

Scratch Primary Lesson 1

Getting Started

Start Scratch on the Web

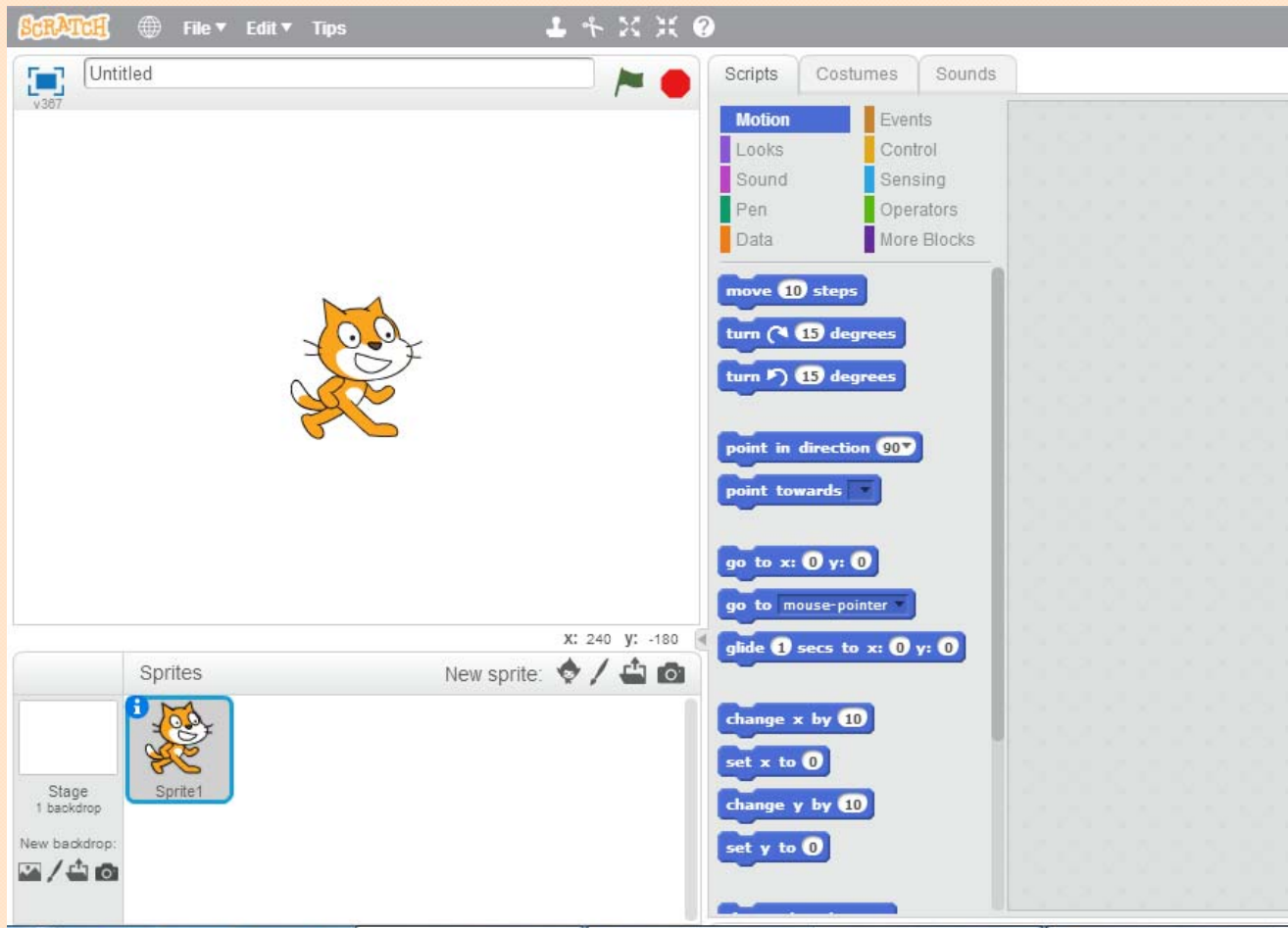
- Go to <http://scratch.mit.edu/>:



- Click the “Create” button to navigate into the Scratch programming environment.

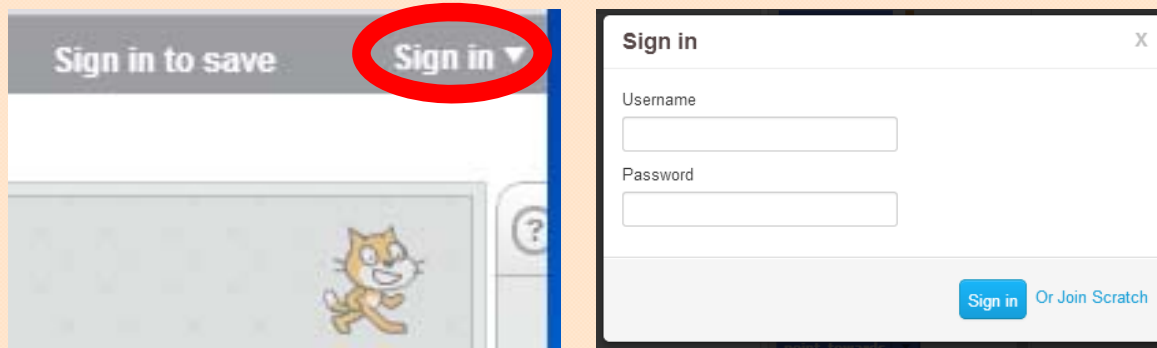
The Scratch Programming Environment

- The cat sprite appears when scratch is started:



Sign In to Scratch

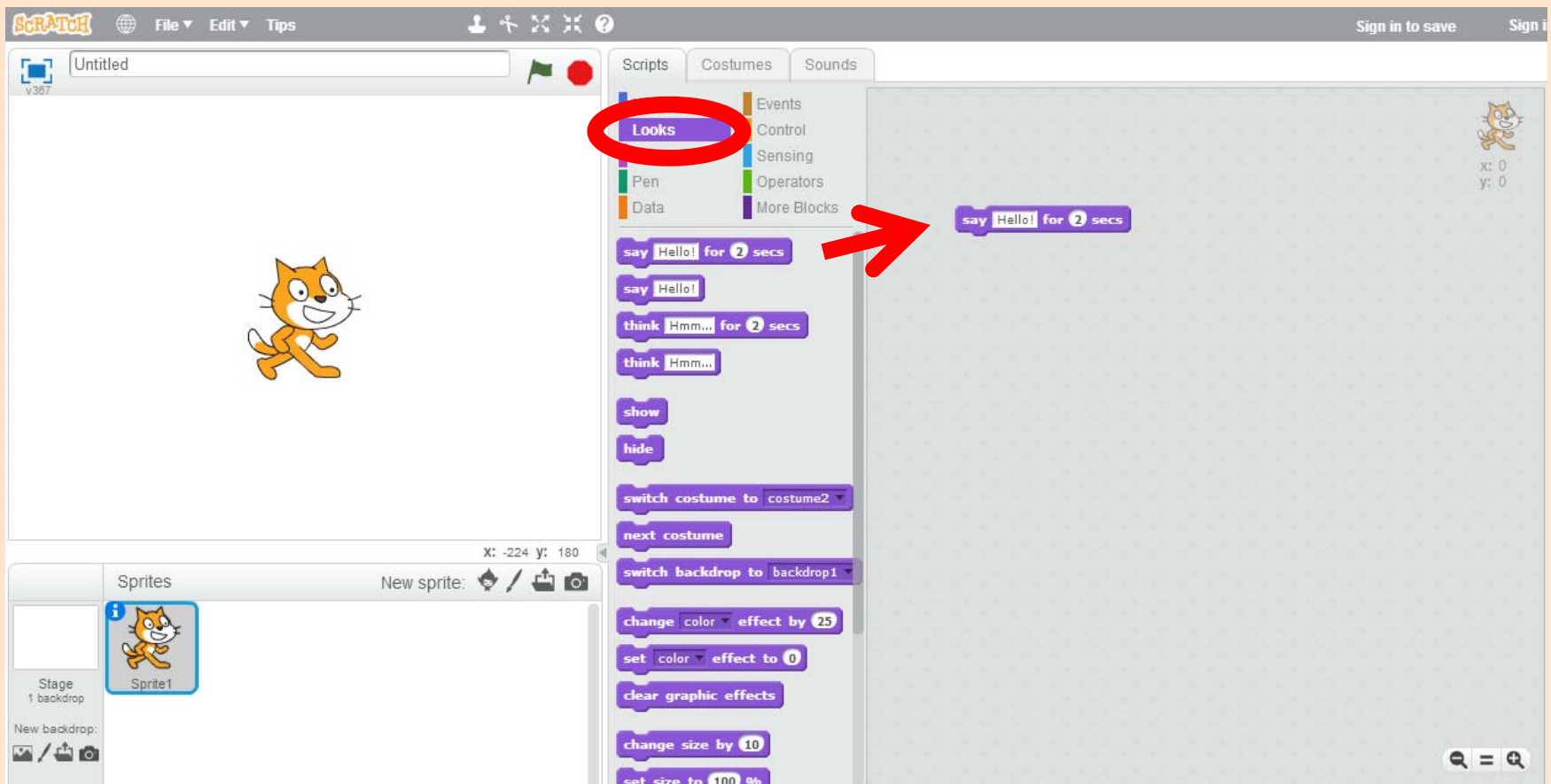
- In the upper right corner, click to sign in:



- Enter your user name and password
 - If you are in a school class, your teacher will give you the username and password for the school.
 - You can use your own account if you have one.
 - If you are not on the internet, you don't have to sign in yet.

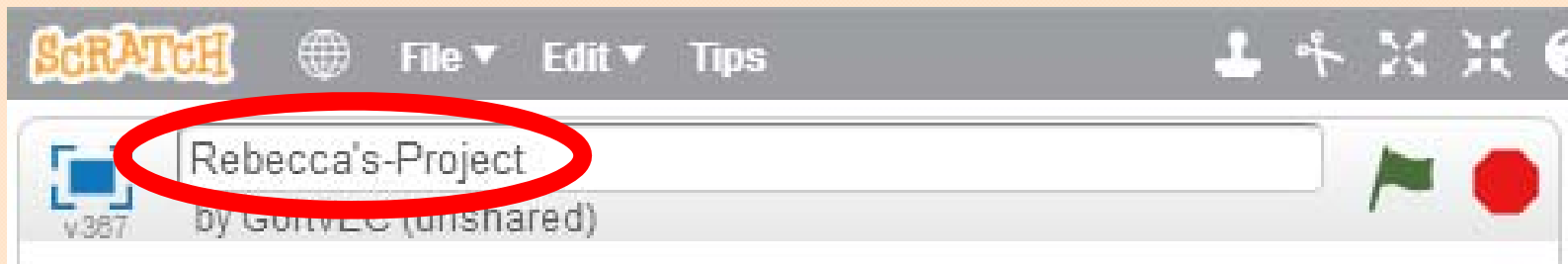
First Program: Hello World

- We're going to make the cat say hello
- Go to the 'Looks' blocks palette and drag the **"Say Hello! For 2 secs"** block on to the script area:



Save Your Work!

