




Scratch Programming Lesson 13

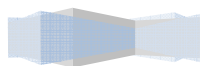
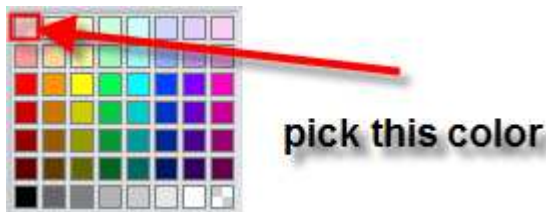
Mini Mario Game Part 4 – Platforms

If you've have played one or more [platform games](#) (video games characterized by jumping to and from suspended platforms), you should've seen scrolling platforms. In this lesson, I will show you how to add platforms and make them scroll. Let's do it!

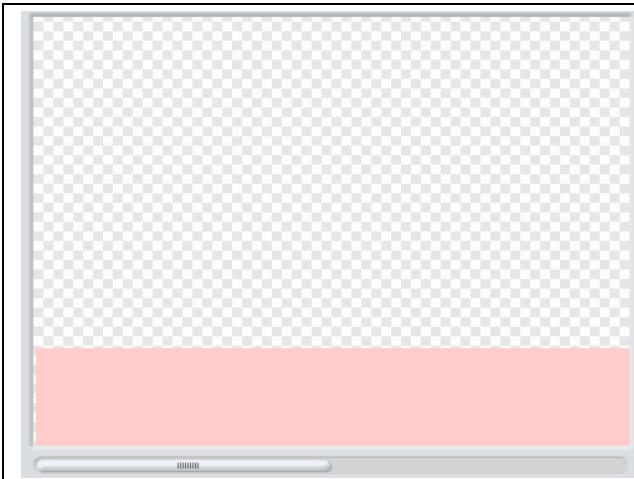
Platform Sprites are usually immobile sprites that look like stage backgrounds but can interact with other sprites on stage. Moreover, they often are located at the bottom of the Stage and they could look like ground, wall, grass field, or brick pavement. Today, I will show you how to turn our simple Mini Mario game from Lesson 12 to a basic platform game using Platform Sprites.

Step 1: Create Platform Sprites

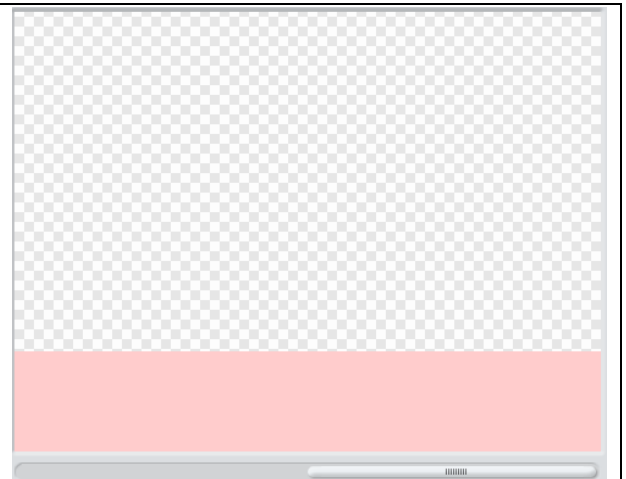
To create platform sprites that look like brick pavement, first click the "Paint new sprite" button  to open the costume editor. Then use square tool  in solid mode  with pink color as shown below.



Create a wide bar that spans the whole width of the drawing area.

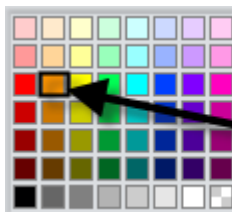
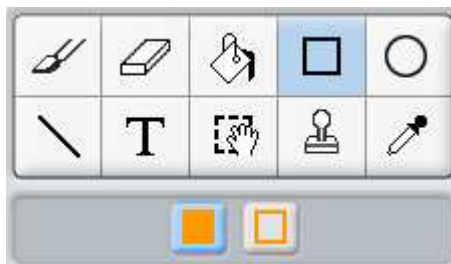


Start from the left end of the drawing area.

