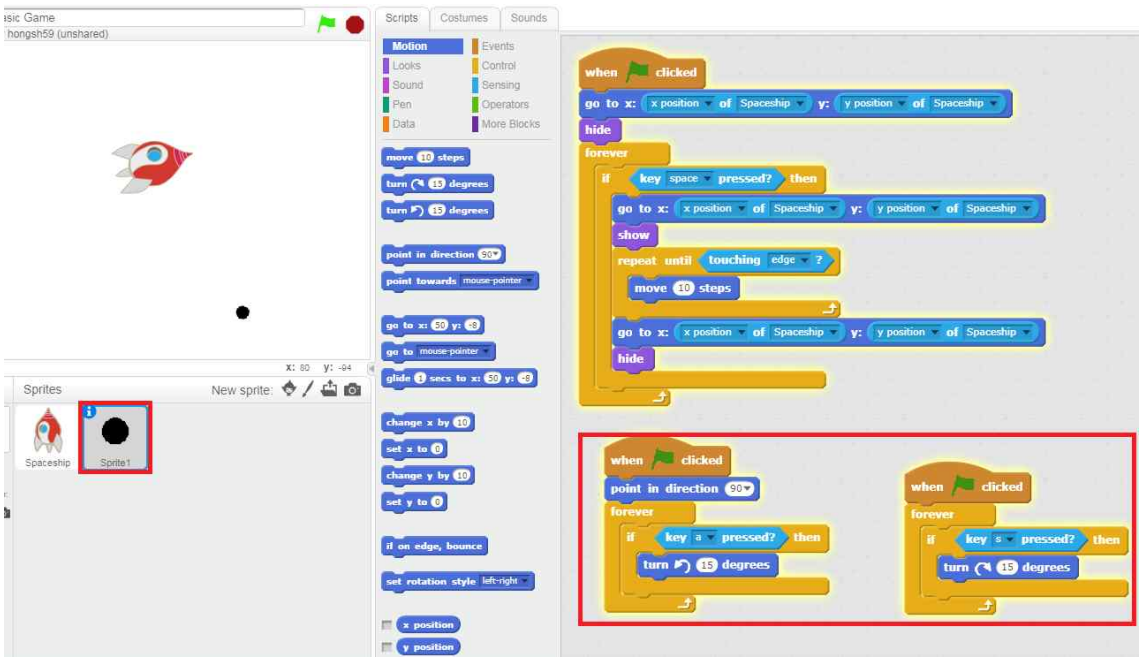
If the "a" key is pressed, we want to turn it left 15 degrees and making sure this is wrapped in a forever loop go here and that should work.

Now we need to do the same thing but for the "s" so if I duplicate this and I don't need to have a point in direction twice because I already do it with this one sprite right here.

So now if the s key is pressed. I'm just going to move this one out and I'm going to change it to the right key. OK. So now if this is pressed, if I press the "a" key, it will now turn around like that and the "s" key, you may go right.

and so forth now, what we want to do is we want to make sure that this ball is flying the same exact commands as the spaceship so that it shoots in the direction if we have like this and we press spaceship to just go like that's no good.

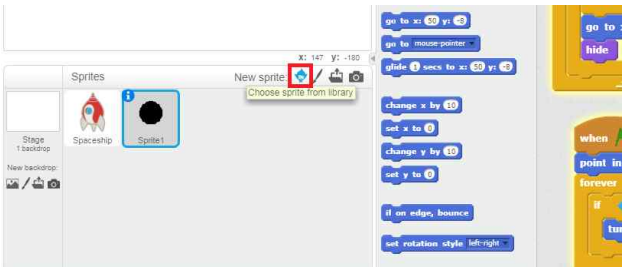
So we want these same commands to be given to sprite number one, So I'm going to go to duplicate. Actually you don't need to press duplicate. I think if you just drag it over. It'll go back there yeah.

