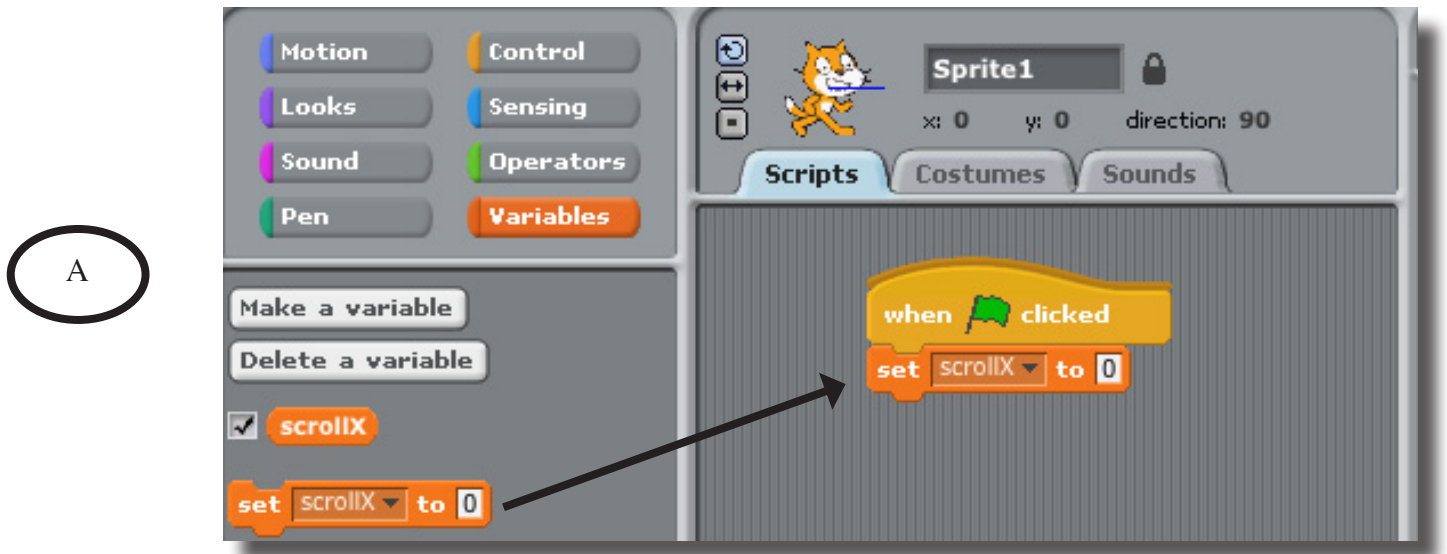


# Scratch Lessons: Scrolling Background

1. Let's begin by creating a variable called "scrollX". This will signal the different backgrounds how to scroll. Choose the "Variables" category and click "Make a Variable". Name the variable "Scroll X".