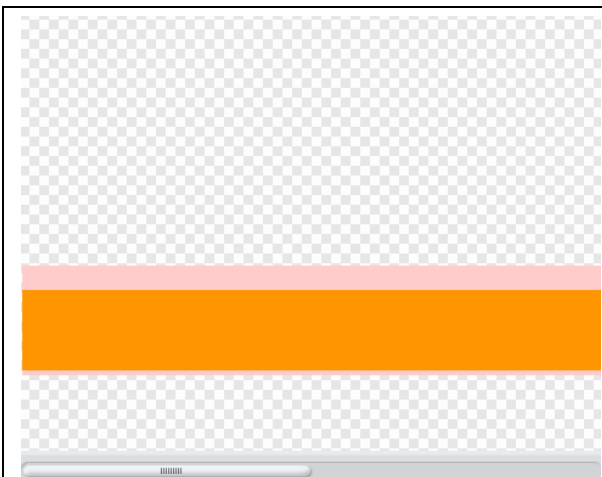


End at the right end of the drawing area.

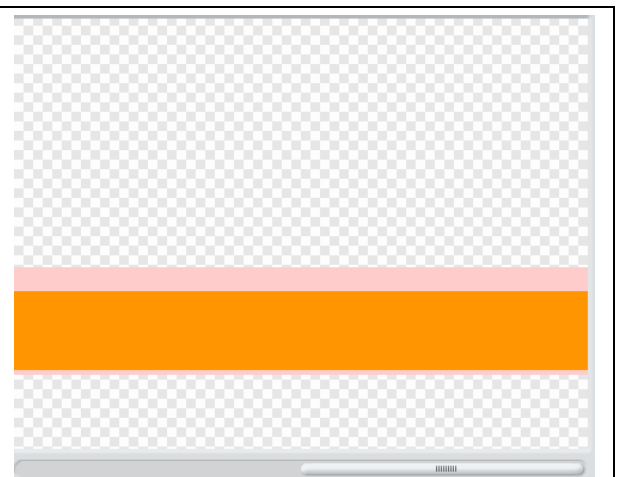
Draw a wide bar which is enclosed in the pink wide bar. You can pick any color.



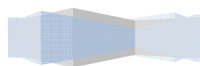
You can use any color
but I picked this orange



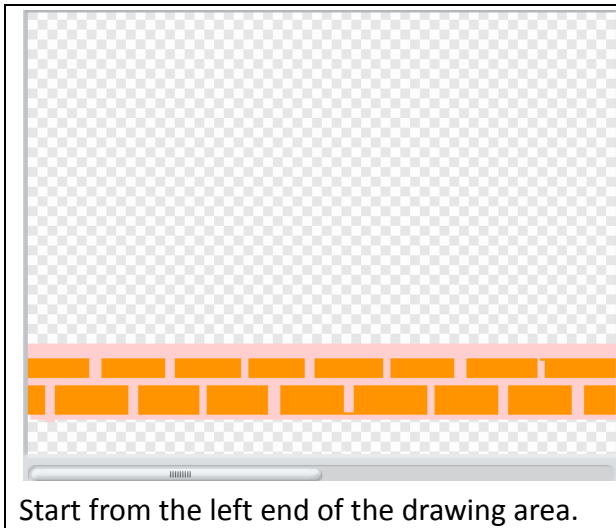
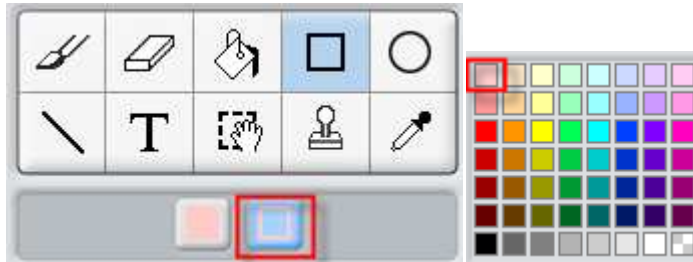
Start from the left end of the drawing area.



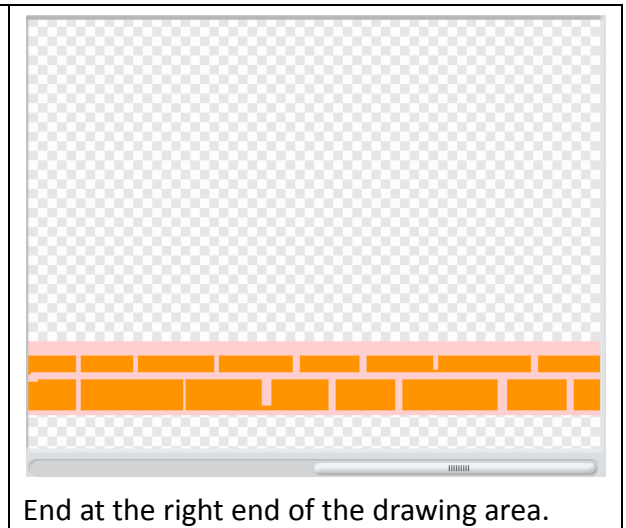
End at the right end of the drawing area.



Then use pink hallow box to create grouts.

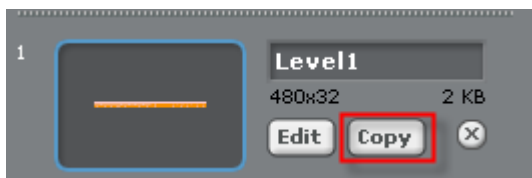


Start from the left end of the drawing area.

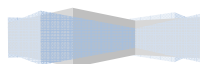
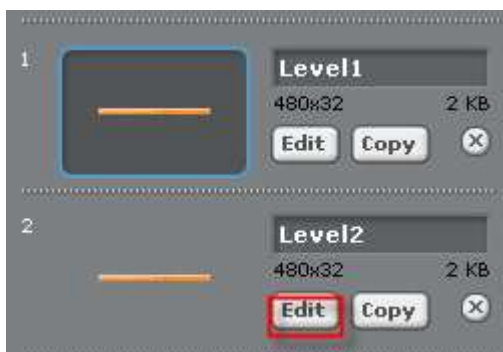


End at the right end of the drawing area.

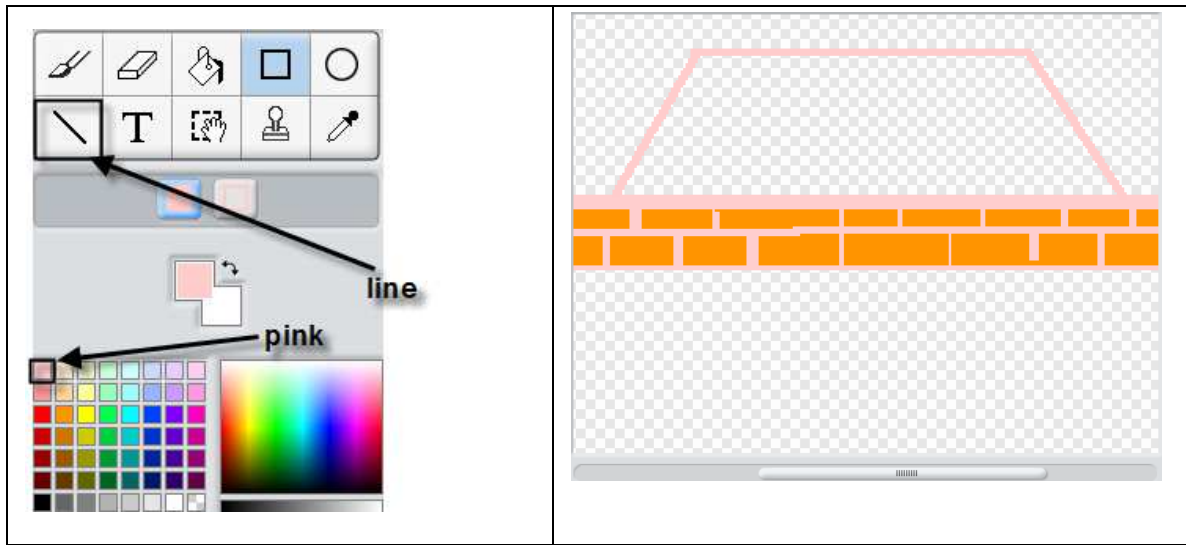
Click OK to save and rename this costume as Level 1. Then click Level1's "Copy" button.



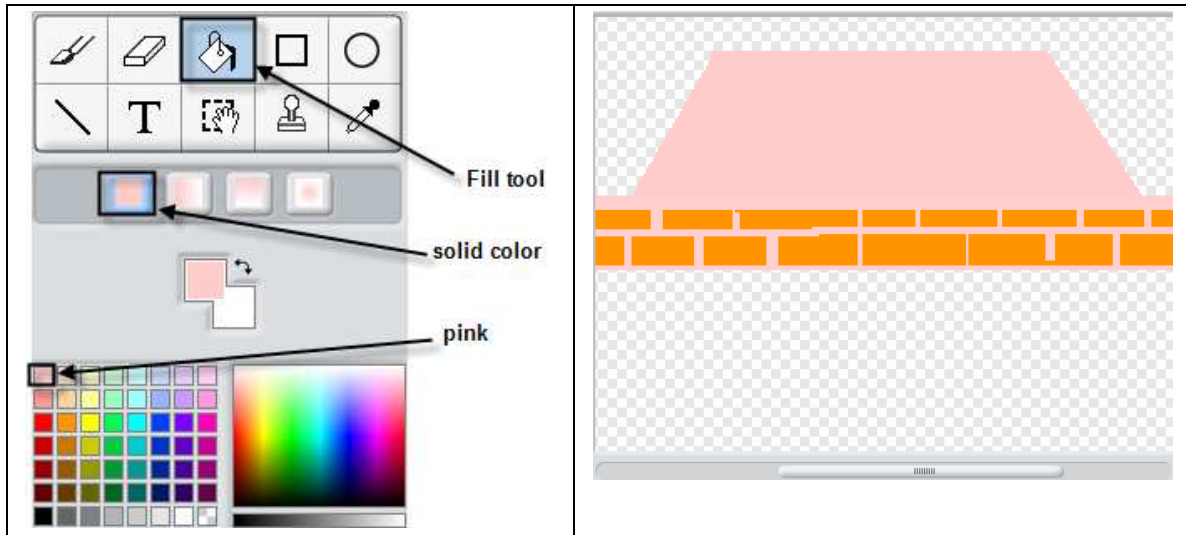
Rename the copy to Level 2 and click its "Edit" button.



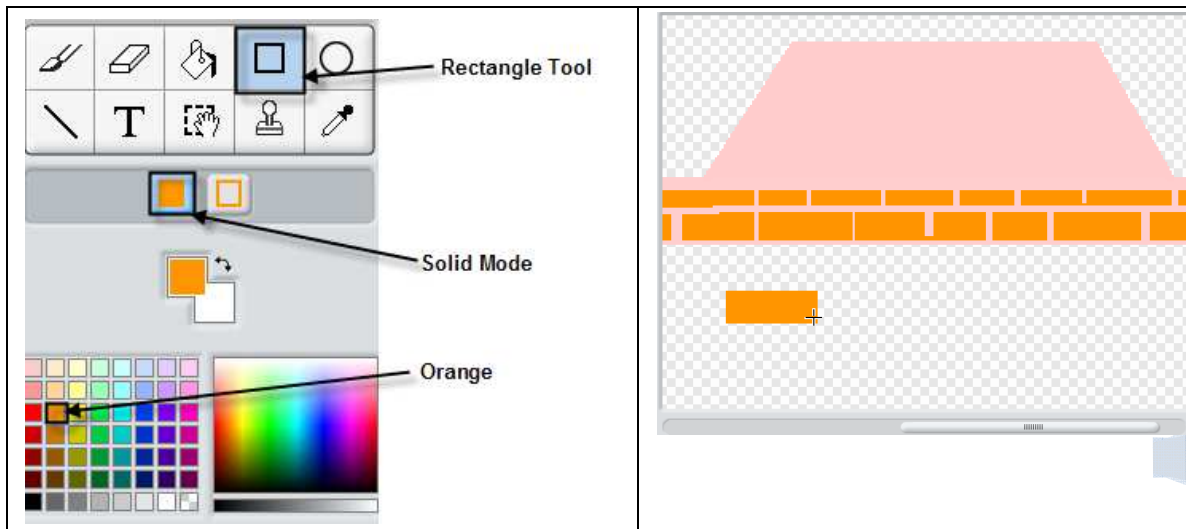
Draw the outline of an elevated platform.



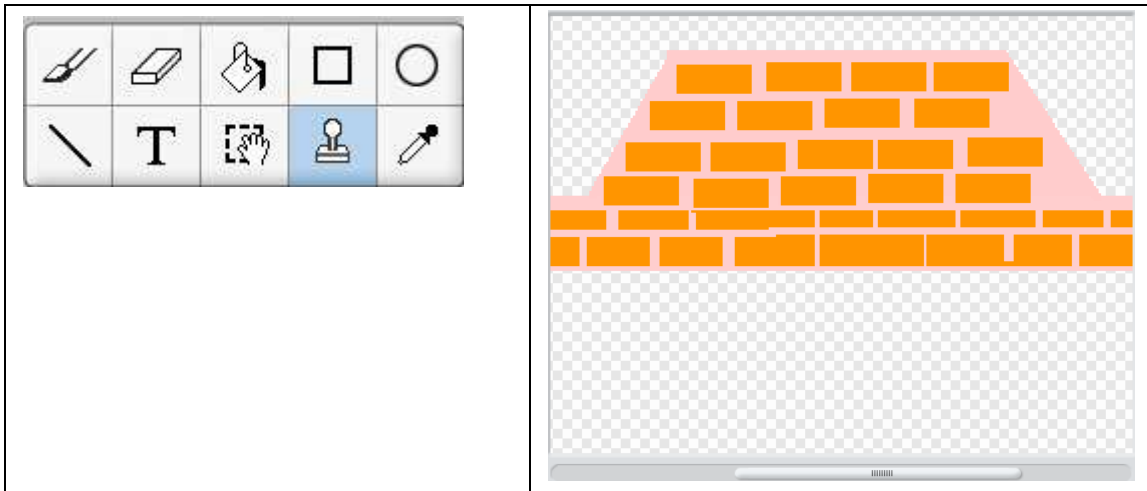
Then fill this platform with the same pink color.



Create a brick in orange.



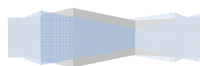
Then use Stamp Tool to make copy of this brick and stack them as below. Then click OK to save.



Change the sprite name to “Platform”.



Then move Platform to the bottom of the Stage.



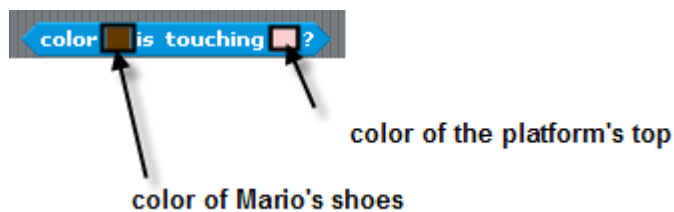
With Platform sprite selected, click Scripts Tab, and then select Motion Tool Kit. Drag out “go to x: 2 y:-164” block to the Scripts panel. Note that the x and y values of your “go to x: ? y:?” might be a bit different than 2 and -164. It’s OK – these numbers are filled in for you automatically by Scratch when you move a sprite on the Stage.

Build a combo block as followed so that Platform sprite shows at the bottom of the Stage every time the game starts.

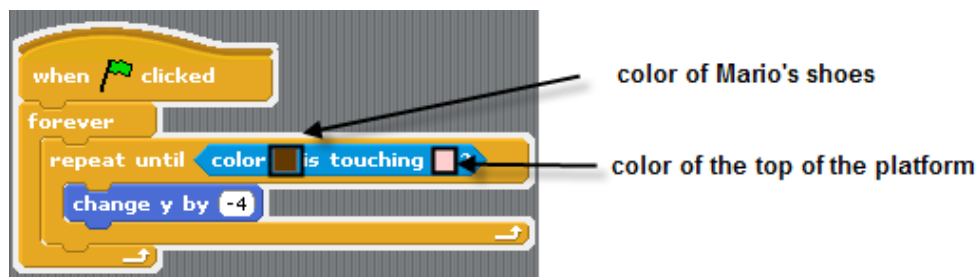


Step 2: Interact with Platform Sprites

Next, we need to modify Mario’s script so that he would stand on the platform. We will be using “color X is touching Y” block. We will use “color brown is touching pink” because Mario’s shoes are brown and the platform’s top is pink.



Create a combo block that repeatedly moves Mario down (change y by -4) until Mario’s shoe color is touching the color of the platform’s top.

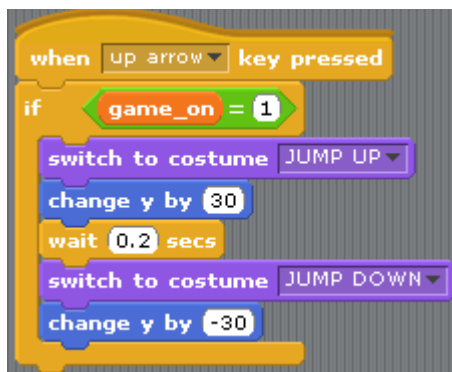


To copy these two colors, first click the first color box and then click Mario's shoes with the eyedropper. Do the same to copy the color pink.



With this combo block, we need to change the combo block that does the jumping.

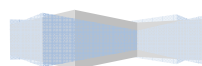
This is what we had from Lesson 12 – jumping involves going up (increase y) as well as going down (decrease y).



But since now we've added the combo block that moves Mario down until his shoes hit the platform, jumping now only needs to involve going up. Moreover, make Mario jump higher by increase the change from 30 to 60, so that Mario can jump over Crab.



Also, I modified where Mario shows in the beginning so he will fall down from the sky, just like the original Mario game.

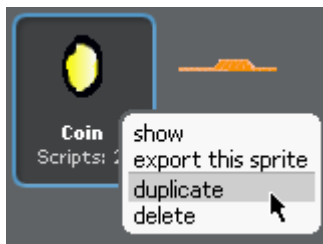




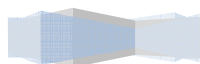
TRY IT! Start the game now and you should see Mario fall down from above and landed right on top of the Platform sprite. Try jump around and see Mario fall back down on the Platform.

Step 3: Add a Level to the Game

Next, let's kick it up a notch by adding a level to the game to make it a two-level game. To do so, let's add a special coin such that if Mario collects it then he would be moved to the next level. Right click Coin sprite and select duplicate.



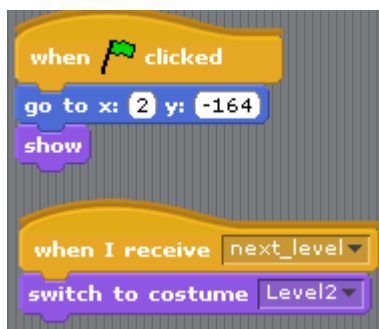
Rename the duplicate sprite to CoinToPass. Delete all script in CoinToPass and add the following script block so that when CoinToPass sprite is touched by Mario, it would send out a broadcast message called "next_level".



The Platform sprite would catch the “next_level” message and change its costume to “Level2”.




The Platform sprite’s scripts now look like this:

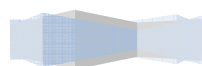


TRY IT! Now you can test your jumping skill. Note that you can do multiple jumps (by hitting UP multiple times) so it looks like Mario is flying or sky-walking. I just thought that it’s nice to let him have a bit more power.

Step 4: Bullets

If you are like me, then you probably find this game pretty tough. If not, then you can skip this step. I guess you are pretty good at sky-walking.... But for me, my Mario needs a bit help to fend off his enemies. Let’s give him bullets, shall we?

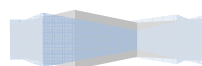
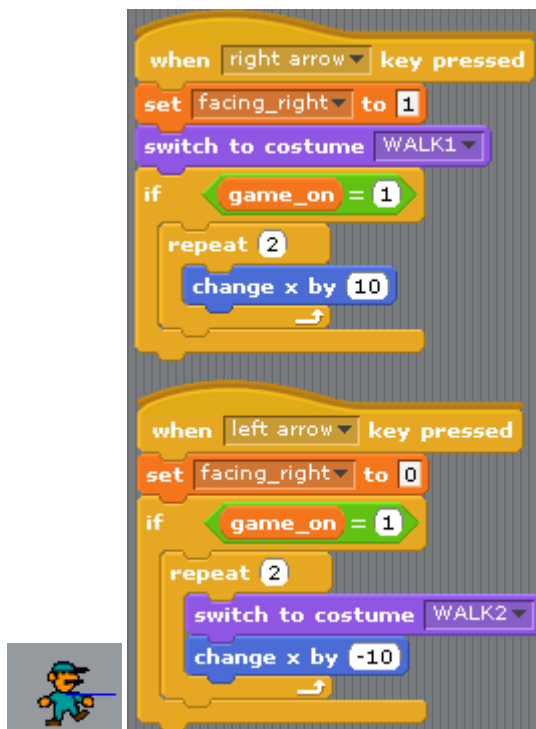
Click  to create a new sprite and create a simple bullet trace that looks like this:



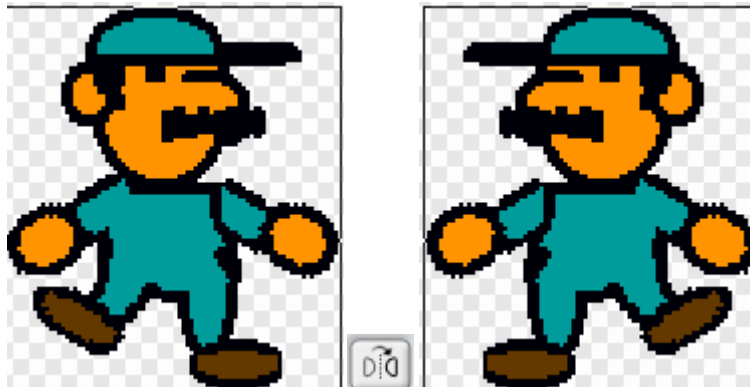
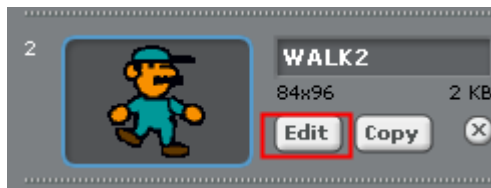
Save this sprite as "Bullet".



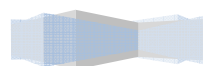
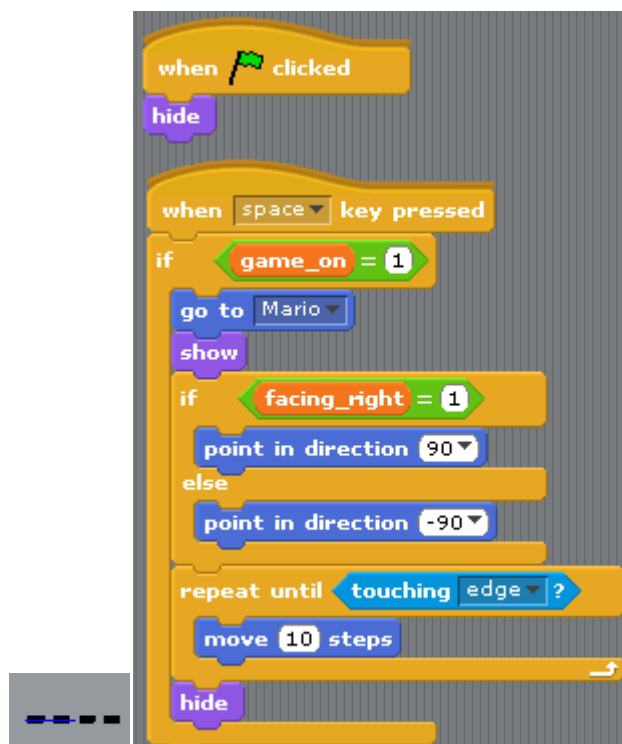
To tell bullet which direction to fly to, create a variable called "facing_right" and set it to true (set to 1) when Mario turns right and to false (set to 0) when he turns left. The updated relevant scripts look like this:



Besides script, let's change the costume "WALK2" to face left. Click costume WALK2's edit button. Then click the horizontal flip button to flip the image.



Now let's update Bullet's script so that, when space key is pressed, it flies out from Mario to the right if Mario faces right and to the left if he faces left. Also, Bullet will keep flying until it touches the edge of the Stage, then it would hide.



Finally, let's add a combo block to Bat and Crab's scripts so that they disappear when hit by Bullet.



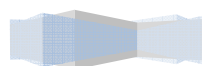
TRY IT! Try attacking by hitting the space key. Liberating eh?

Step 5: Rewards

Finally, let's reward Mr. Mario for his hard work. The first prize is Fruit Platter. Update its scripts so that it shows on the top of the Stage when the first Level is cleared.



Update Princess' scripts so that she shows up only after Mario has scored two points. When Mario finally met or "touched" Princess, she would have hearts all above her head and then the game would end.





TRY IT! Try scoring two points by getting all coins, then move close to Princess to see her fall in love with Mario.

THIS CONCLUDES LESSON 13. IT'S TIME FOR MY [BOBA TEA BREAK](#).