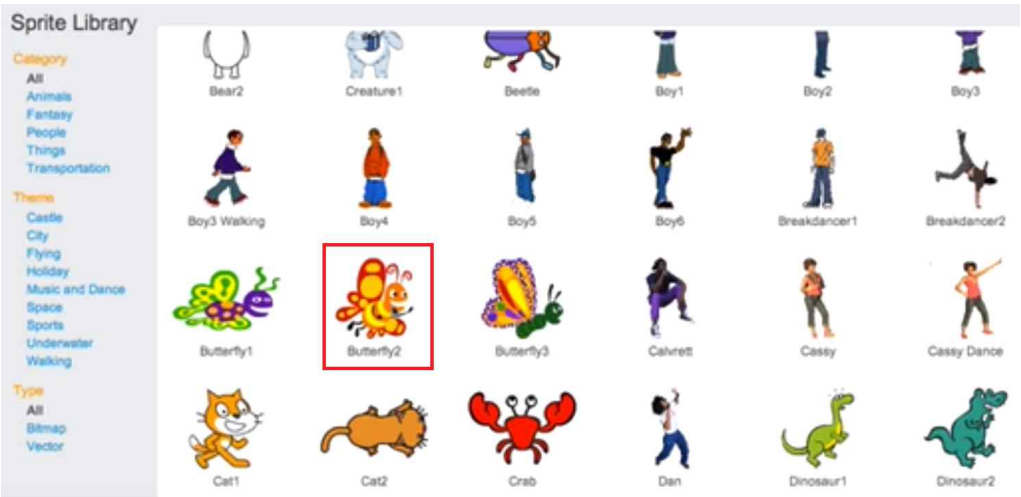


So I should have both of these right here and Now this is going to follow the exact same commands as the spaceship so that whatever direction that the spaceship is pointing in it will go, so there we go and it's still going out the side that is because this needs to be going up right, so they're not going to have the exact same commands you want the ball to be pointing up yeah there we go. OK You can see now that whatever direction it's pointing in it shoots.

So we have two different ways of movement of this spaceship right here we can control it with our arrows and we can also control the direction that it's shooting in OK. All right.

So now what we need is something for the spaceship to **both shoot and avoid.** we need any common enemy and a natural common enemy for us is going to be the **butterfly** although you could have it be whatever you want to be **a bat** that's cool too, if you really dislike **ballerina**s and you want that's great, but for I'm just going to pick the butterfly which there he is.

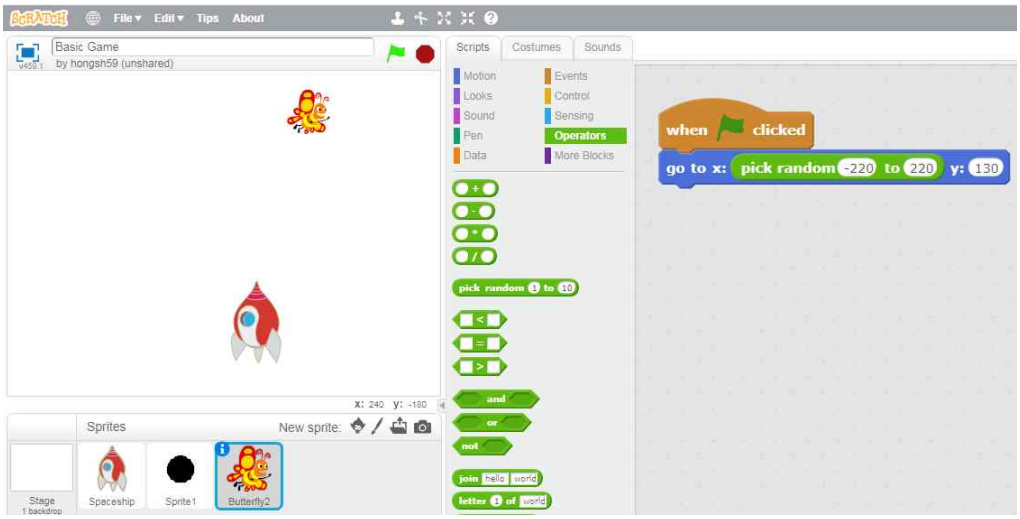




Alright and that is too big I don't want a butterfly twice as big as a spaceship that is scary. So I'm going to have him be about that size right there and if you watch the previous tutorial, the movement that the butterfly is going to be similar to what we did with the way scratch in the first tutorial.