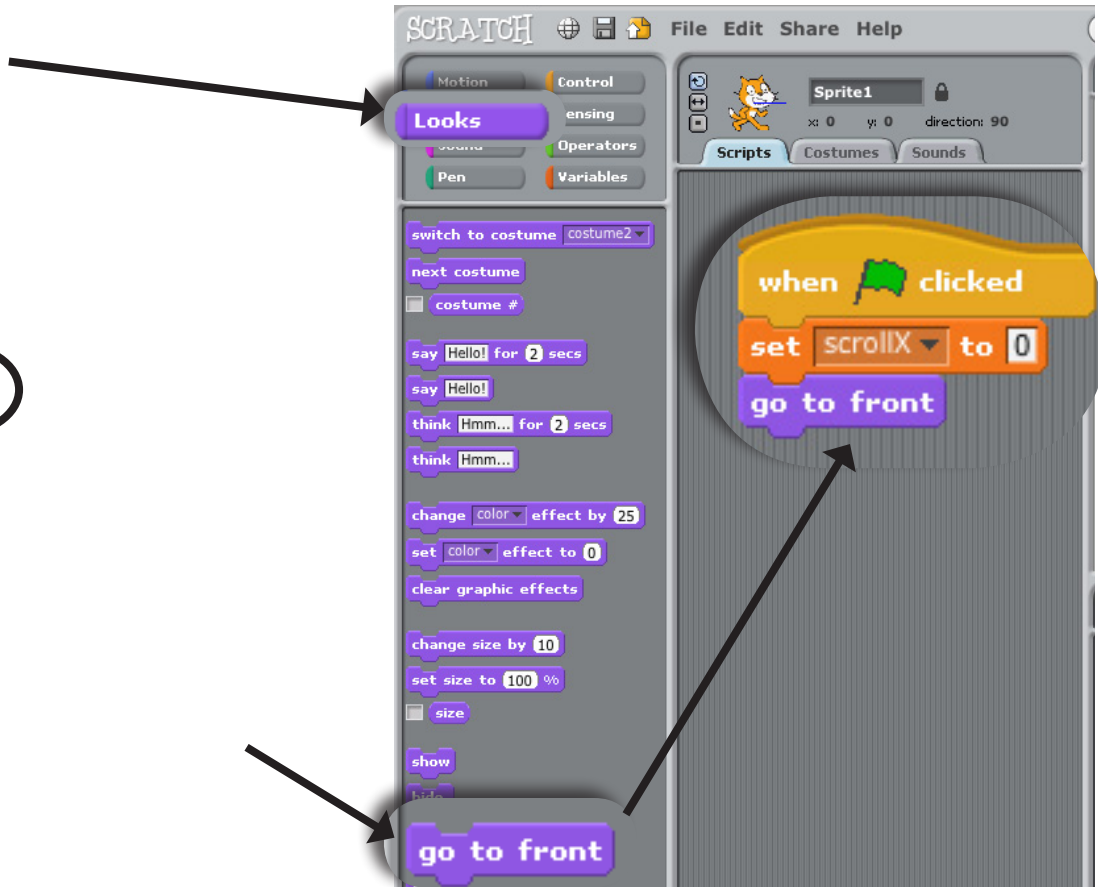


2. Drag "set ScrollX to 0" under a "When green flag is clicked" code block.



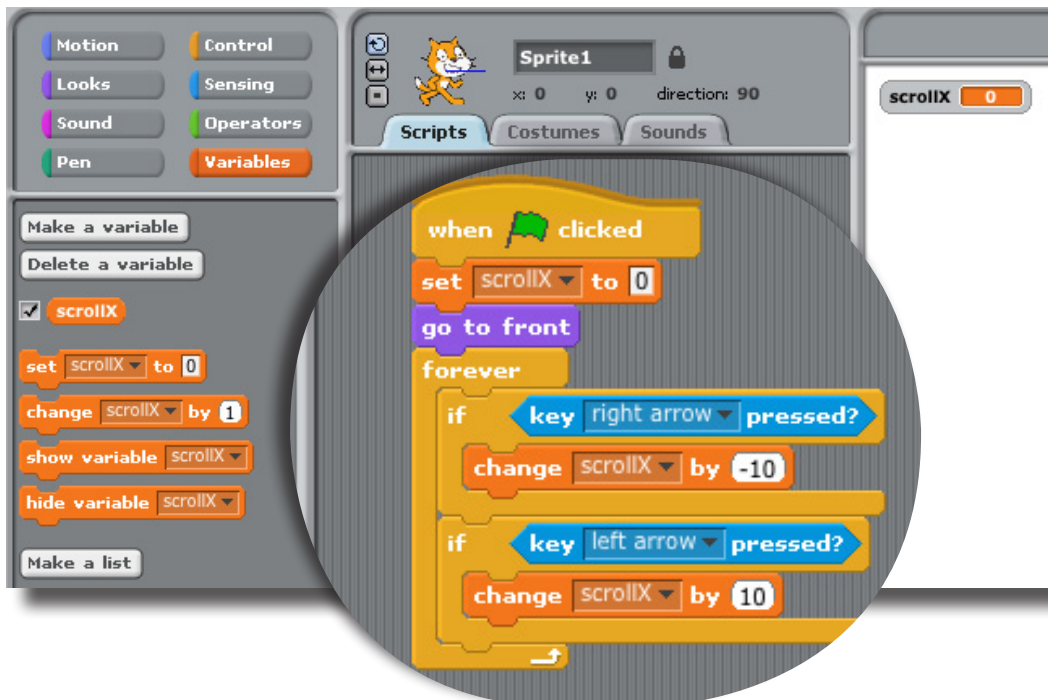
3. Make sure your player is in front of the background by clicking on the “Looks” category and dragging “go to front” below “set scrollX to 0”.

A



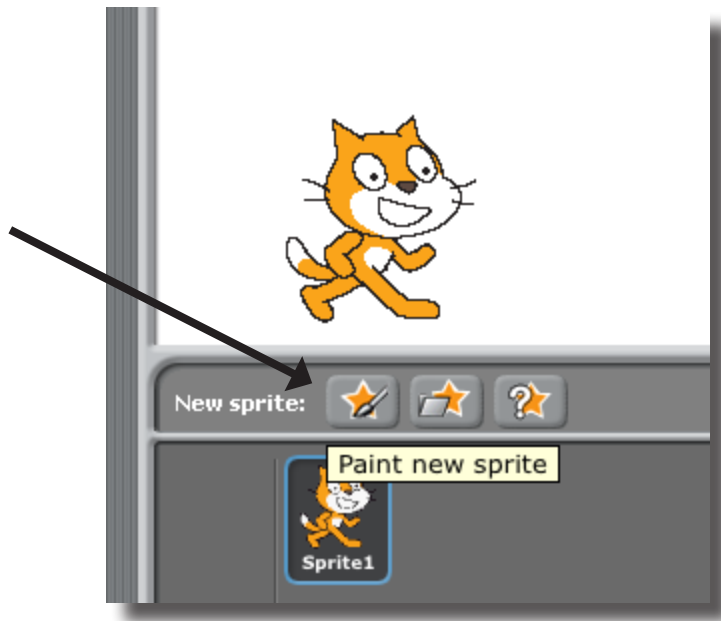
4. Our goal is to have the **background** scroll left everytime our **player** moves right and the background scroll left everytime the player moves left-- why? Because that way it looks like the background is moving past our player. The code will be forever if the right arrow is pressed change scrollX by -10 and if the left arrow is pressed, change scrollX by 10.

A

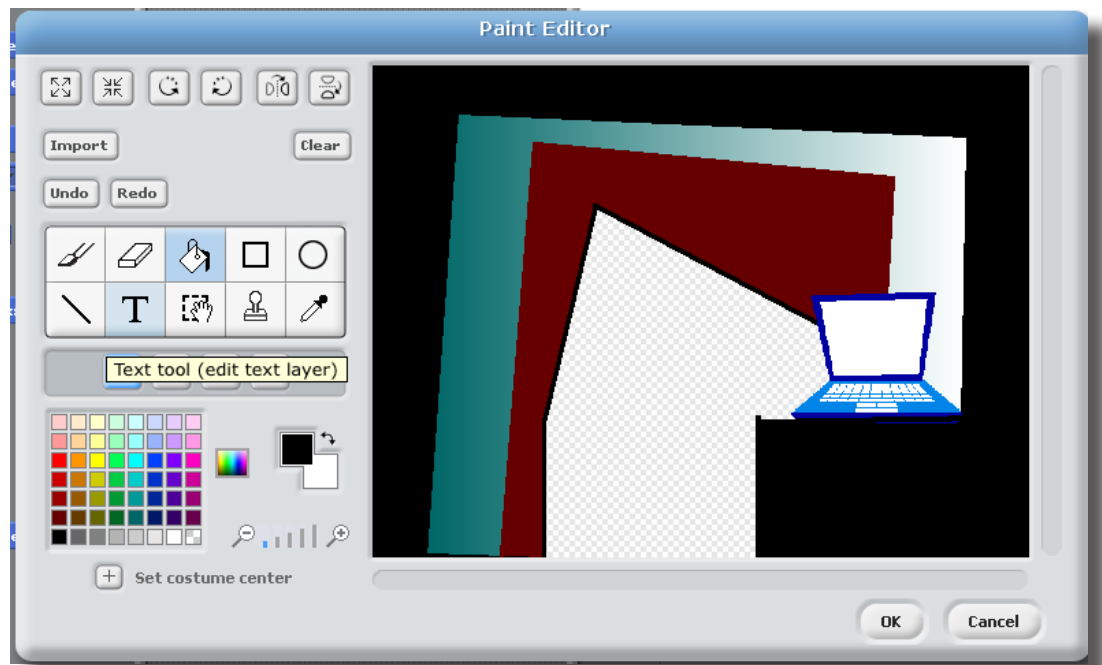


5. Next, create a new sprite. This will be your first background. Paint a scene from your life in New York where DRAMA occurs. For example, your room, the park, classroom, shop, or a bodega. **OR**, better yet, import an image from SketchUp.

A



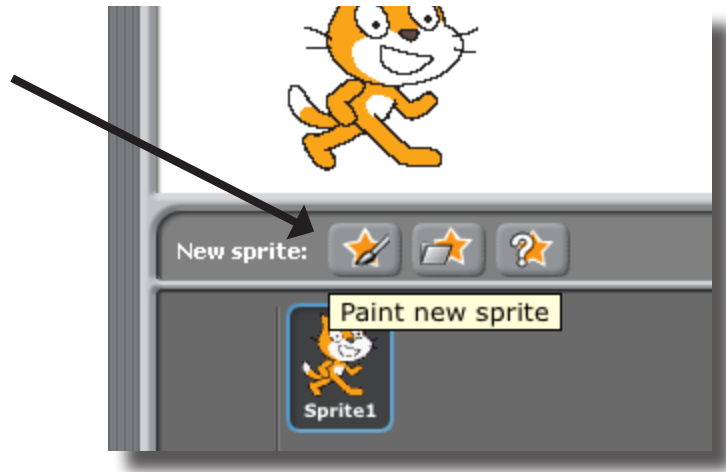
B



- OR -

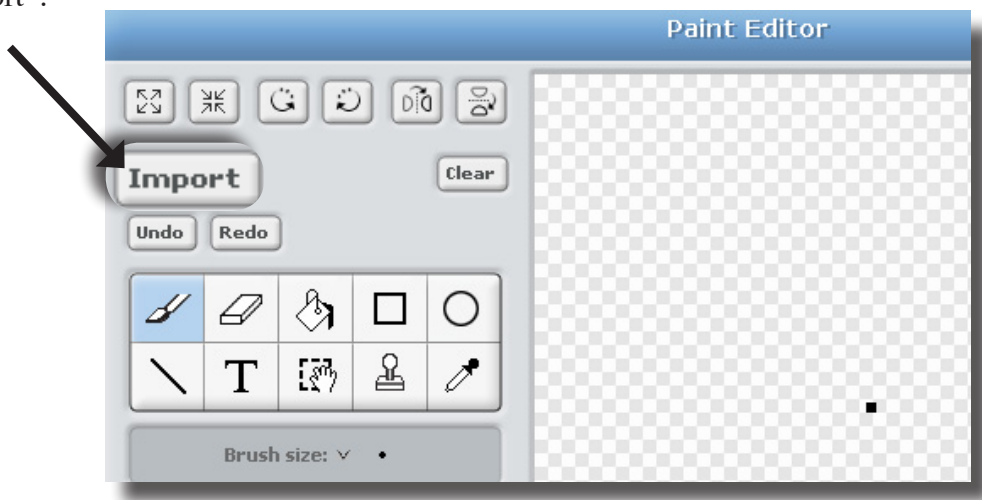
Click "Paint New Sprite".