- We're going to keep building this project, so you need to save your work as you go along.
- In order to find your project later, put your name in the project title:

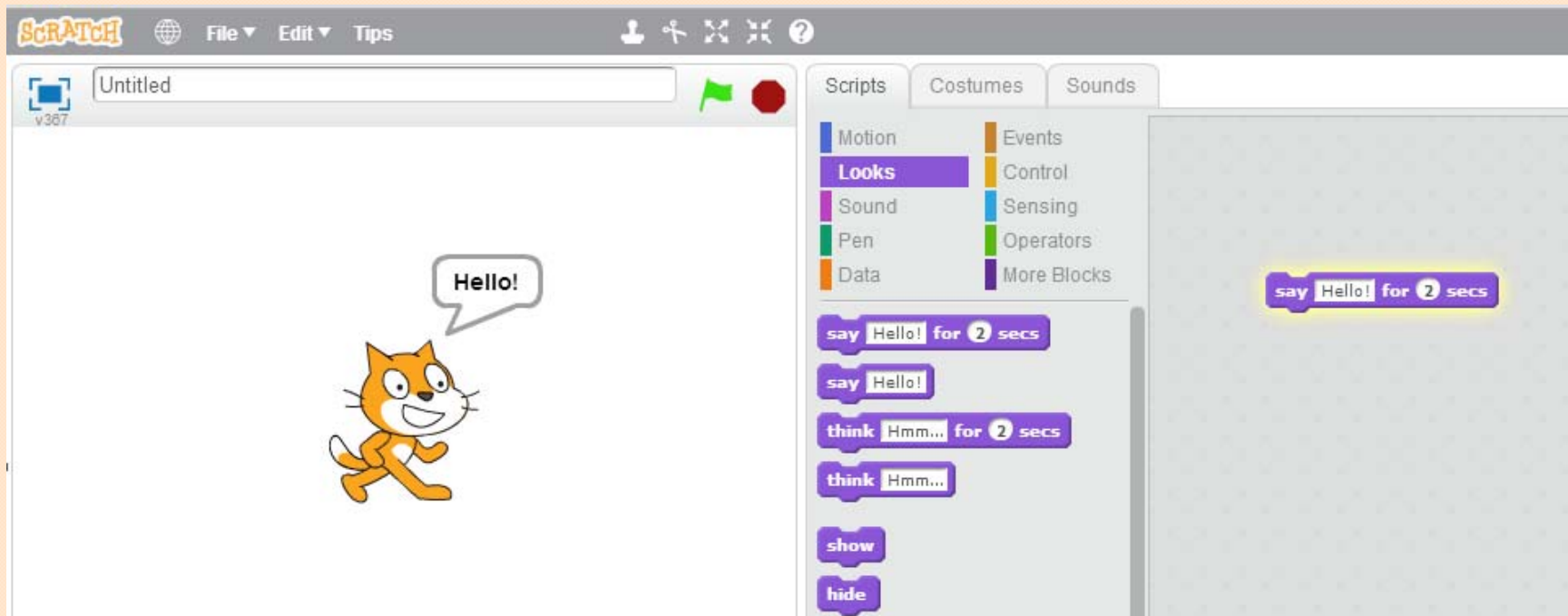


- Then go to the upper right corner and save it by clicking on "Save now":



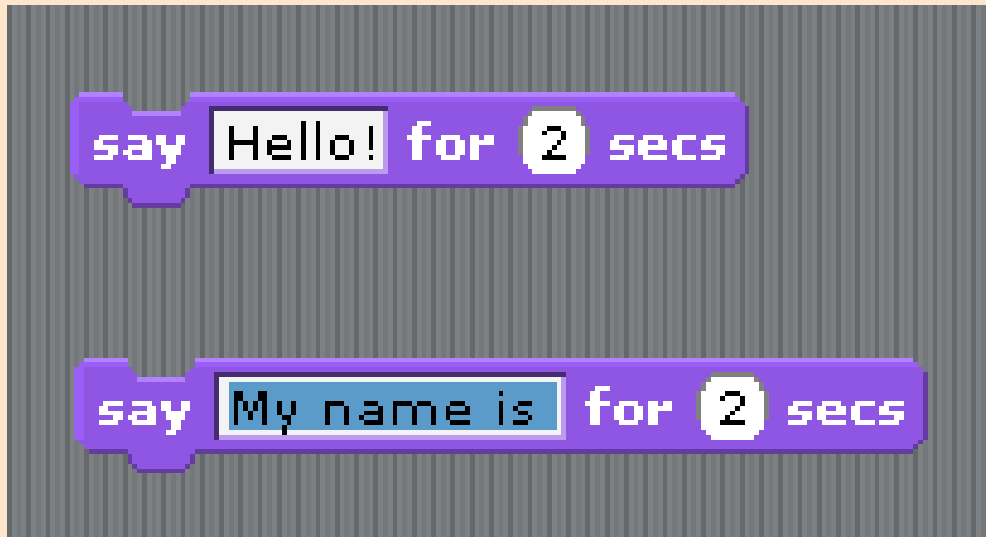
First Program: Hello World

- Double click on the block and see what happens.
- Notice the highlight around the block when it is running:



Talking Cat Program

- We're going to make the cat say a few more things.
- Drag and drop another **“Say Hello! For 2 secs”** block on to the script area.
- Change the text to say ‘My name is ...’



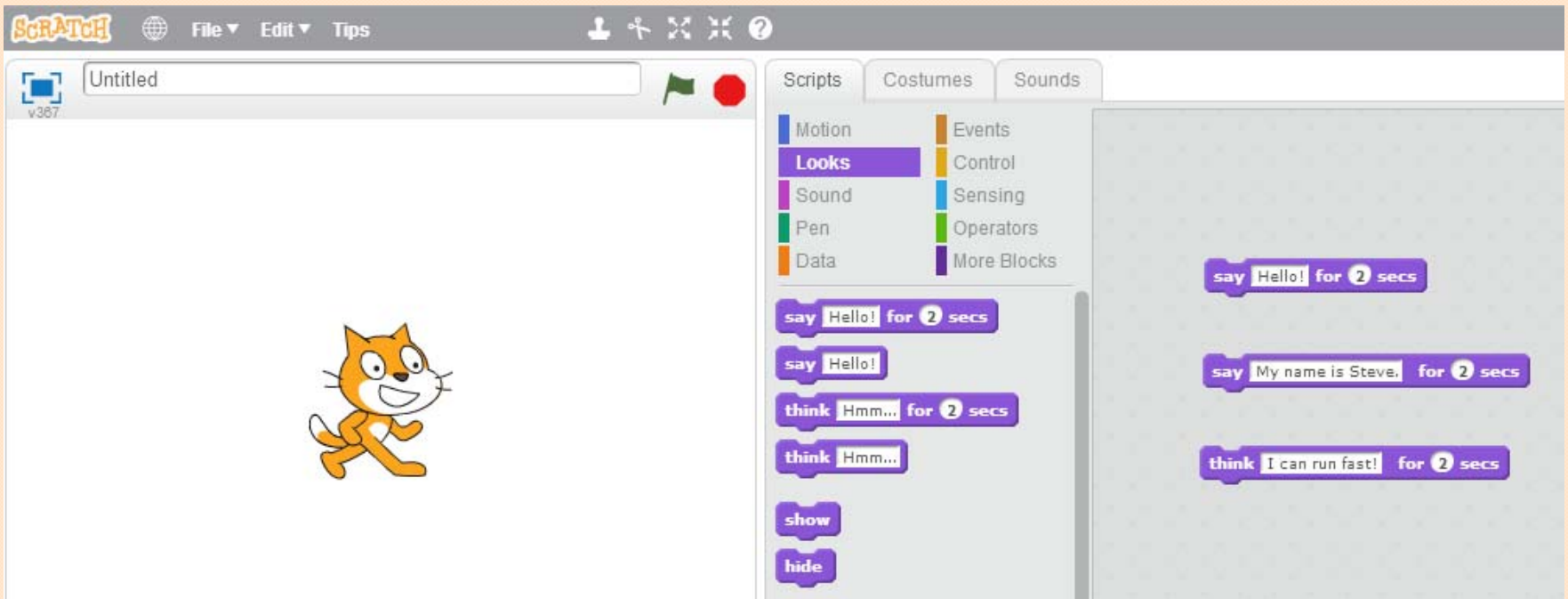
Talking Cat Program

- Drag and drop another “**Say Hello! For 2 secs**” block on to the script area.
- Change the text to say ‘I can run fast!’
 - We will make the cat run soon!



Talking Cat Program

- Your project should like this:



Putting Sentences Together

- Interlock each block together.
- Double-click and see what happens



- A bunch of blocks locked together is known as a **script**.

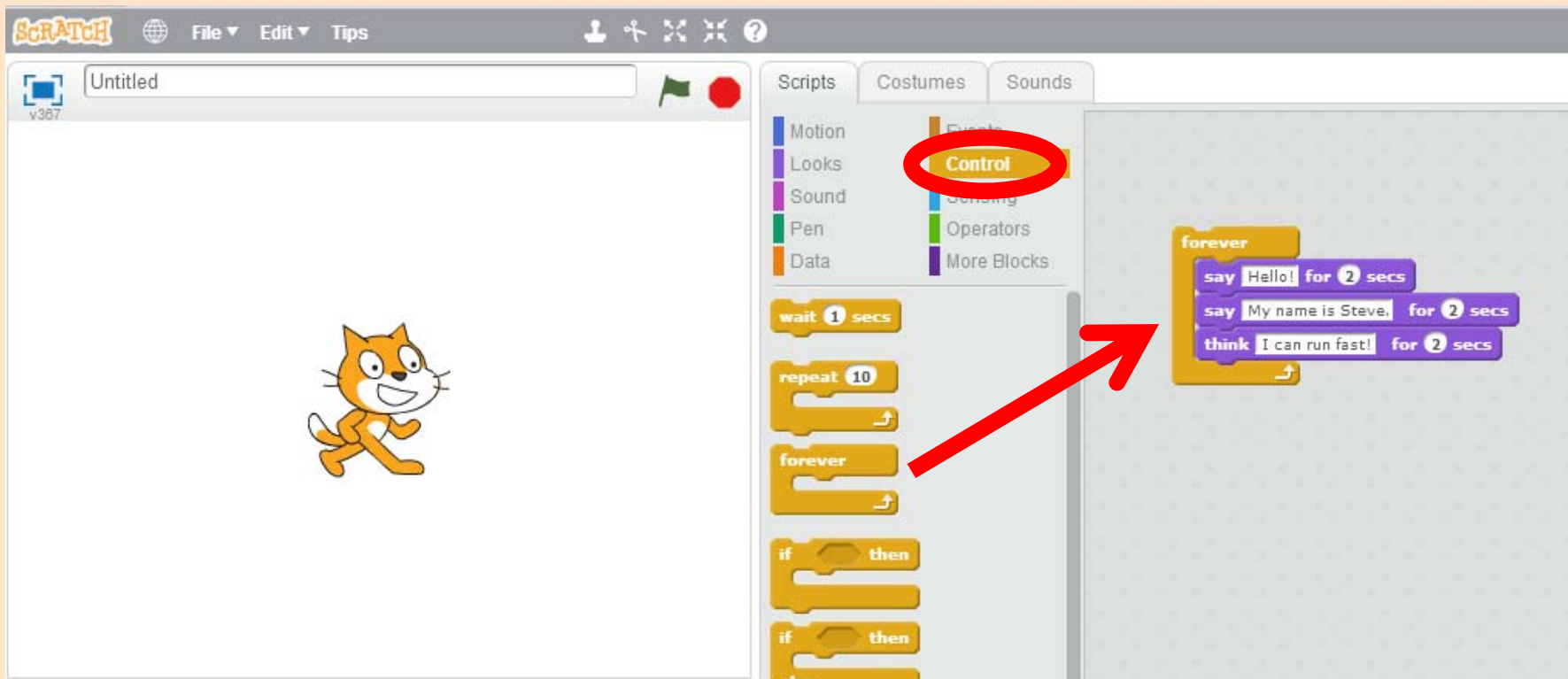
Your First Script

- The computer needs scripts to tell it exactly what to do.
- The computer starts at the top of a script and runs each block in the order that they appear.



Talking Forever

- Go to the 'Control' blocks palette and drag out a **“forever block”**.
- Wrap it around the speech blocks. Double click the forever block and see what happens:



The Forever Loop

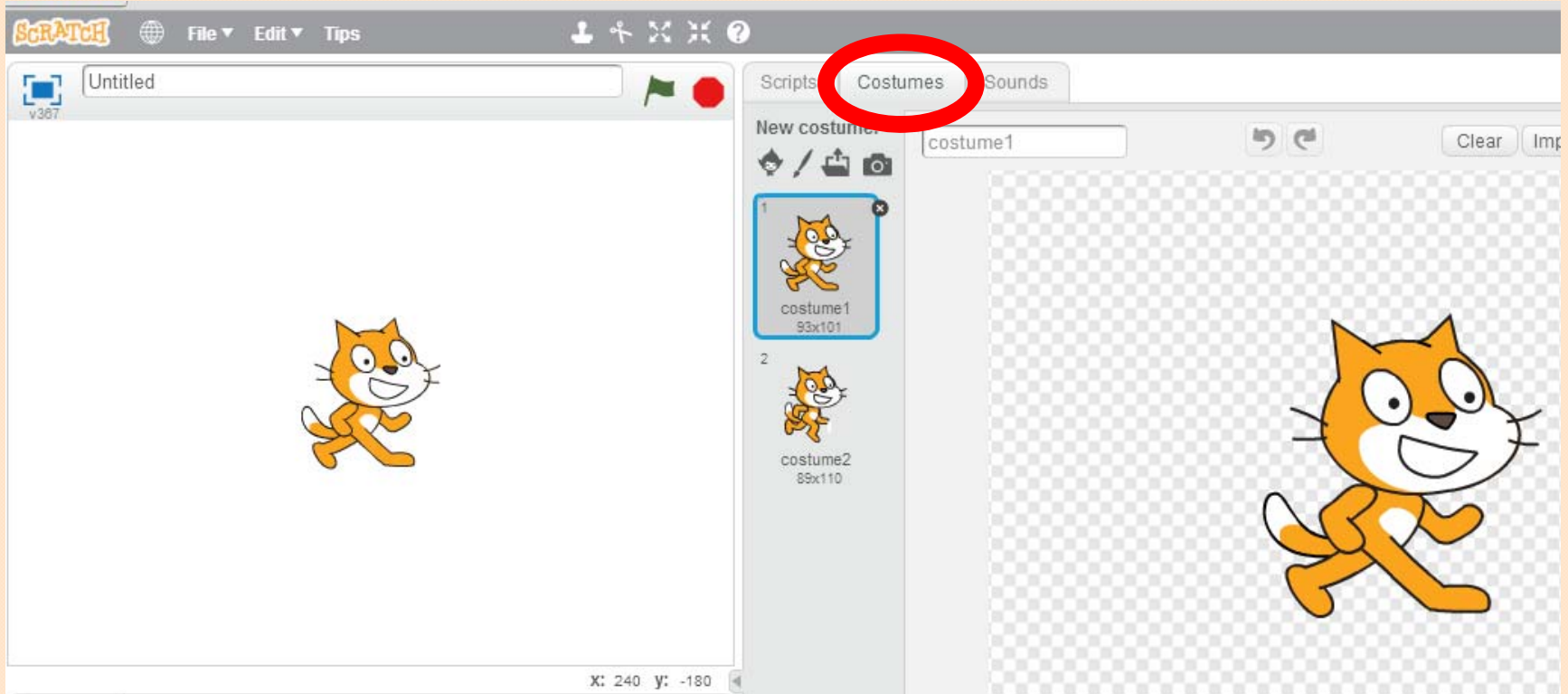
- The “forever” block is known as a **loop** in computer programming.



- A loop repeats itself over and over again.
- When the last block in the loop is finished, the loop goes back to the top and runs the first block again.
- Loops are used a lot in computer programming because computers are machines and they are very good at repeating things.

Make The Cat Walk

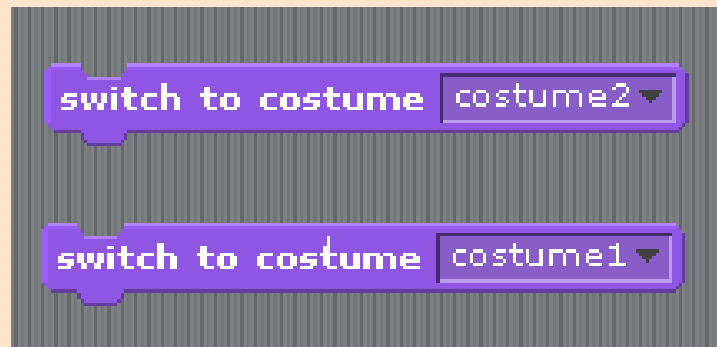
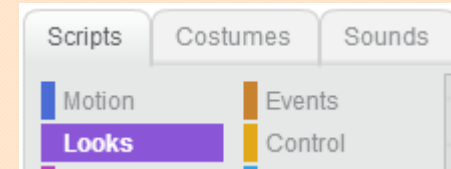
- Click on the 'Costumes' tab.
- Click on each costume and watch the legs move.



- How can we program the computer to move the cat's legs?

Make The Cat Walk

- Go to the “Looks” blocks palette:
- Drag and drop ‘Switch to Costume 1’ to script area.
- Drag and drop ‘Switch to Costume 2’ to script area.
- Play by clicking on them:



- How can we get the computer to move the cat's legs?

Make The Cat Walk

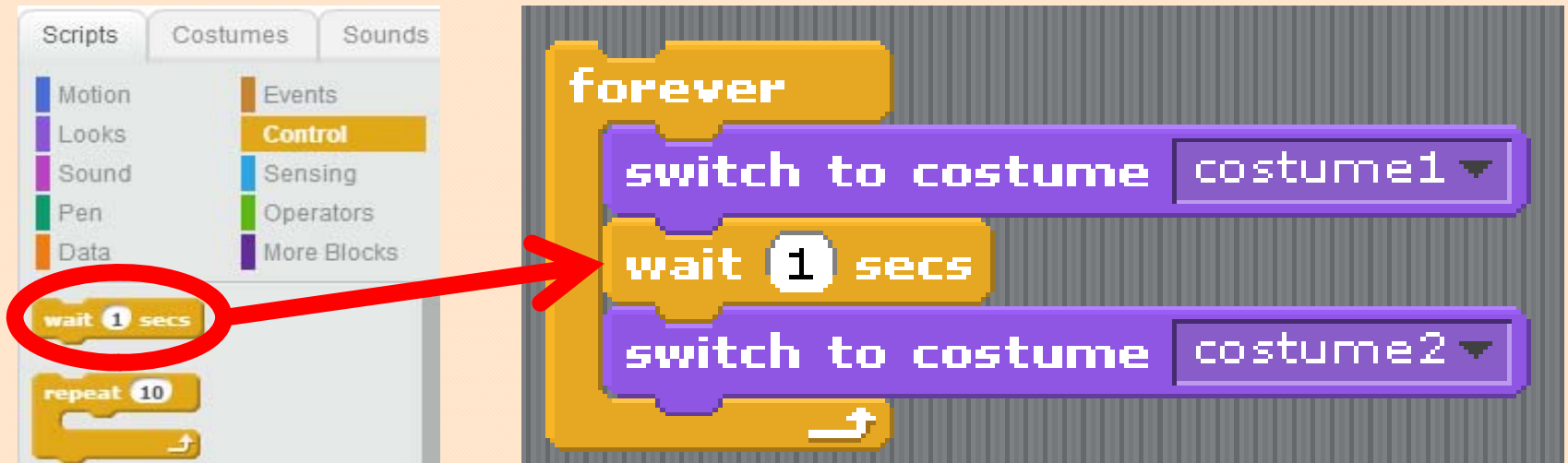
- Put the “Switch to costume” blocks in forever loop:



- Click on the blocks to get them to run. You'll know they're running when you see the highlight around the block.
- Why is the cat not walking well?
- What is the computer doing?
- What do we need to tell the computer to do?

Make The Cat Walk

- The wait statement allows time to see the costumes before they are switched:



- The cat's walking has improved but is not perfect.
- What else do we need to tell the computer to do?
- Hint: think about **exactly** what the forever loop is doing.

Make The Cat Walk

- The second “switch to costume” block needs it’s own wait statement so that it doesn’t change too quickly before going back to the top of the forever loop.



- Can you notice the pattern that the scripts make inside the forever loop?
- Can you see the symmetry in the pattern?

Make The Cat Walk

- Now we want to make the cat move across the stage with each step.
- Go to the “Motion” blocks palette and drag out the “move 10 steps” blocks:



Make The Cat Run Faster


- We have two ways to control the speed of the cat:

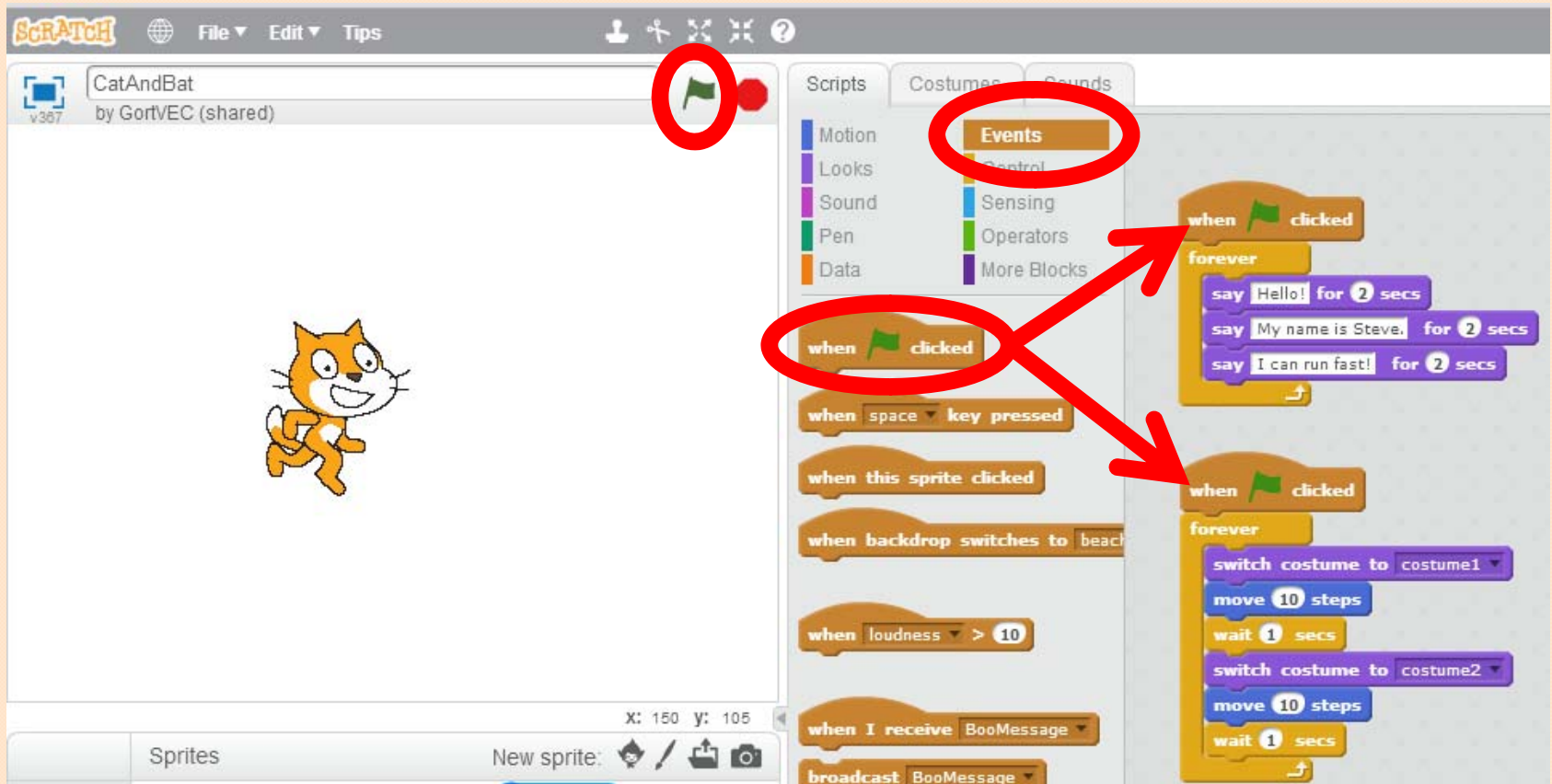


The image shows a Scratch script starting with a 'when green flag clicked' event. It enters a 'forever' loop containing the following blocks in order: 'switch to costume costume1', 'move 10 steps', 'wait 1 secs', 'switch to costume costume2', 'move 10 steps', and 'wait 1 secs'. Two red arrows point to the '10' in the 'move 10 steps' blocks, with the label 'The step size' to the right. Another two red arrows point to the '1' in the 'wait 1 secs' blocks, with the label 'The wait between steps' to the left.

- What number must we make bigger to speed the cat up?
- What number must we make smaller to speed the cat up?

Make The Cat Walk And Talk

- We want our talking and walking scripts to start up at the same time.
- To do this, use the  'hat block' in all your scripts.
- Click on the green flag in the upper right to start the scripts:

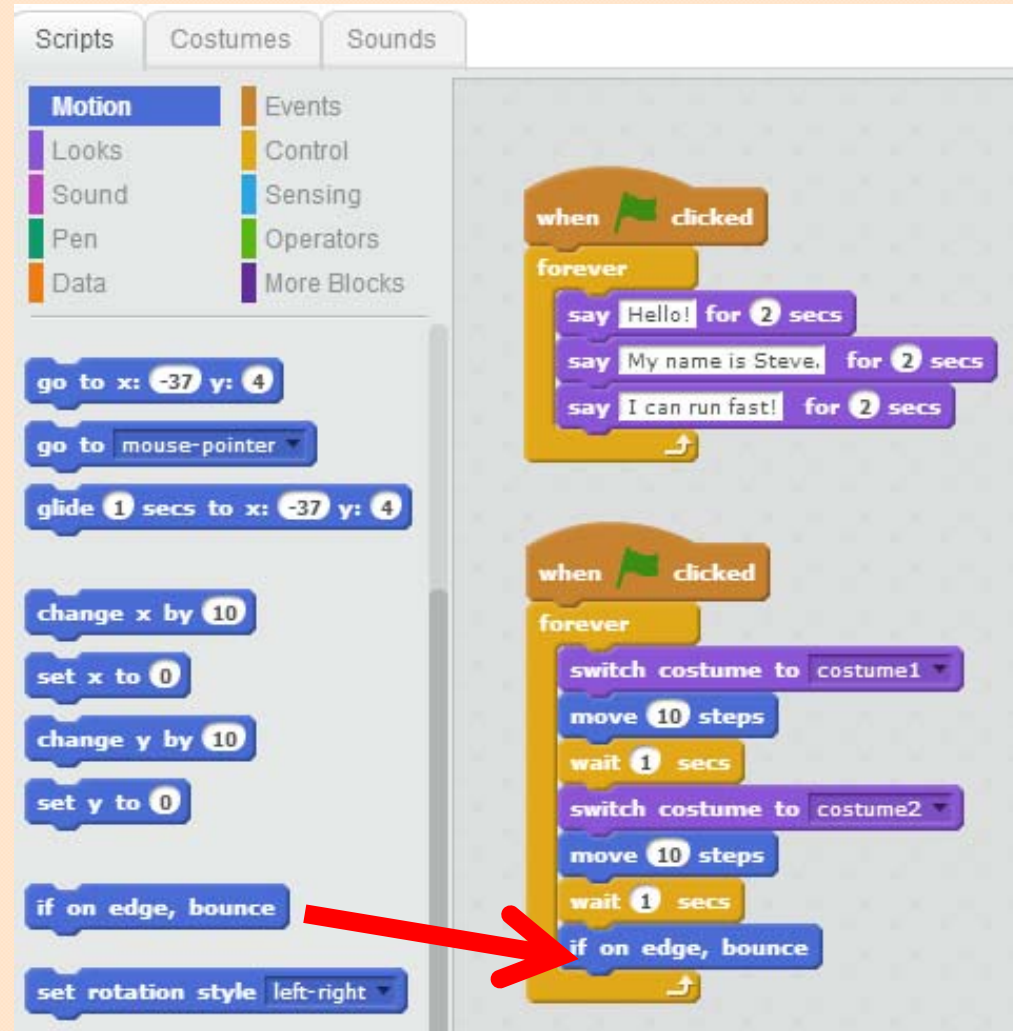


Make The Cat Go Back and Forth

The cat will get stuck at the edge of the stage.

You can drag him back and watch walk some more.

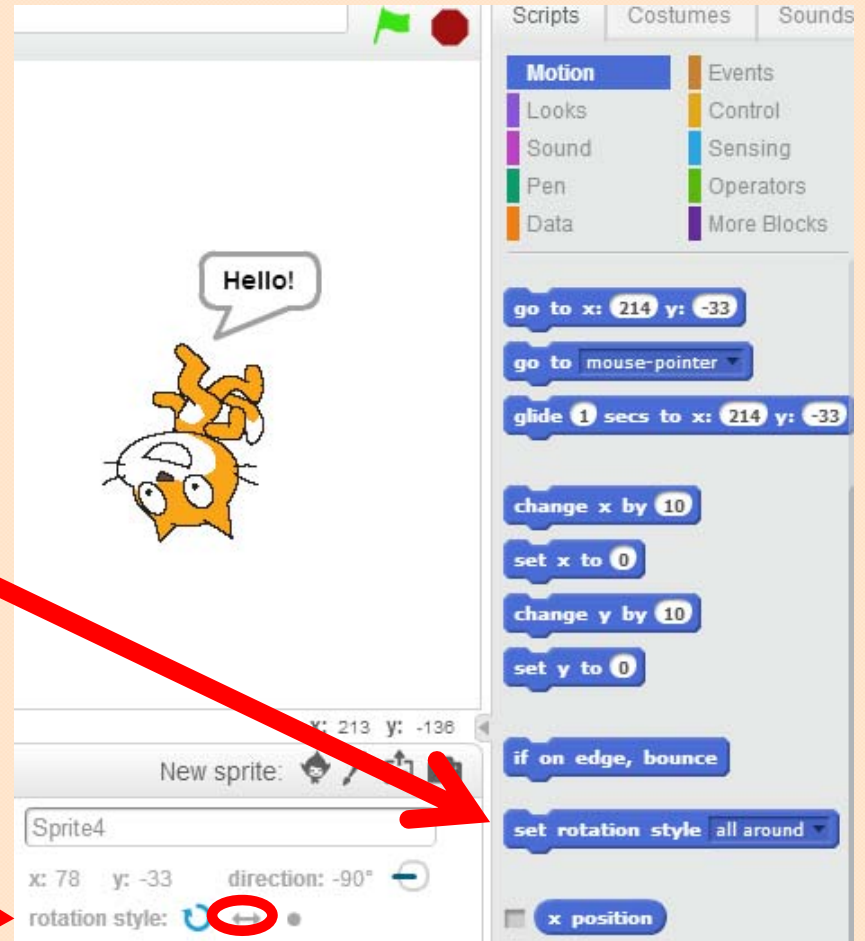
Insert the “If on edge, bounce” block into the forever loop and see what happens:



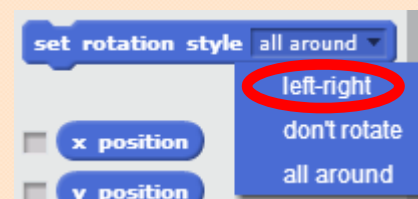
Make The Cat Go Right Side Up

The cat will walk upside down when going left (-90 deg). You can fix this by setting the rotation style using a block:

Also, you can click on the blue “i” on the sprite and set the rotation style here:

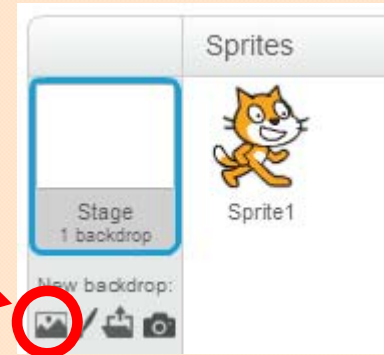


Set the rotation style to “left – right”



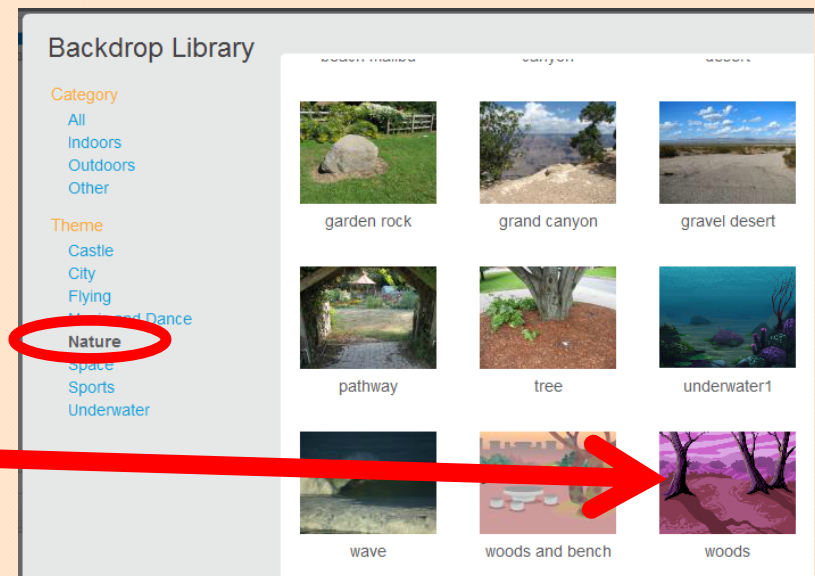
Add a Background

In the lower left corner of the screen, choose the Stage. Click on “Add background from file” icon:



The Backdrop Library appears. For our story, click on “Nature” at the left.

Then choose the “Woods” background:



Congratulations!

- You have done a lot in your first lesson:
 - Created your first “Hello World” program
 - Created a walking and talking cat using loops and code blocks.
 - Added a background to make a story.
- Please save your work for next time:
 - Make sure your project title has your name in it.
 - In the upper right corner, click on “Save now”:

