

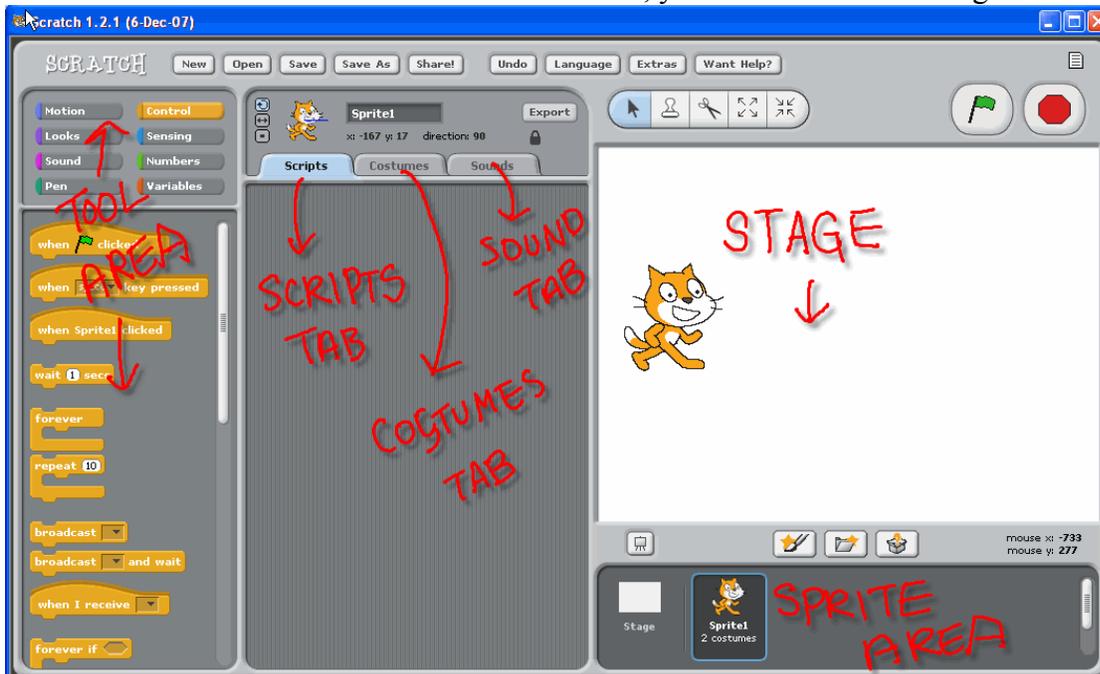
Scratch Programming

Lesson One: Create an Scratch Animation

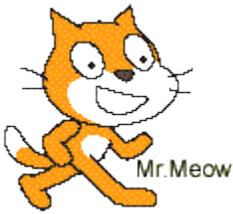
Have you heard of Scratch? No, not what you do to your itch, but Scratch from MIT, the famous school for the curiously brainy people? Anyway, if you have not heard, seen, or played with Scratch, then you've been missing out. Because it is a lot of FUN!!!

So I got your attention? If not, BANG!! Wake up, people! Let's kick start our class with showing you what Scratch can do or what YOU can do with Scratch.

Start the Scratch program. If Scratch has not been installed on your machine, you can get it from the MIT Scratch web site. Once Scratch is started, you should see something like this:



Think of a movie set. At a movie set, there is a stage for actors/actresses to be on, a roster of actors/actresses, a movie script, supporting crews, and most importantly, a director. In the same way, Scratch is like a movie set; it has a stage(STAGE), a roster (SPRITE AREA), a movie script(SCRIPt tab), a makeup crew(COSTUME tab), a sound crew(SOUNDS tab), and gadgets/ tools(TOOL area) available to the movie crew. In this first project, let's use our friendly Scratch cat, "Mr. Meow".



If you click on Mr. Meow, you can move him around. But if you don't, he just stands there, staring at you with his unblinking eyes. It's not because he does not like you, but because he has not been told what to do. And you can help him very soon. Let's move on, shall we?