A



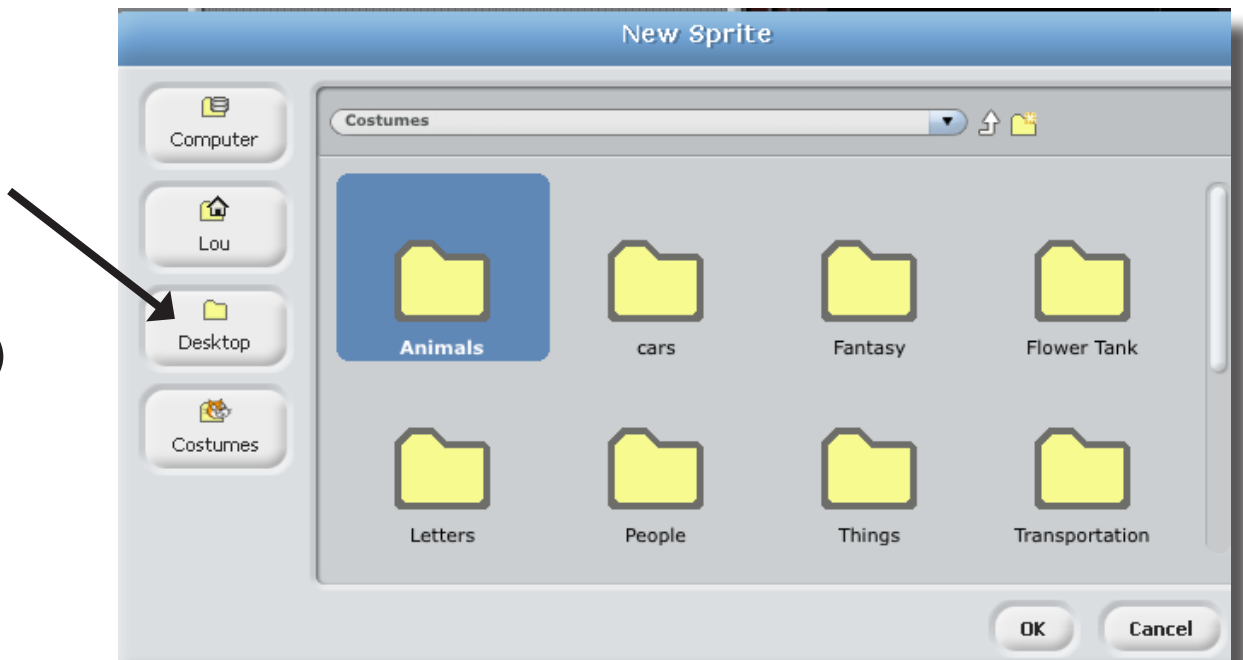
Press "Import".

B



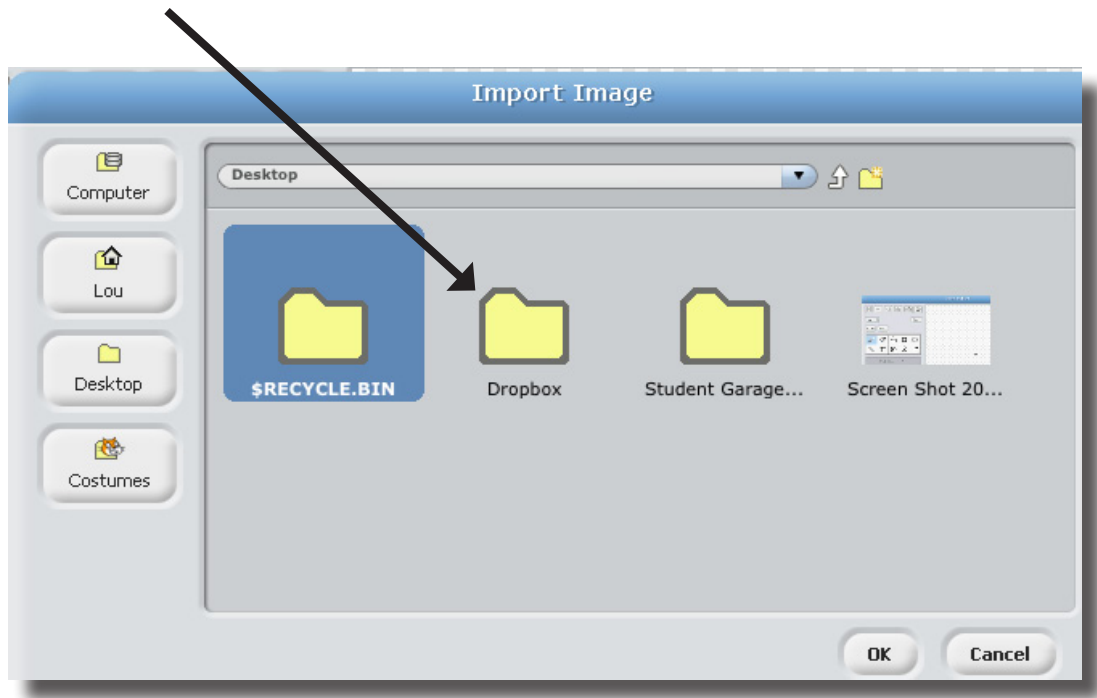
Click on "Desktop".

C



Click on “Dropbox” and locate an image you created in SketchUp (when you did File --> Export--> 2D).

D

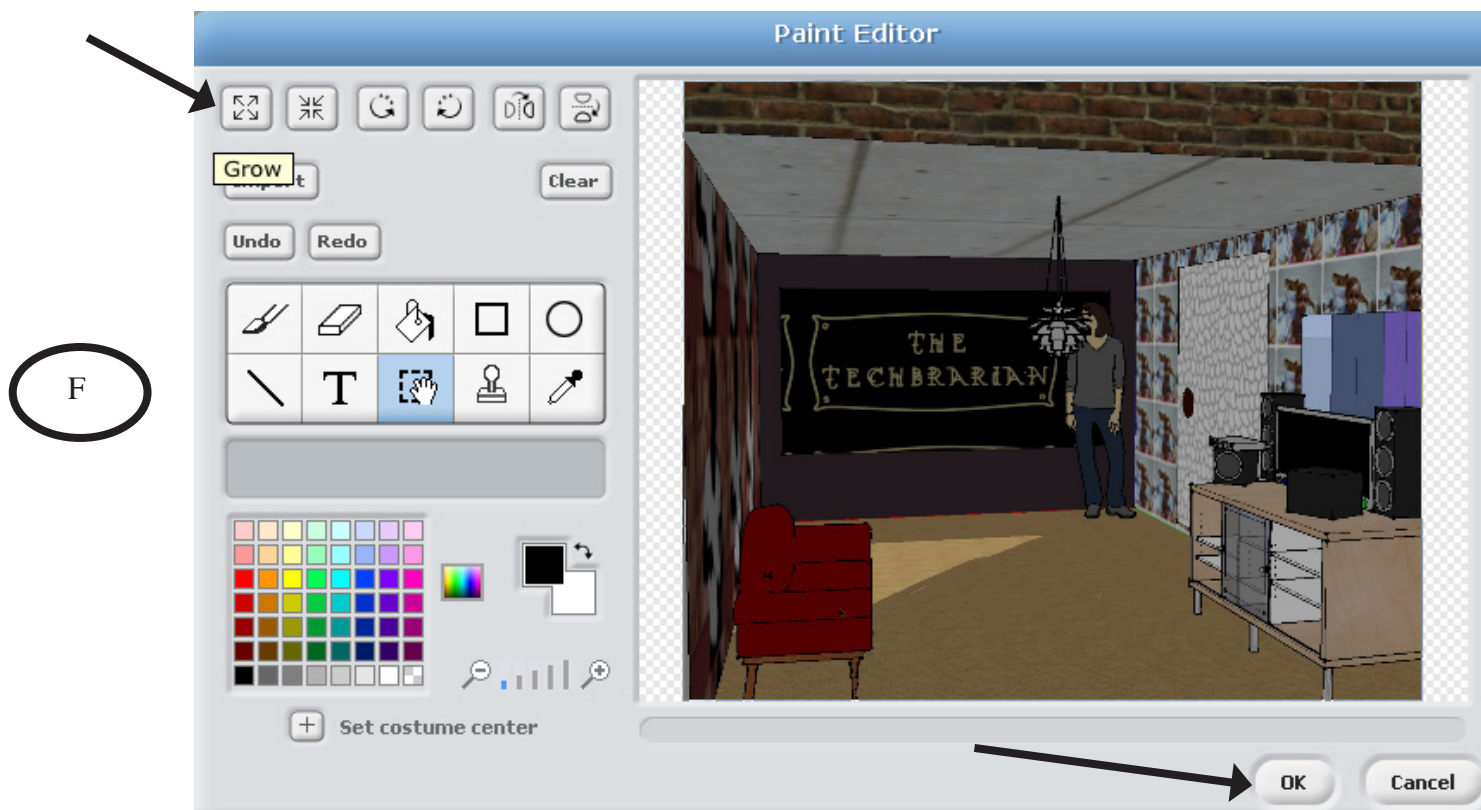


Find your grade and name. Double click on a background you created.