So we are just going have them when the green flag is clicked we're going to

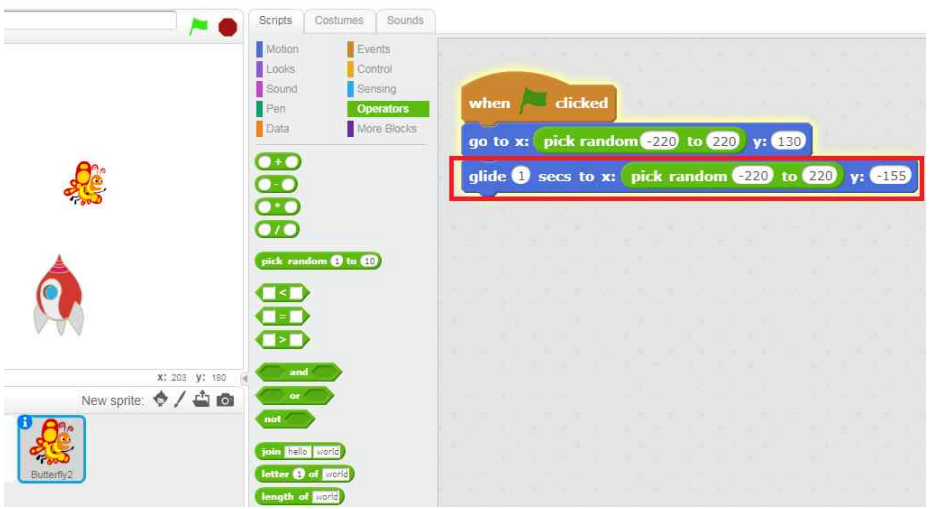
have him go to a spot and I'm going to we want them to start up here. So if he goes to X negative 19 and, Y 130. So the Y access is good but we don't want them going to the same x point every single time because that would get predictable.



So if you go over here to operators, you can see this pick random block here so we are going to have block right here, so we're going to have him go all the way over from negative 220 to positive 220.

Now whenever the green flag is clicked, he's going to pick a random x on the x-axis from negative 220 to positive 220, but he's always going to go to y 130, so let's see how this works all right.

You can see how it's just a random spot wherever he decides to go. Now we want him glide to the bottom, so we are going to go to motion and we are going to have glide right here and I was playing around this before in one second was a little quick.

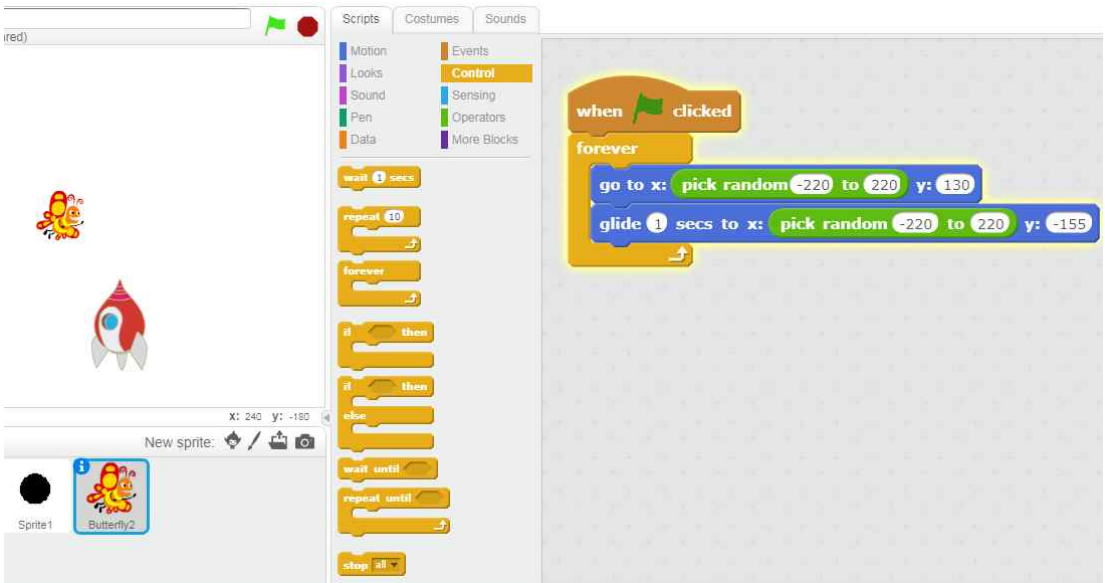


If you want it one second, you could have 0.1 second, or you get to have five seconds. It's really up to you, you could play around this is really simple to play around with and just like here I had the pick random spots here.

I'm going to do same thing down here except I don't want positive 135, I want it down at the bottom. So I have negative 155 looks good. So now it's going to pick a random spot when the green flag is clicked we'll pick a random spot on the x-axis but it will always be on the Y 135 up here then it's going to glide a second and a half to a random X point down here but always at negative 155.

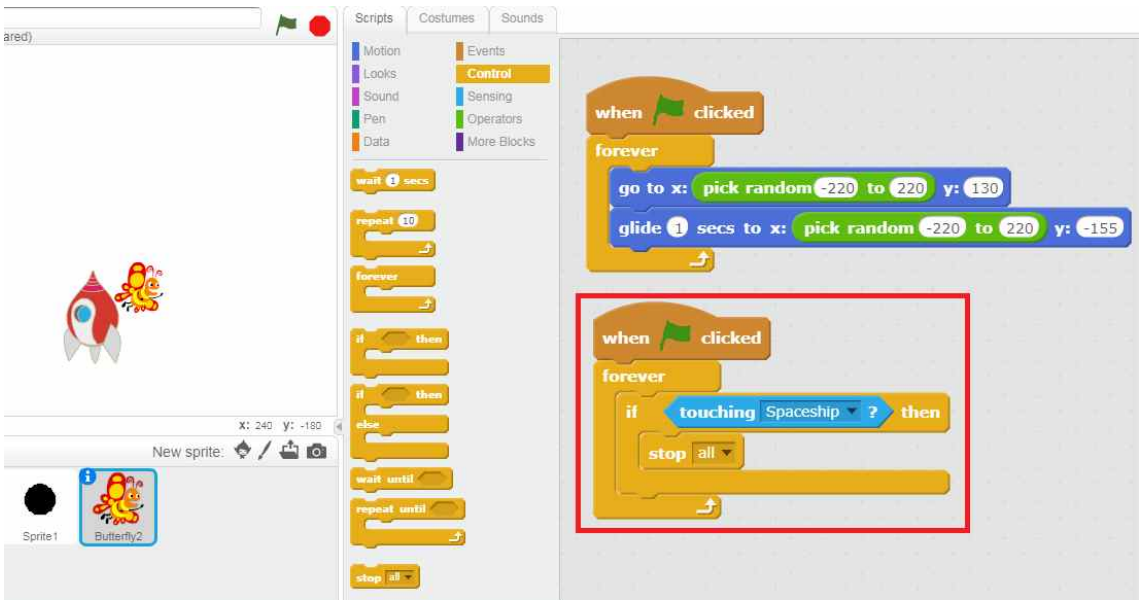
So let's see how this all works ----------

And what we are going to be given the ability to hide him later, so I'm going to make sure I have show and I don't want to keep on clicking this obviously, so I'm going to have forever and now when this is clicked it's just going to be raining(whinning) butterflies all right. < Save now >



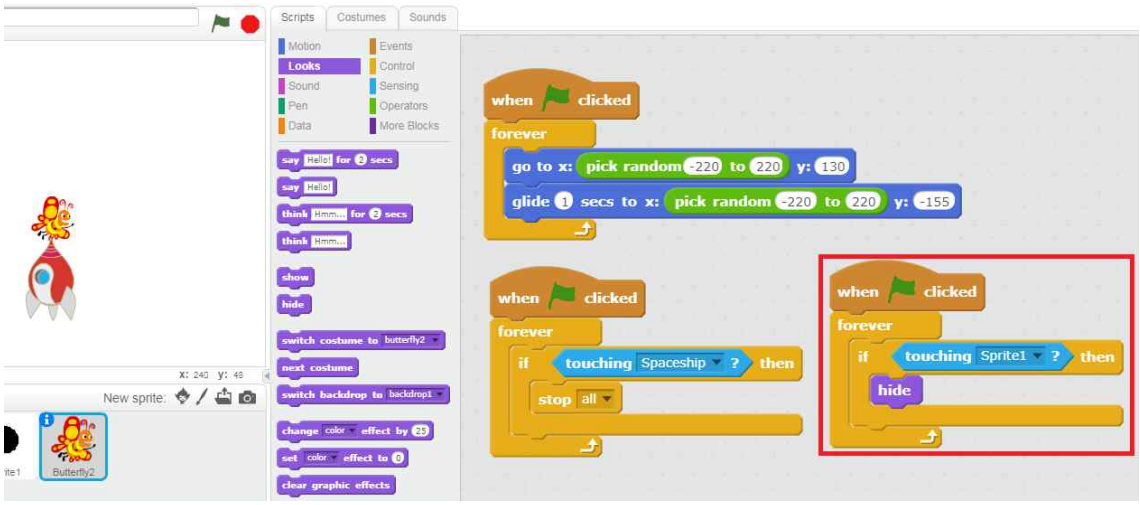
Now we want something to avoid for our spaceship what we want to do is when it is touching the spaceship, we just want the game to be over. So if go to "my green flag" is clicked and we want another conditional statement and if it is touching the spaceship it's just we go up here and there's a command that says stop all just everything's going to stop you can't do anything else.

It'll freeze and that will be the end of the game for you always wrapping it in a forever loop and now let's see boom yeah, so that just stopped the game right there, we could always press the green flag again and there it is but we want to make sure that we are avoiding him now.



Right now if we were to shoot the butterfly nothing happens and that's obviously not what we want so we need to go back to here and we need to actually lets' have the butterfly we want to have it so that if he is touching sprite one he just goes away so what I'm going to is forever but when green flag clicked forever

If touching, sprite one we want to hide it. So now that when the green flag is clicked, as well difficult job, goes away so we could shoot but if we miss the game, stops now.

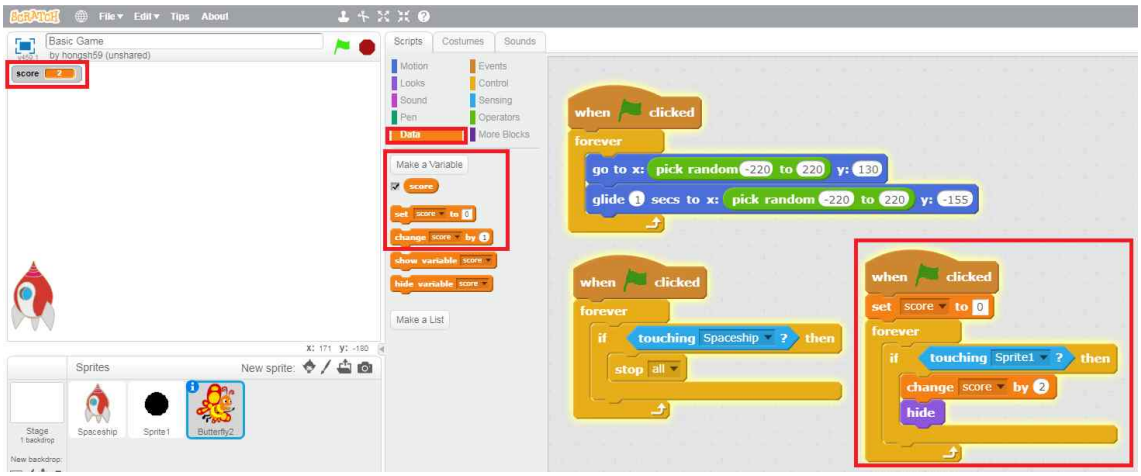


And now one last thing we are going to add here is a score, so we have not talked about these yet, but this is called data right here and if you are familiar

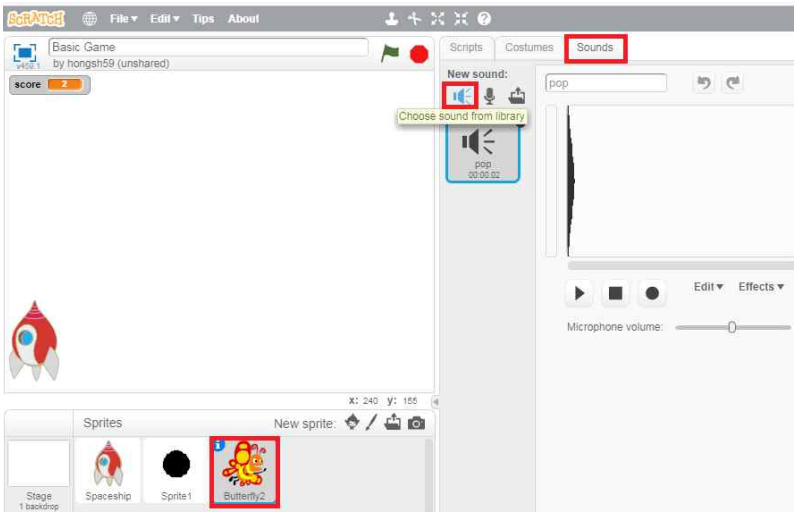
at all with algebra you know about variables. If you are not familiar with algebra don't worry about it.

It's very simple concept and what these variables are they're the representation of numbers so if I Make a Variable, I'm going to call it score and you can see the score number here and If I change score by one it will go up one.

If I change score by five I'll go up five. I'm pretty simple and if I set score to zero, it'll set score to zero so we want to set the score zero at the very beginning of the game. Let's do it in this sprite we're going to set the score 2-0 at the very beginning of the game and then. < Save now >

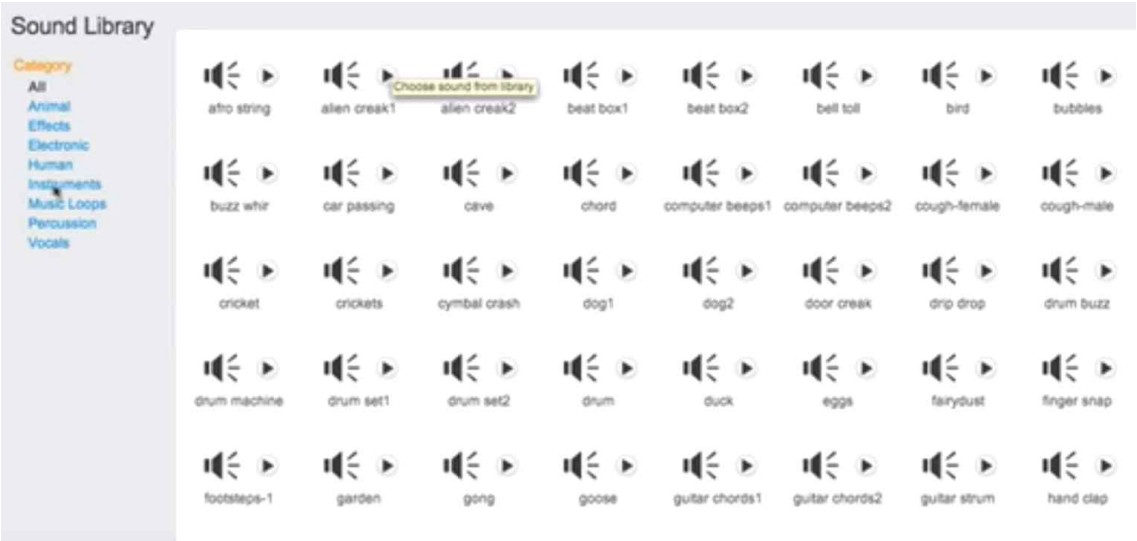


If I'm able to shoot a butterfly I want to change the score not five but by one. So now If I shoot, you could see that the score goes up by one. See that probably would've been better if I had turned there, we go all right so you could play around game at your own pleasure and that is pretty much. That is the first game maybe you've made on scratch so if you follow along good job.

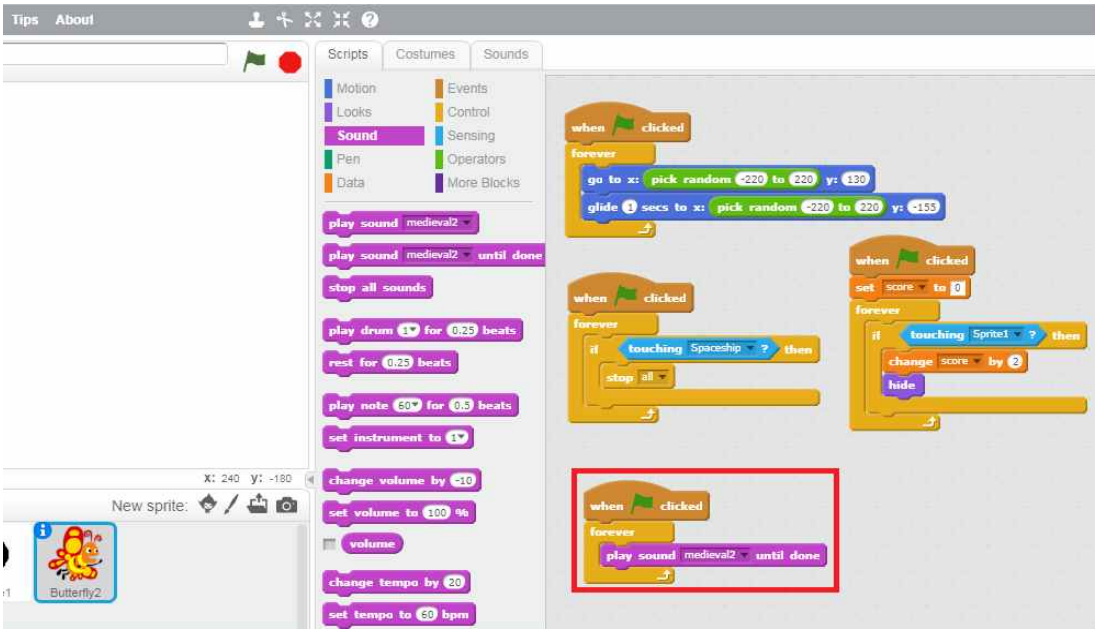


Finally you could add a different backgrounds, I've showed you how to do that before I don't believe that then sound yet so let me sound really quick. I want to pick a sound, let's go to the music loops that would work well for this game so that's okay let me I did that kind of quick.

If you go to the sprite and go to sounds and then you want to pick it from the library. Let's try the music loops about techno or medieval like that.



All right so now if I go back here, when green flag is clicked forever. Now this is important I've made this mistake, many people make this mistake. You want to play sound until done if you just do play medieval forever it will play a streaming quick snippet of medieval and then just go back the beginning and back to the beginning like this, you can't even hear.



So I want to go to **medieval until done and now**. And you could change the backgrounds I will leave it to you to do that. < Save now >

But that is the game on scratch so I hope that you enjoyed it and I hope that you learned something more functions.

Have a Good Day!!!!