Scripts, like movie scripts, control how the actors (sprites) act. Right now there is no script for the cat, so it just sits there idly.



Costumes tab is where you can dress your sprites up, like a makeup artist. You can change a sprite's costume or add a new costume. Right now, Mr. Meow has two costumes.



Sound tab is where you can add voice, music, and sound clip to your sprites.

Step 1: Create A Story Line

An good Scratch animation, like a cartoon, has a story line. The more complicated the story line is, the more complicated the Scratch project will be. For starters, let's use a really simple and uneventful story:

"Mr. Meow was hungry and needed to find the Doughnut Man, who is known to carry numerous donuts. Fortunately, Mr. Meow found the Doughnut Man quickly and got what he wanted. When Mr. Meow was fed, he let out a happy sign and returned home. "

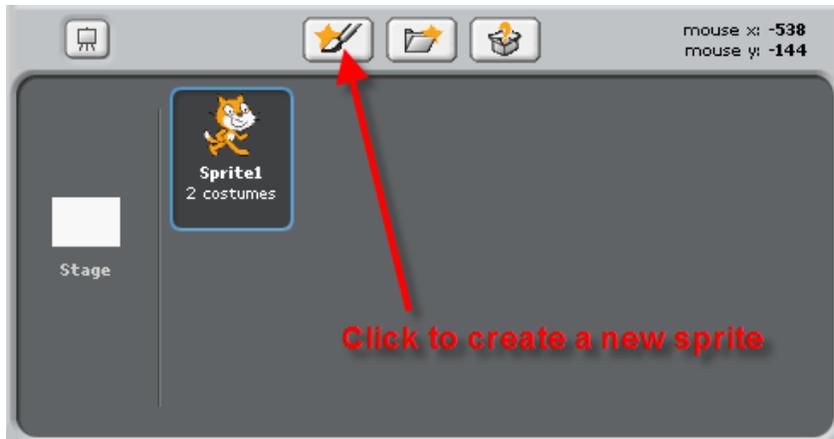
Step 2: Create Sprites

In this simple story consisted of two lines, we can see that there are three "sprites" we need to have:

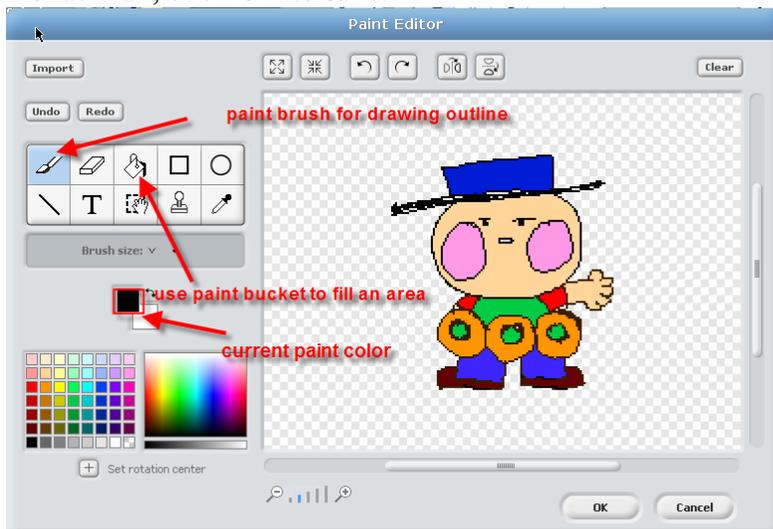
- Mr. Meow
- the Donut Man
- the Donut

The SPRITES are things or characters shown in the animation. It's very easy and fun to create your own sprite. I kid you not! Let's start by making them.

First, let's create the Donut Man. Click the  ("Create new sprite" button) to open the Paint Editor to create the default costume of this new Sprite.

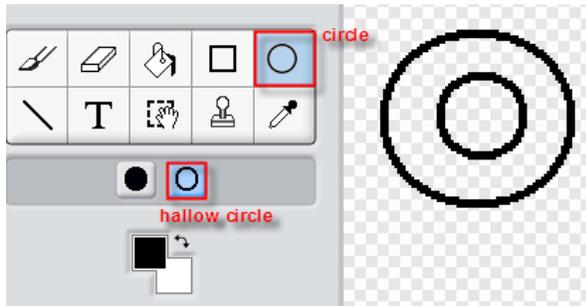


I created the Donut Man who proudly wears three donuts around his waist as a belt. Create your own funny Donut Man. It does not have to be complicated. When you are happy with your Donut Man, click OK to save.

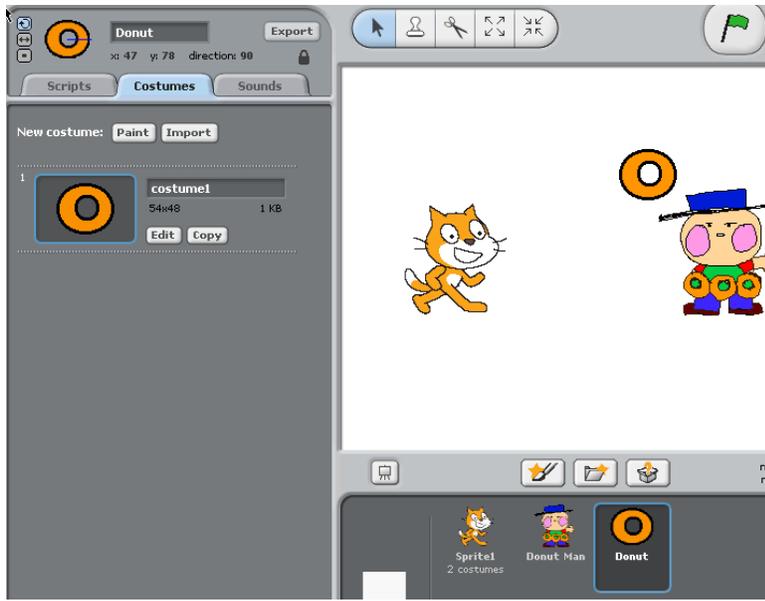




In the same way, make a Donut Sprite: click  to open the Paint Editor again. Use the circle drawing tool  and make sure that you select the hallow circle instead of solid circle to create the donut shape. Then use  paint bucket to fill the inside of the donut.



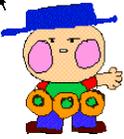
When you have created both new Sprites, Donut Man and Donut, your Scratch Screen should look something like this:



Step3: Creating Scripts from the Story Line Sprites

Now that we have all sprites we need, the next step is to get them to work. To make them do anything meaningful, we need to give them their scripts. To design scripts for each sprite, we need to review our simple story line:

"Mr. Meow was hungry and needed to find the Donut Man, who is known to carry numerous donuts. Fortunately, Mr. Meow found the Donut Man quickly and got what he wanted. When Mr. Meow was fed, he let out a happy sign and turned pink. "

Sprite	Script in Plain English
	<ol style="list-style-type: none"> 1. Mr. Meow shows up first at his house 2. He heads toward the donut that the Donut Man sends. 3. Once he eats the donut, he let out a happy sign and goes right back home.
	<ol style="list-style-type: none"> 1. The Donut Man shows up at his house 2. He “sends” Mr. Meow a donut. 3. He said “I hope you like it” when Mr. Meow gobbled up the donut.

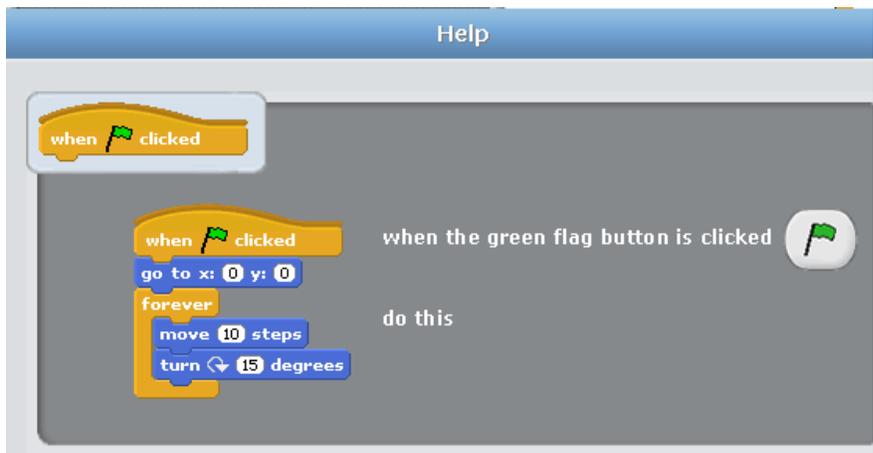
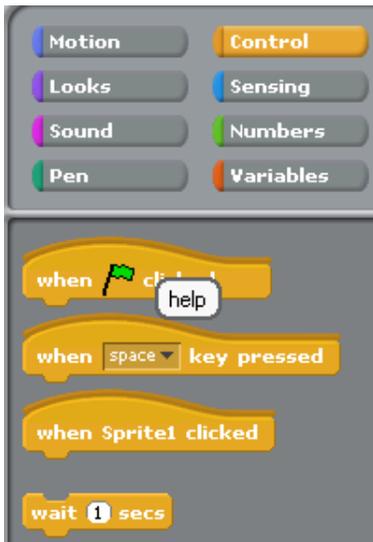


1. The Donut appears in **the center** when the Donut Man delivers it.
2. It disappears when Mr. Meow finishes with it.

Don't worry if the Scripts in Scratch Language do not make sense to you; we will explain them very shortly while we build Mr. Meow's scripts. Let's do it.

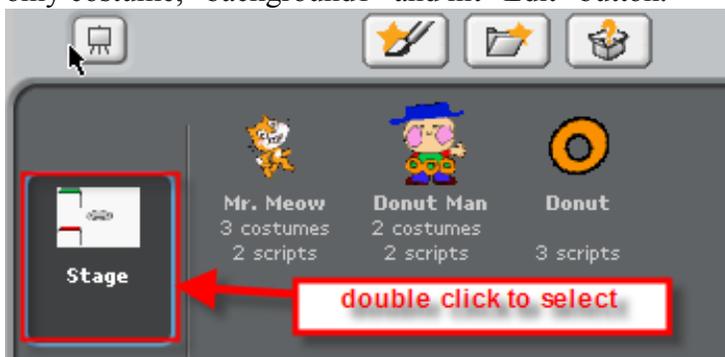
Now we need to use the Scratch "Tool Box". There are eight categories of tools but we will only look at six categories: Motion, Looks, Sound, Control, and Sensing. The tools used are boxed in **red** lines.

Most of the tools are very self-explanatory, and you can RIGHT-CLICK a tool to see a brief description about that tool.

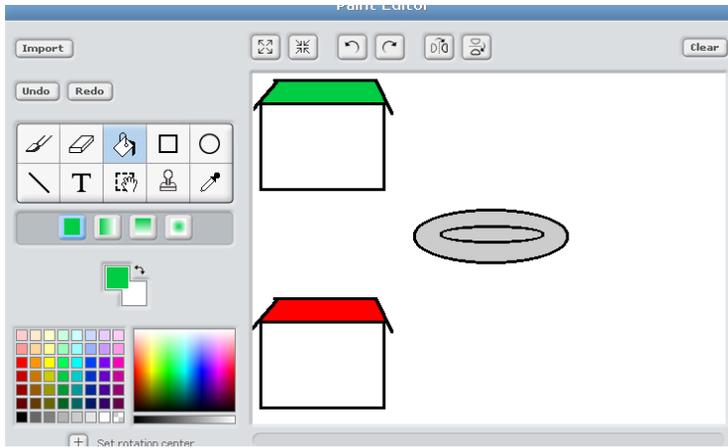


Step 4: Create a Simple Scene

To create a scene, we change the costume of “Stage”. We will add two houses and a plate to the “Stage”. To do so, double click the Stage icon to select. Then click “Costumes” and select the only costume, “background1” and hit “Edit” button.



Change the costume by adding two houses and a plate. When done, hit “OK” button.

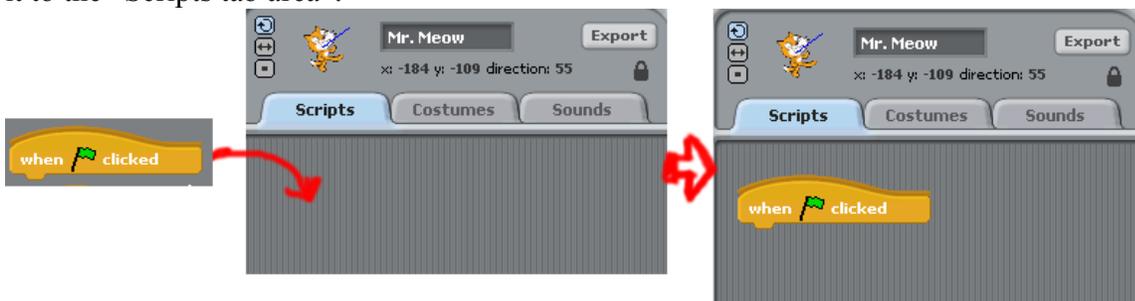


Step 5: Adding Simple Movement Scripts to Sprites

We are going to show you how these tools work by first building Mr. Meow's scripts. Double Click Mr. Meow from the Sprites Area, then click "Scripts" tab.

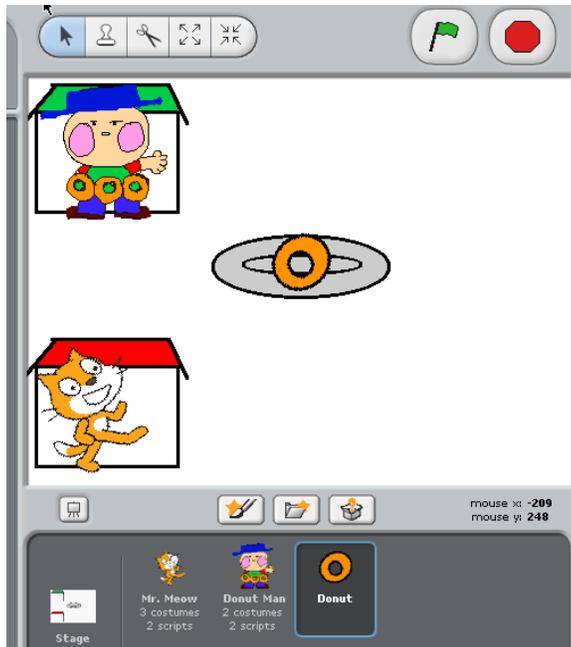


From the Tool Box, click the "Control" button. From the Control Script Snippets, click and drag it to the "Scripts tab area".



Just like that. Now let's build a really simple script so that Mr. Meow will go to his house when the green flag is clicked. Here are the steps to take to build this script:

1. Move three sprites as shown below. The x-axis and y-axis values will be updated accordingly.



2. Click “Motion” button in Tool Box Selection.



From Motion Script Snippets, you would notice that the x-axis and y-axis values are already filled in.



3. Click “Looks” button in Tool Box Selection, do as shown below.



4. You are ready to test this simple script. Drag Mr. Meow to anywhere in the Stage and then click the Green Start Flag. You would see Mr. Meow gliding back to his house.

In the same way, create the following script for the Donut Man and the Donut.





TEST TIME

Now you can test this very simple animation by first move these sprites around in the Stage and clicking the Green Start Flag button and you should see all of the sprites gliding back to their positions.