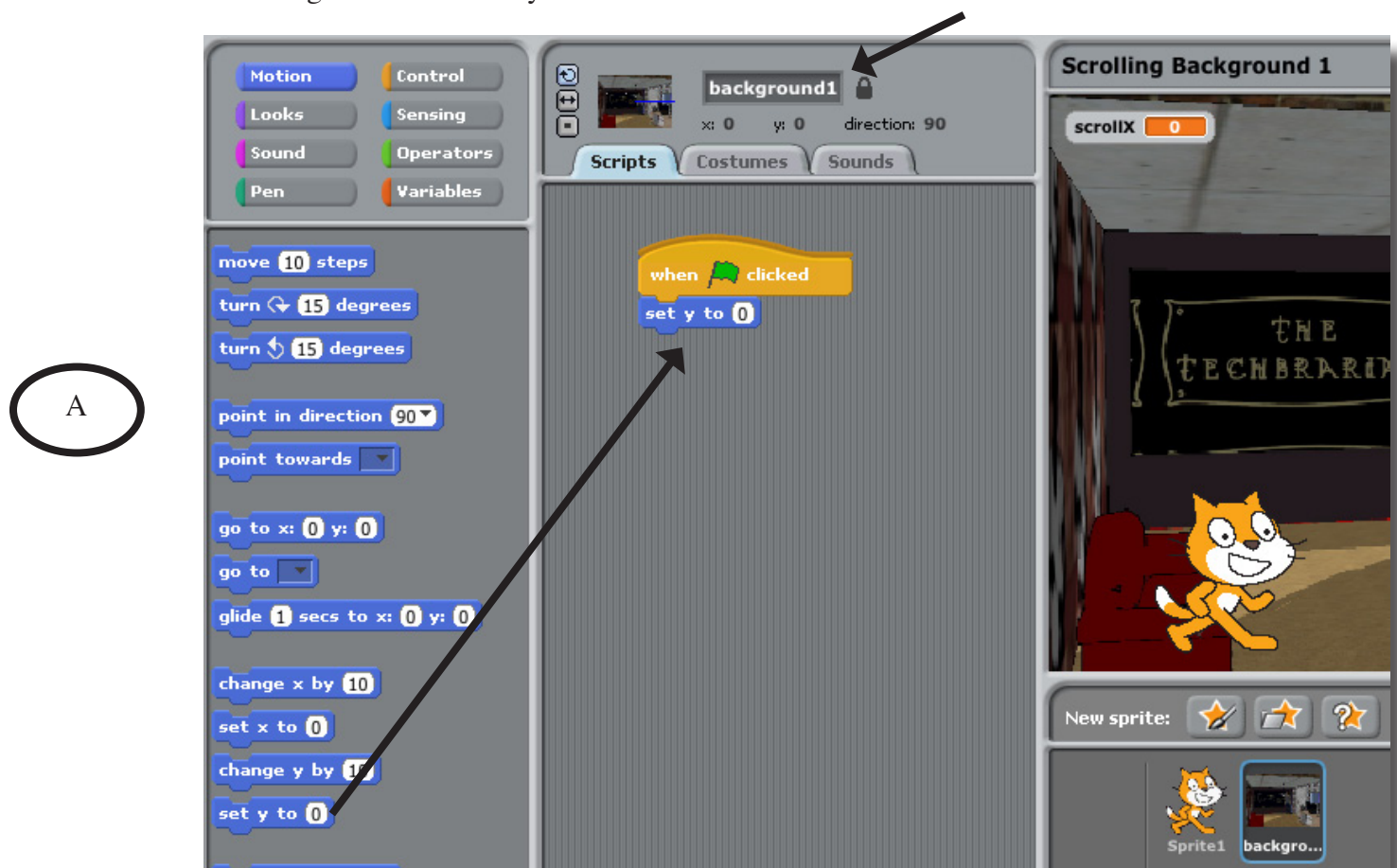
E



Click “Grow” once so that the image fits perfectly into the screen. Then click “OK”

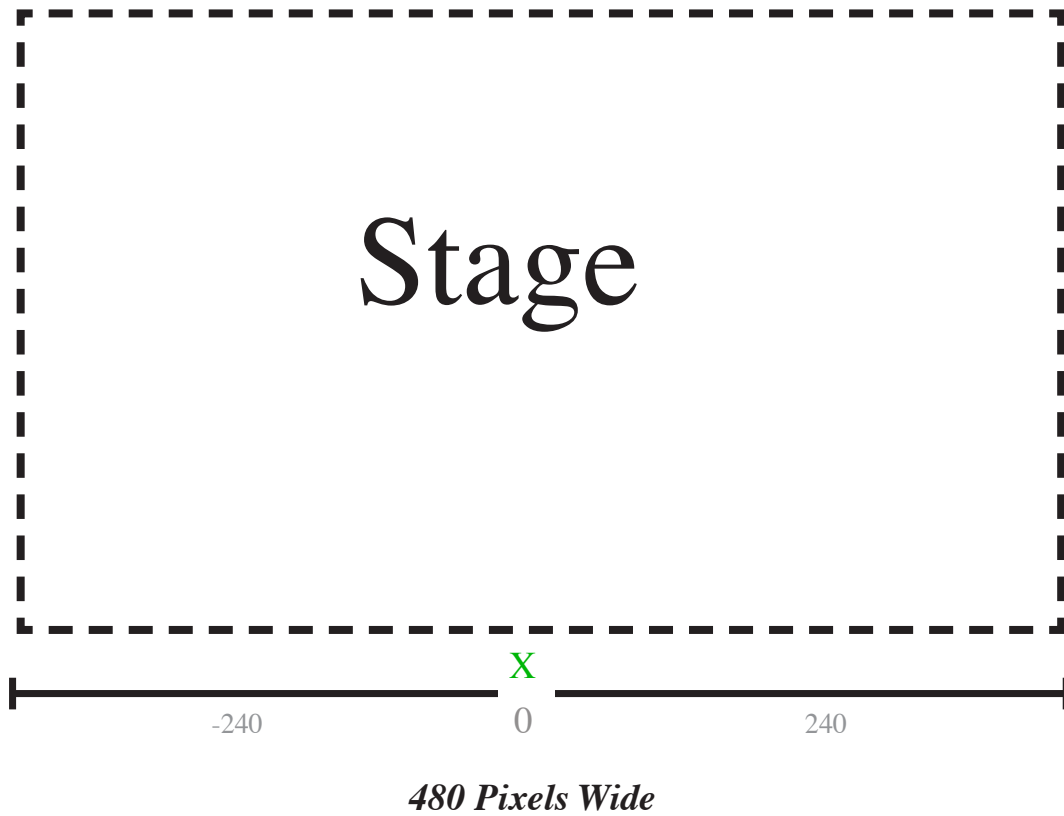


6. Change the name Sprite2 into “background1”. Next drag “When green flag is clicked” “set y to 0” . This makes sure that the background is vertically centered.





7. Before we take on the next step of telling the background which way to move horizontally, take a look at this diagram of the stage in Scratch:



So far, you've made one background. It is also 480 pixels wide. For it to sit at the center of the stage, set its X to 0.

The screenshot shows the Scratch interface. On the left, the "backgrounds" palette is open, showing a background named "background 1". The "x: 0" and "y: 0" coordinates are highlighted with a red circle. Below the palette, a script block is visible: "when green flag clicked" followed by "set y to 0" and a "forever" loop containing "set x to 0". An arrow points from the "set x to 0" block to the "x: 0" field in the palette. On the right, the stage is shown with a background titled "Scrolling Background 1". A "scrollX" slider is set to 0. The stage contains a cartoon cat sitting on a red chair, a person standing in a room, and a banner that says "THE TECHBRARIAN". Below the stage, a coordinate system is shown with a green 'X' at the center, labeled '0', and tick marks at -240 and 240. The text "480 Pixels Wide" is written below the axis.

8. But you don't just want your background to sit still. As you character moves right, you want your background to scroll left so it looks like your character is moving. If you look at the diagram below, your background scrolling "left" means it's scrolling in the negative direction (its X gets smaller).

The screenshot shows the Scratch interface. On the left, the 'Scripts' area contains a 'when green flag clicked' event block, followed by a 'set y to 0' block, a 'forever' loop containing a 'set x to 0' block. The 'backgrounds' area shows 'background1' with a scrollX value of -190 and a direction of 90. The main stage area shows a character (Scratch cat) in a room, with a 'scrollX -190' label above it. Below the stage, a horizontal axis is shown with a green 'X' at 0, and arrows pointing left to -240 and right to 240, with the text '480 Pixels Wide' below it.

In order to do this, your character has to send a message to your background to scroll left (negative). If you look back at the code for your character we said "If the right key is pressed, change scrollX by -10".

Reminder:

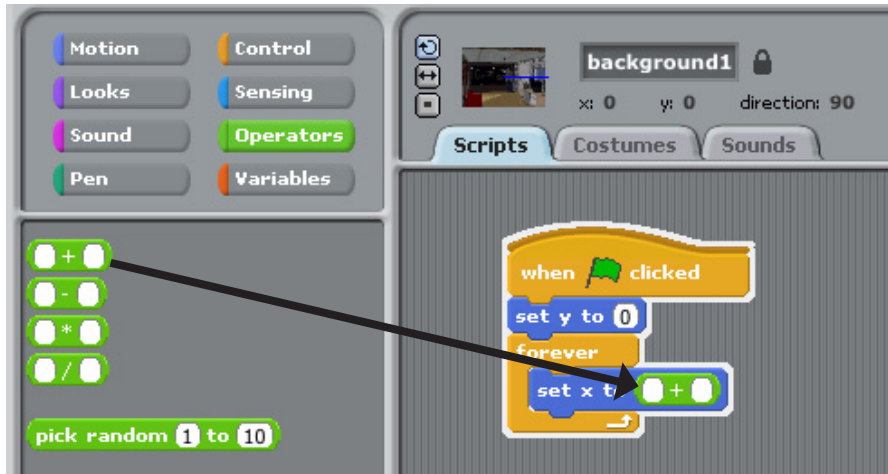
```
if key right arrow pressed?  
  change scrollX by -10  
if key left arrow pressed?  
  change scrollX by 10
```

So we're going to take the variable "scrollX" and use it on our background to tell it how to scroll.

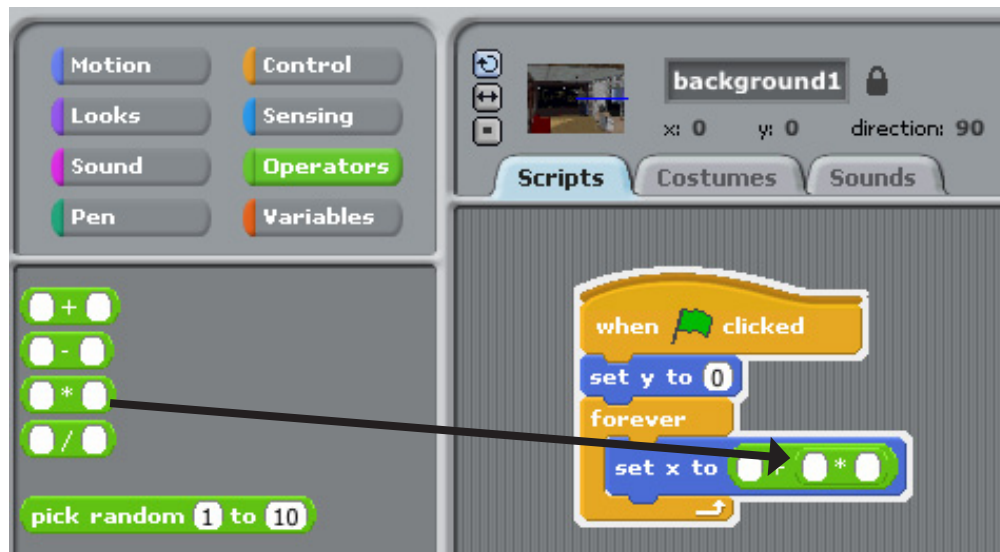


Here's the code:

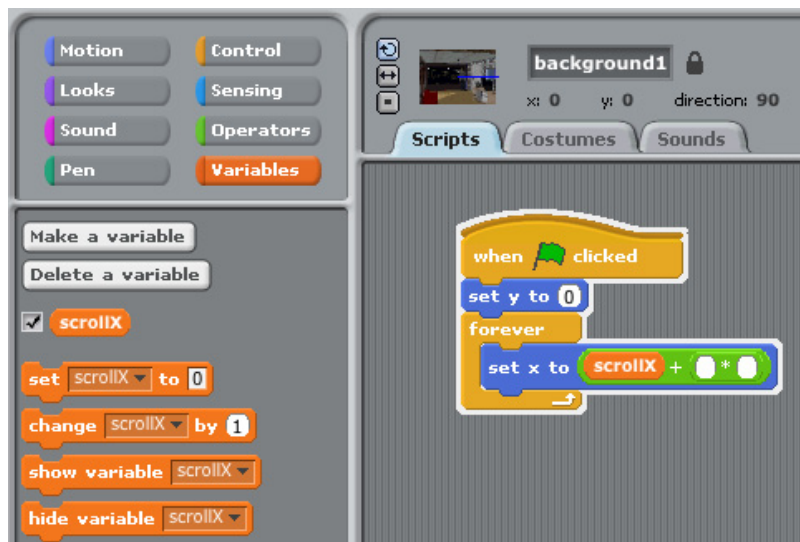
A



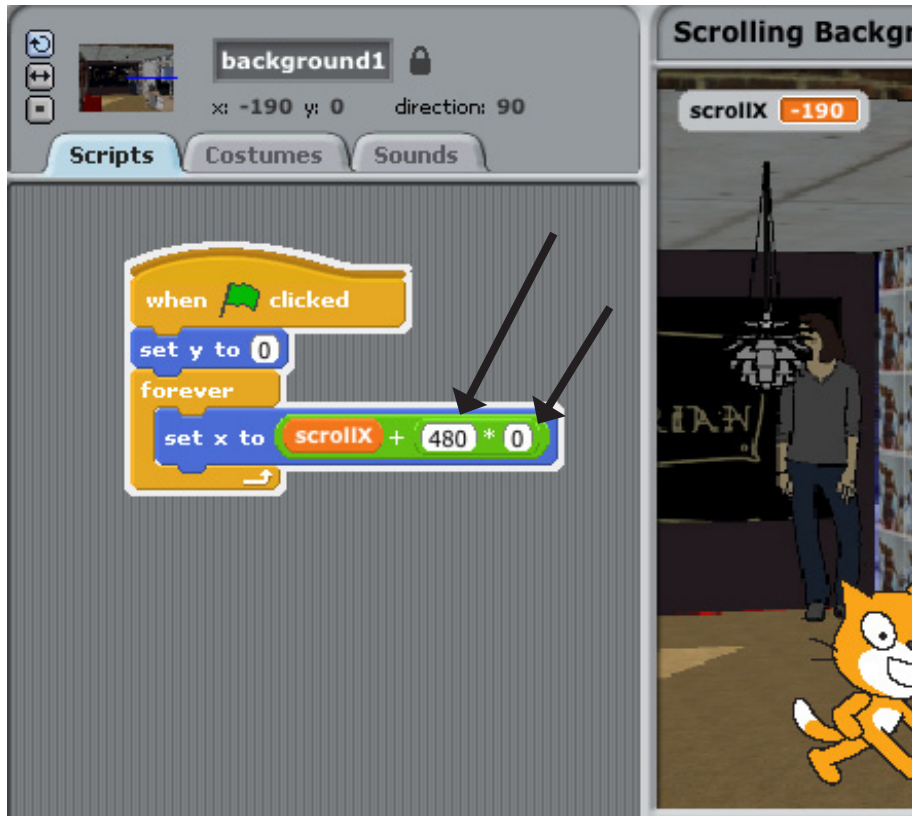
B



C



D



The above code reads: set the X of background 1 to Scroll X plus 0. Why zero? Because zero is the center of the stage. We want the first background to start at the center of the stage. As your character moves right, it tells the background to scroll left.

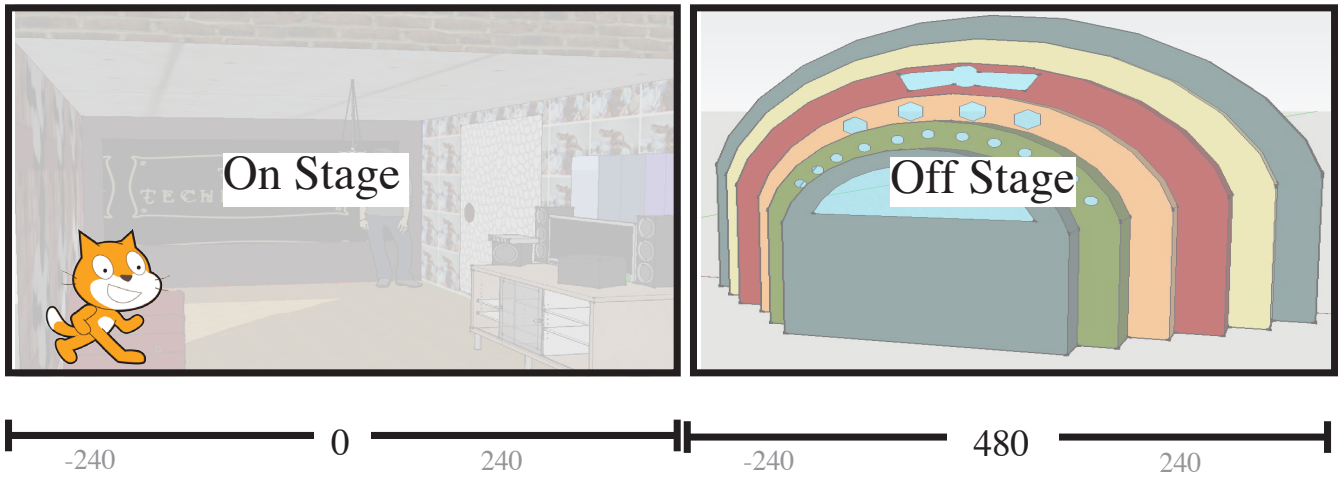
9. Now that your first background scrolls left when your character moves right, it's time to bring in a second background.

A

Follow **Step 5** to bring in a second background.



10. The second background needs to be offstage when it starts. This is because you don't want the two backgrounds on top of each other. Because the center of the stage is zero, the second background should start at 480.



A

Here's the code for the second background:



Notice that we replaced the "0" in the first background, with a "1" for the second background. This means that the second background will start at 480 before it starts scrolling.

11. As you add more backgrounds, simply increase each background by 1. For example, for the third background the script would be:

