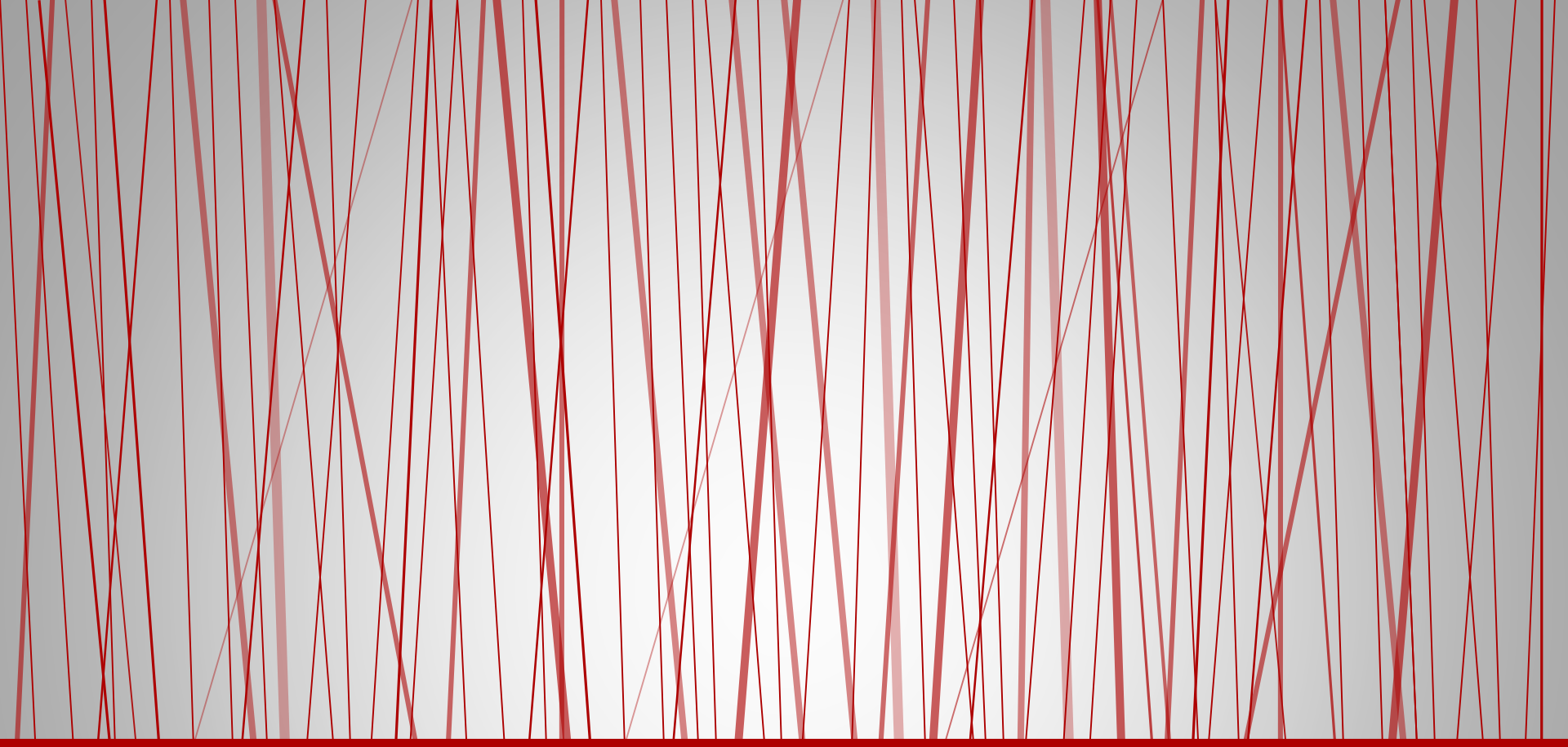
Scratch Practice

Making games using Scratch

Use Scratch online anywhere:
http://scratch.mit.edu/
(Download to your computer
to save to bring to school)

Starter - What can you do in Scratch?

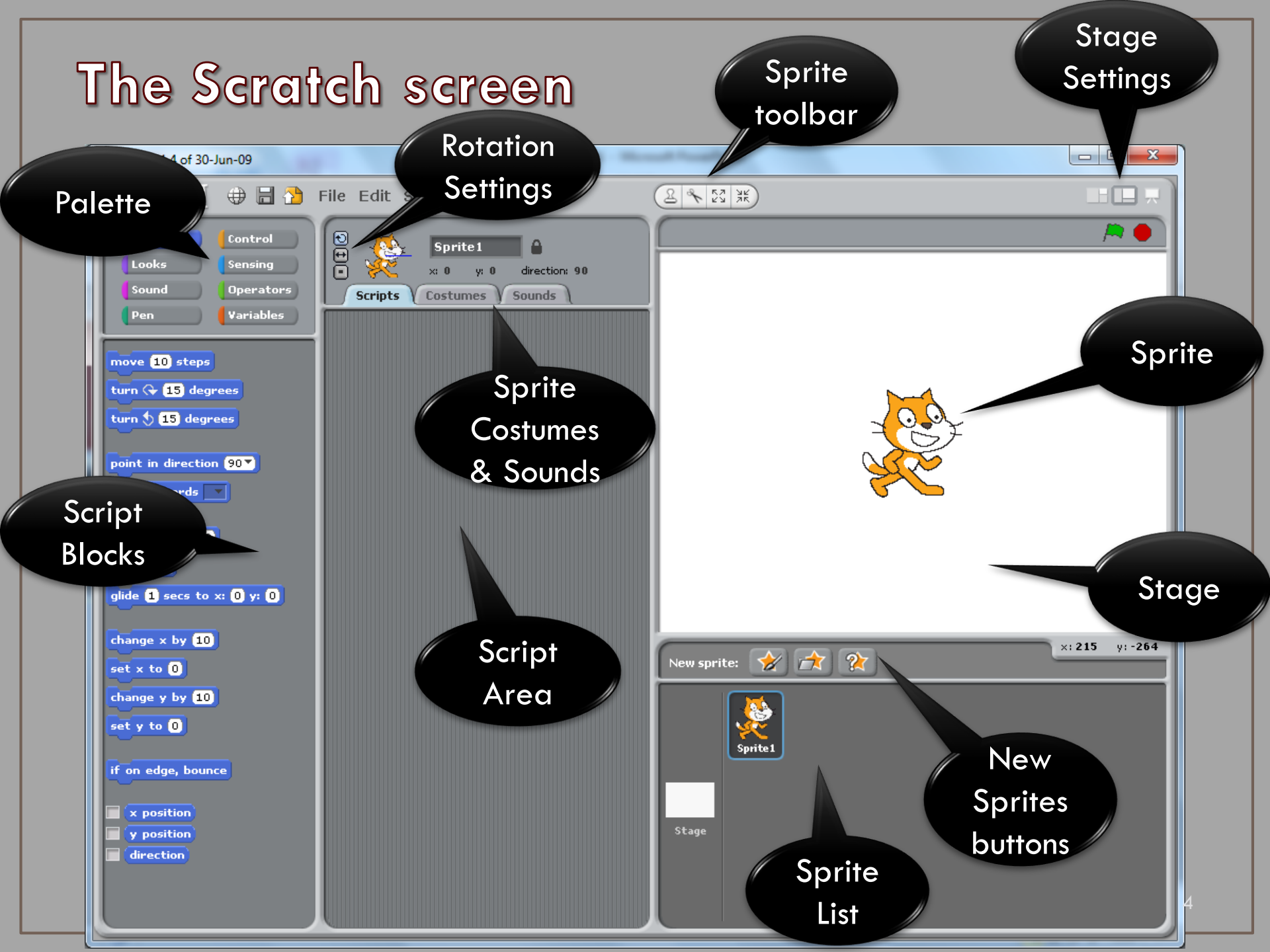
1. Make the cat follow your mouse.
2. Make a small ball bounce around the stage.
3. When the cat touches the ball make the ball change colour.



Scratch

The Basics

The Scratch screen

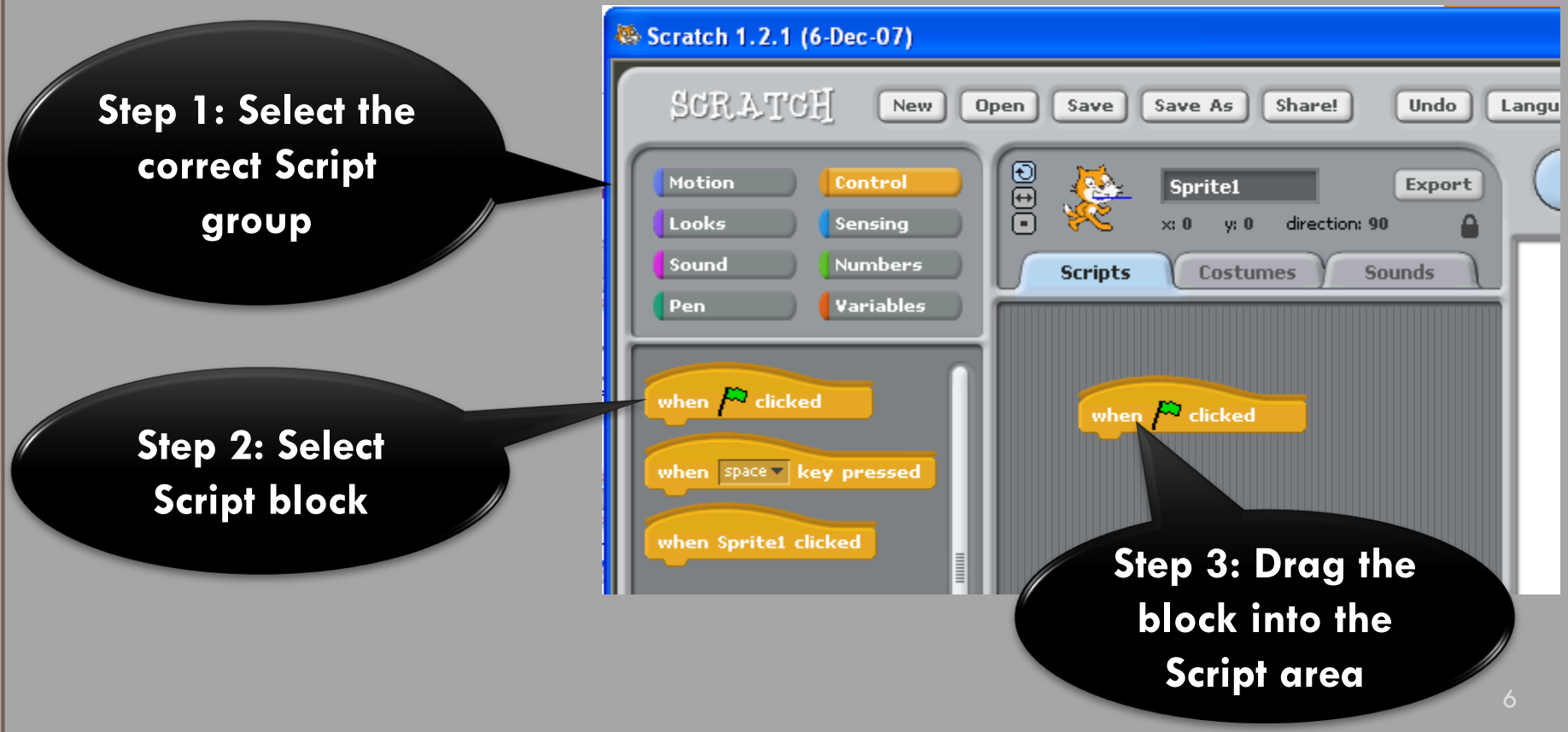


Palette (Script Groups)

- To help you find the script that you need, they have been grouped together and colour coded.
- For instance, all the script to do with movement is in the motion group, all the script to do with how the program runs is in the control group.

Adding Script

To add a script to the program you need to follow these steps:



Moving the Cat

What will this do?

When the Space Key is pressed…

Turn the cat 15 degrees clockwise

Try it out!

Change the code

What will the code do now?

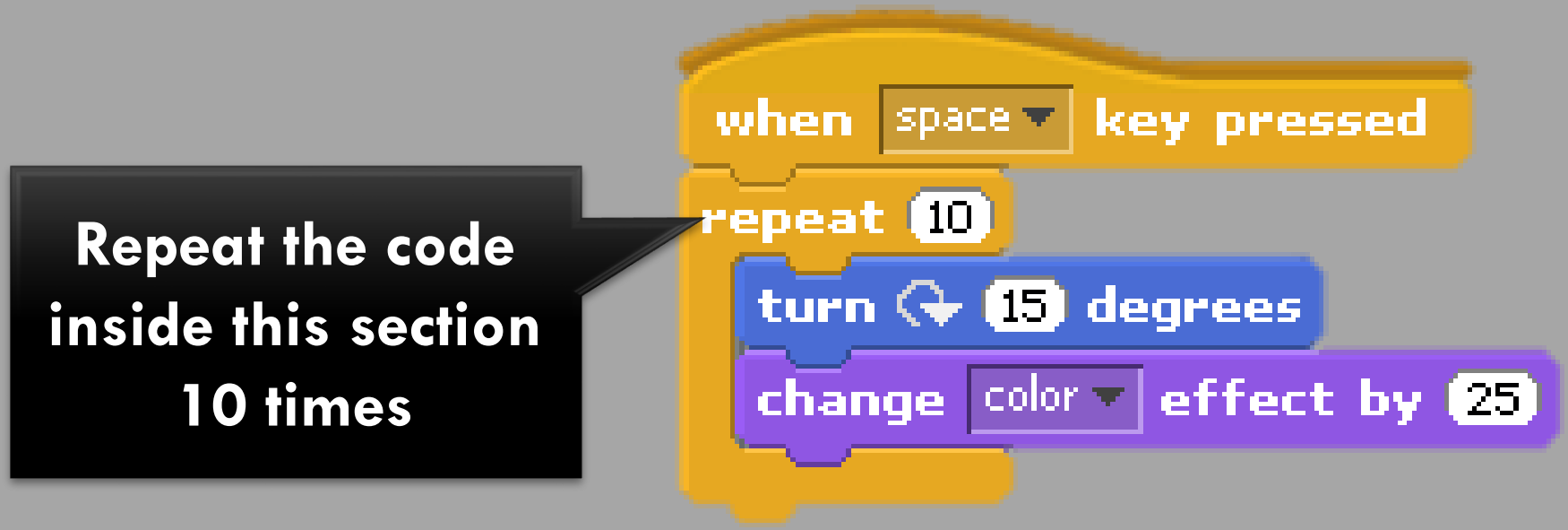
When the Space Key is pressed…

Turn the cat 15 degrees clockwise

Change the cat's colour effect by 25

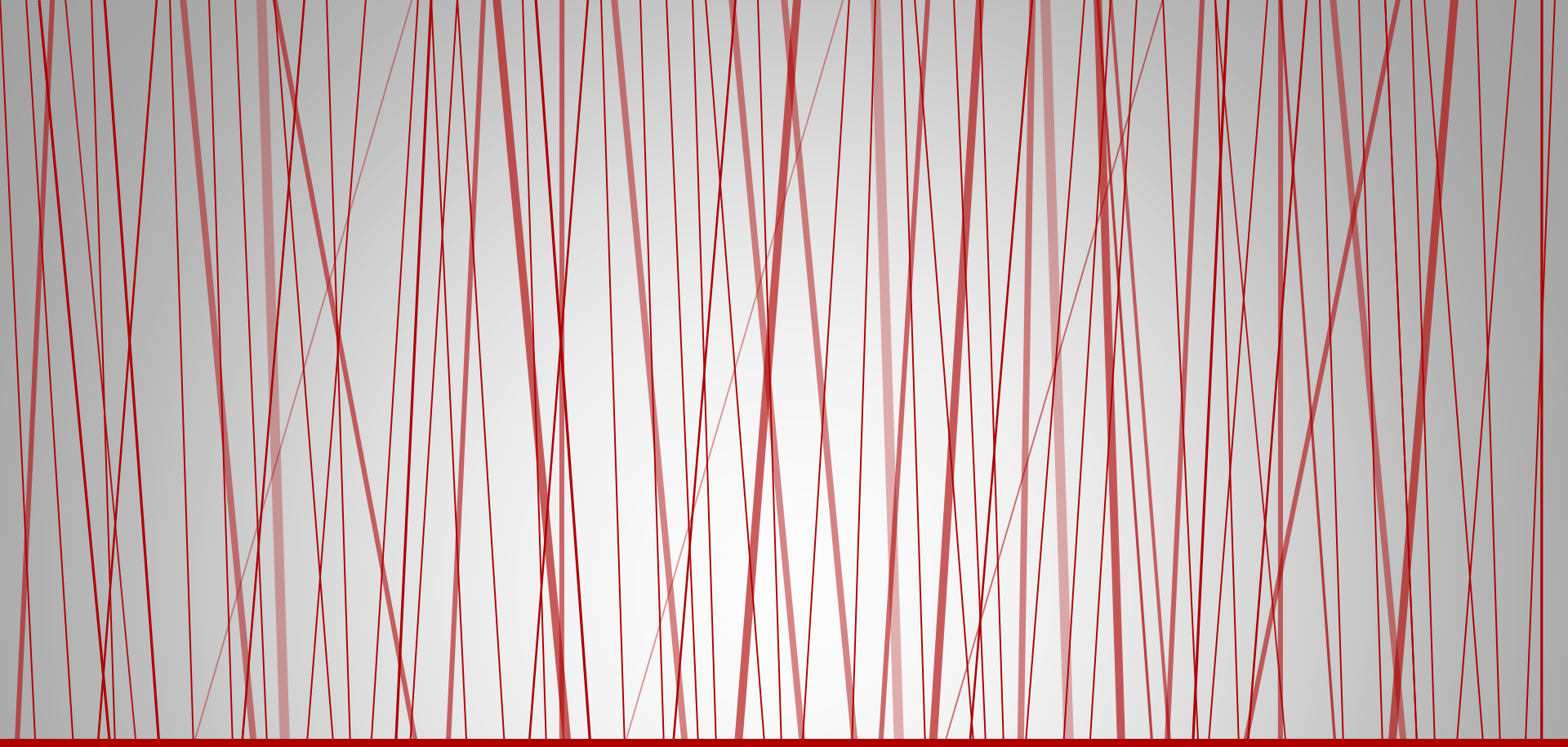
Getting the program to repeat

Rather than having to keep pressing the space bar (or holding it down) it would be nice to make the programme run automatically.



Over to you…

- Add a piece of code which will do the following:
  - When the space Bar is pressed
  - Repeat 3 times
    - Make the cat say “Hello!” for 1 second
    - Turn 15 degrees anticlockwise



Scratch

Understand co-ordinates

X and Y axis

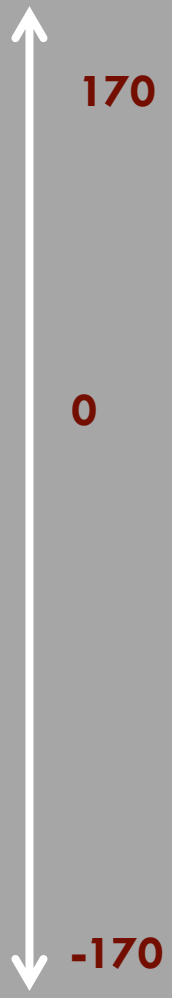
X axis

"The cross (x) goes across"

X and Y axis

Y axis

"The Y to the sky"



Practising Co-ordinates

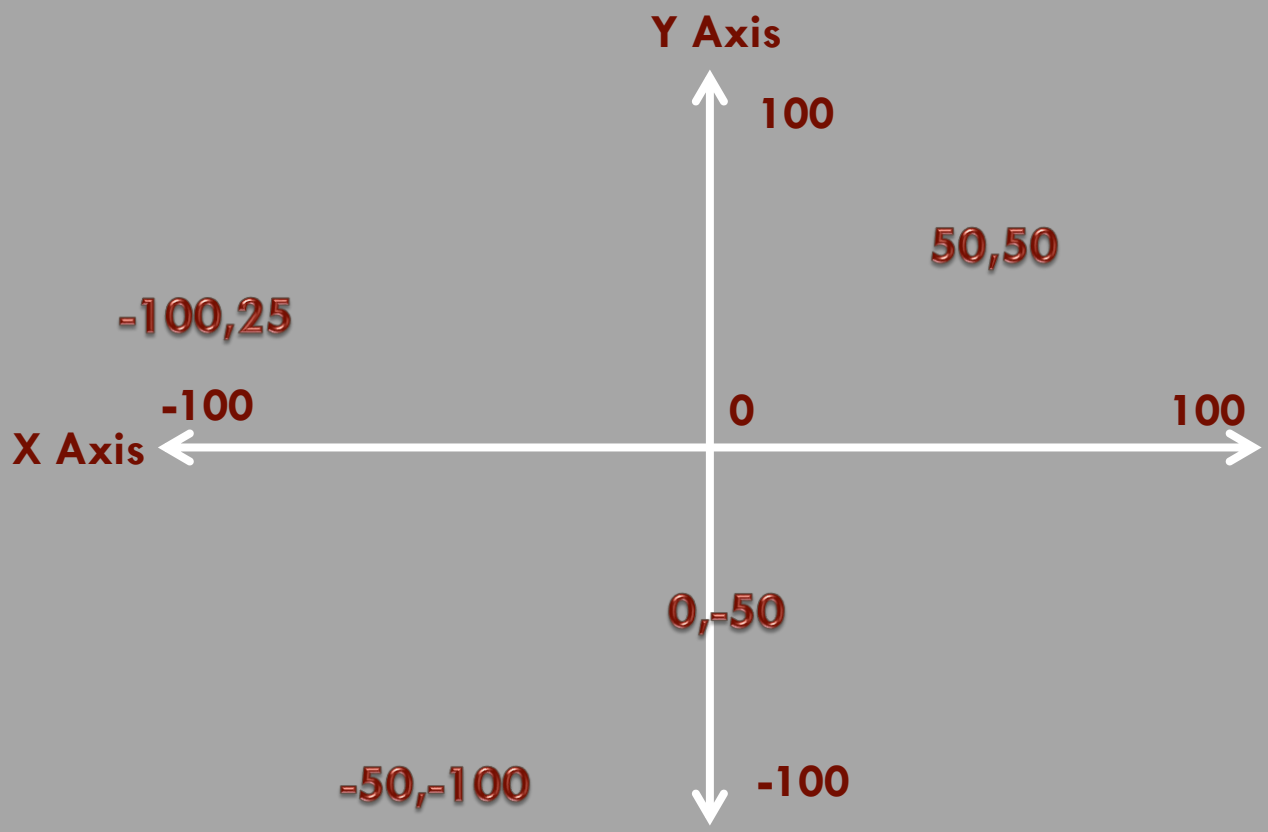
Where approximately are the following co-ordinates on the grid (X,Y)?

50,50

0,-50

-100,25

-50,-100



Create a new project

Create a new project and add the following script to the cat sprite.

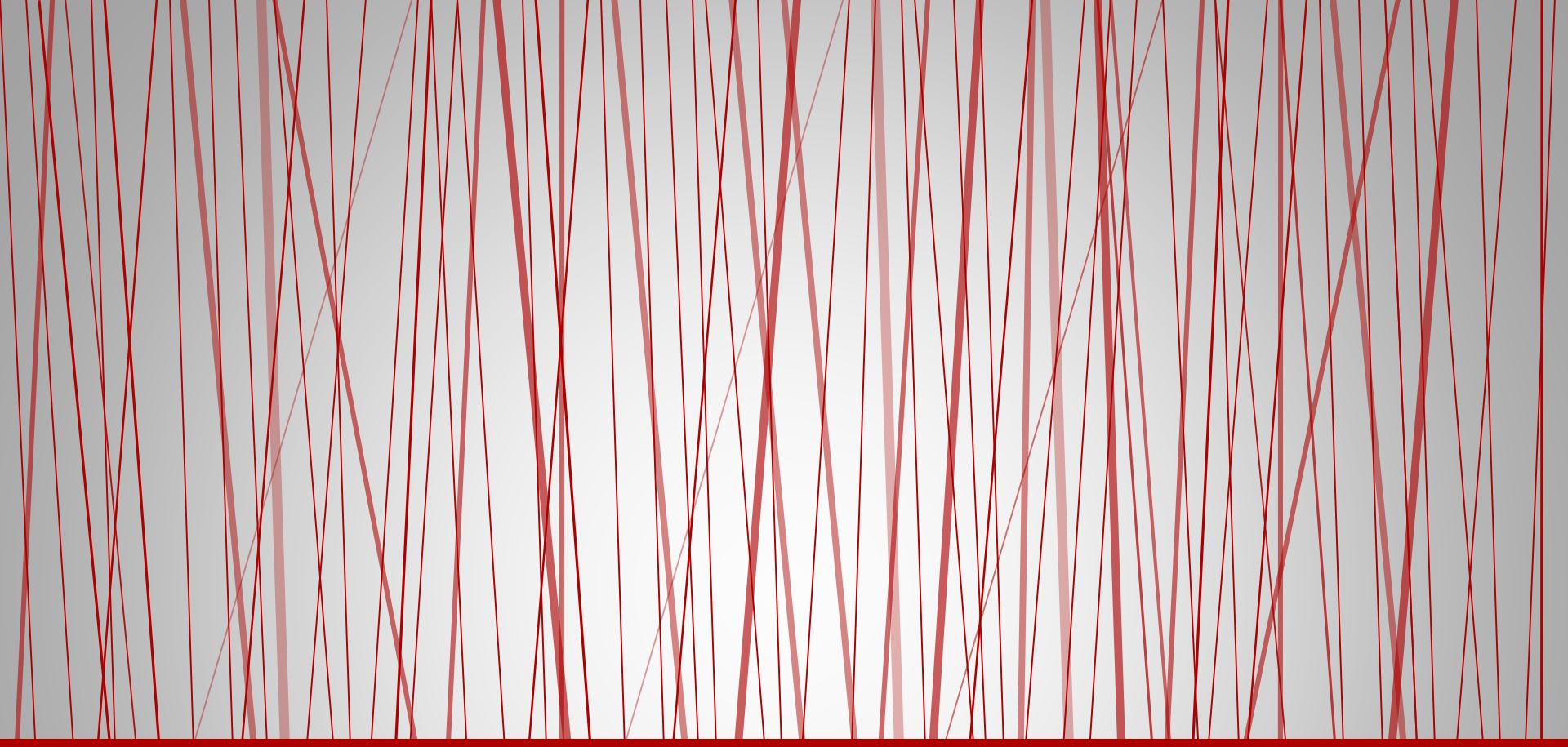
Threads

- Right-click on the code and select duplicate.

- Add the new code block below the first one.
- When you have more than one block of code on the same sprite, these are known as "*threads*"

Threads

- Change the second code so that when the left key is pressed it moves minus 10 steps along the x axis.
- Add two more threads so that when the up and down arrows are pressed, it will change the position along the y axis.



Scratch

Variables

What is a variable?

- A “variable” is a changeable value; these can be used for:
  - Counting
  - Scores
  - Time limits
- In order to use a variable you first of all need to create it and name it.
- We are going to create a variable called “Count”.

Make a variable

- Create a new project
- Click on the variables option and then select Make a variable.

Make a variable

Delete a variable

- Name the variable “Count” then click on OK.

Using a variable

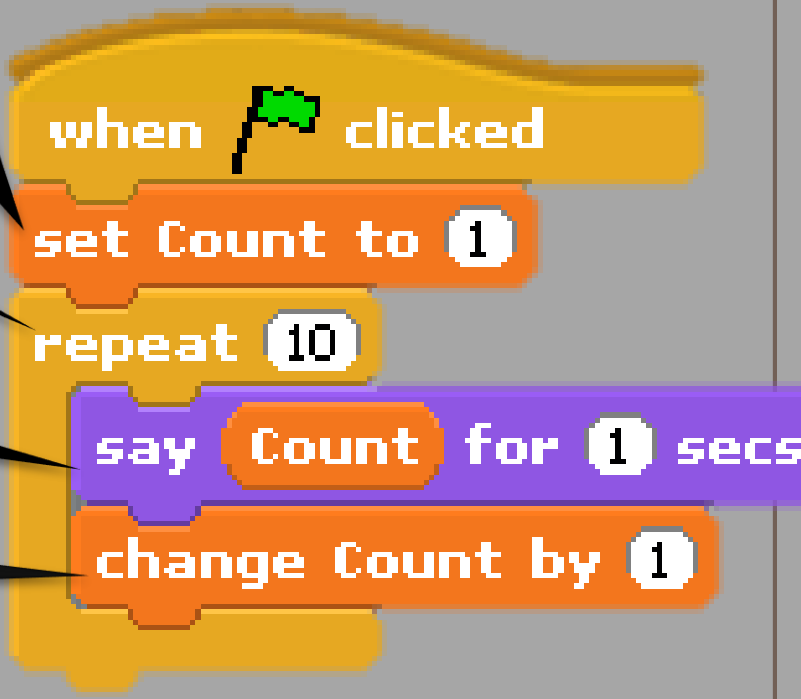
What will this code do?

Set the Count variable to 1 to start with

Repeat the code 10 times

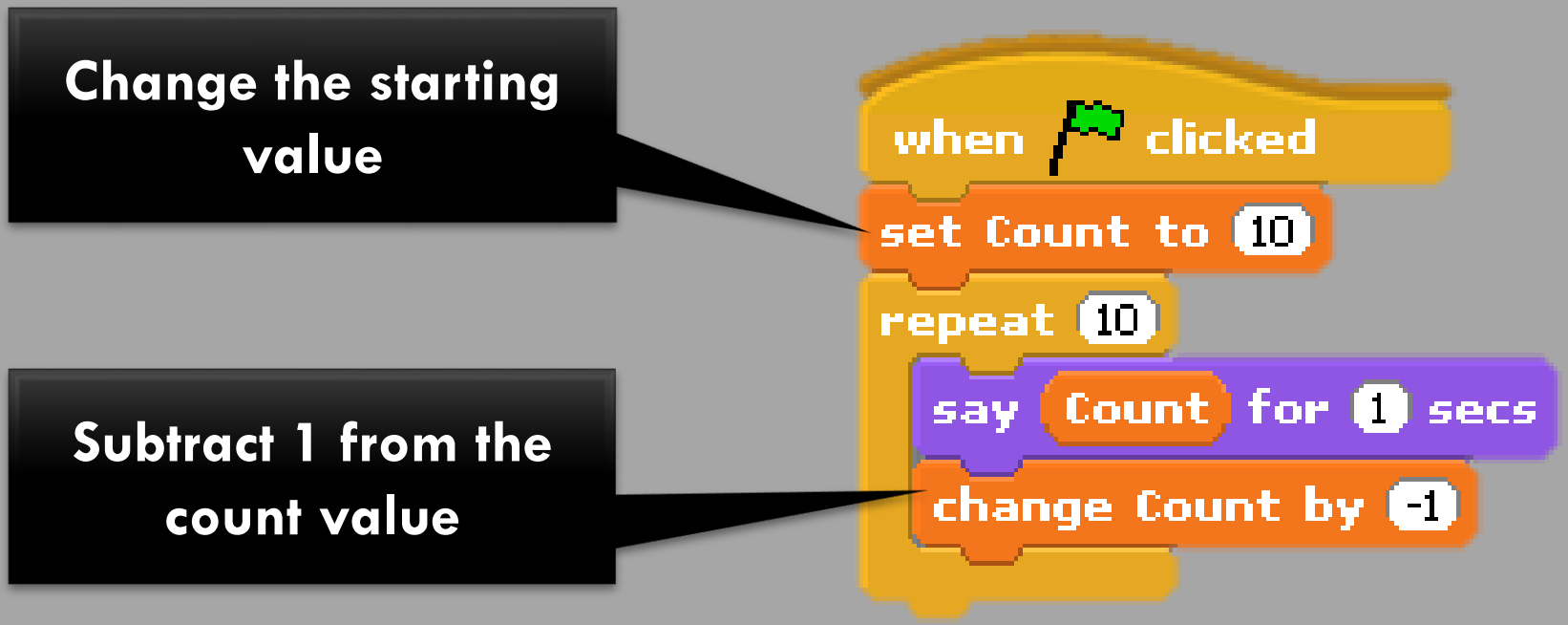
Say the Count value for 1 second

Add 1 to the Count value



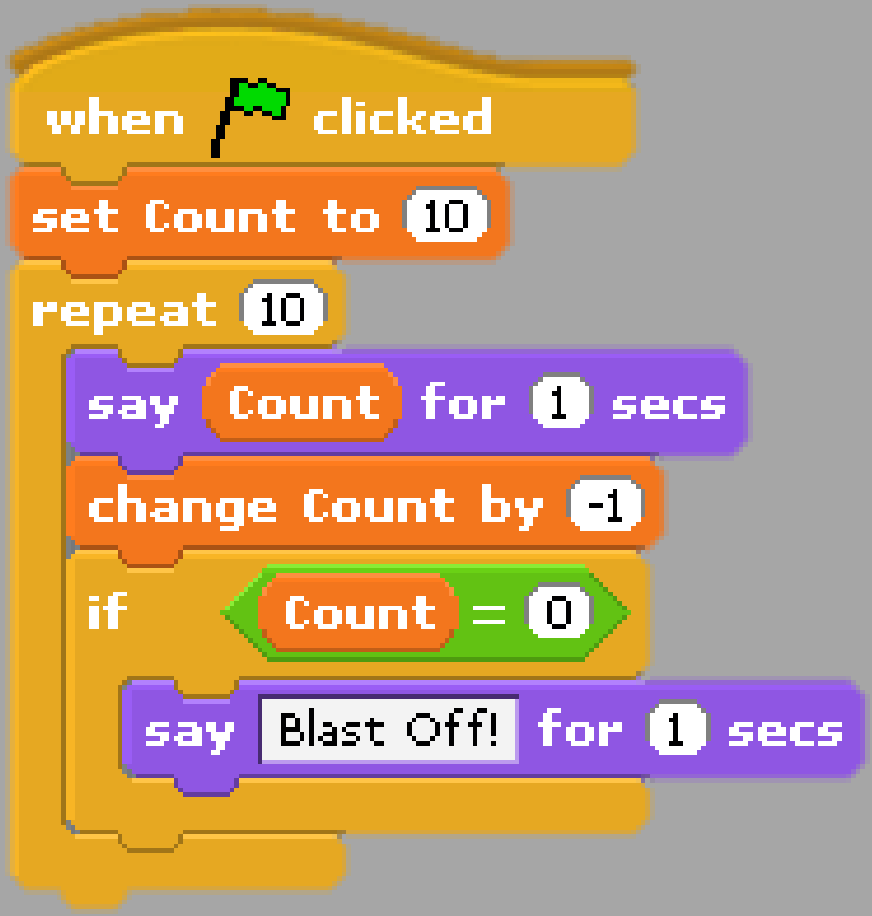
Counting down

You can also count down rather than up. Change your code to the following:



If statement

- Add the If statement option.
- Add the green equal symbol “operator” first then add the variable name and value to the If statement.
- Add the “Blast Off!” line last



Create a simple game

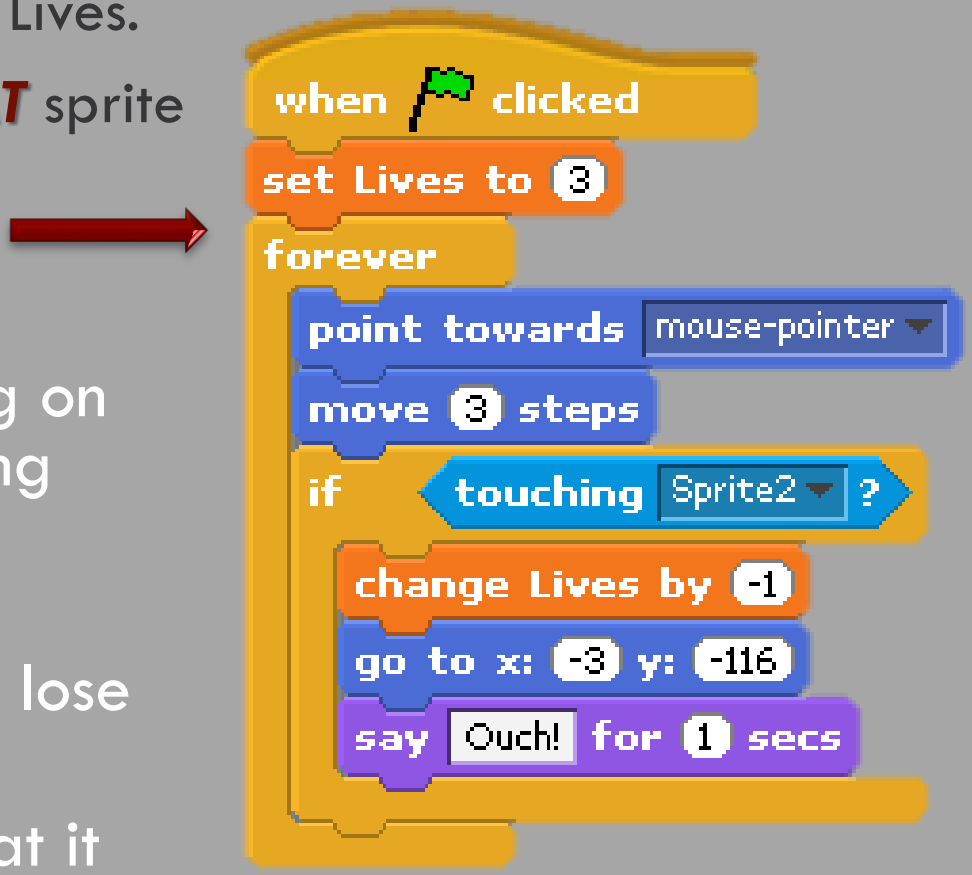
- Create a new project.
- Shrink the cat sprite a little.
- Add the following code.

Create a second sprite

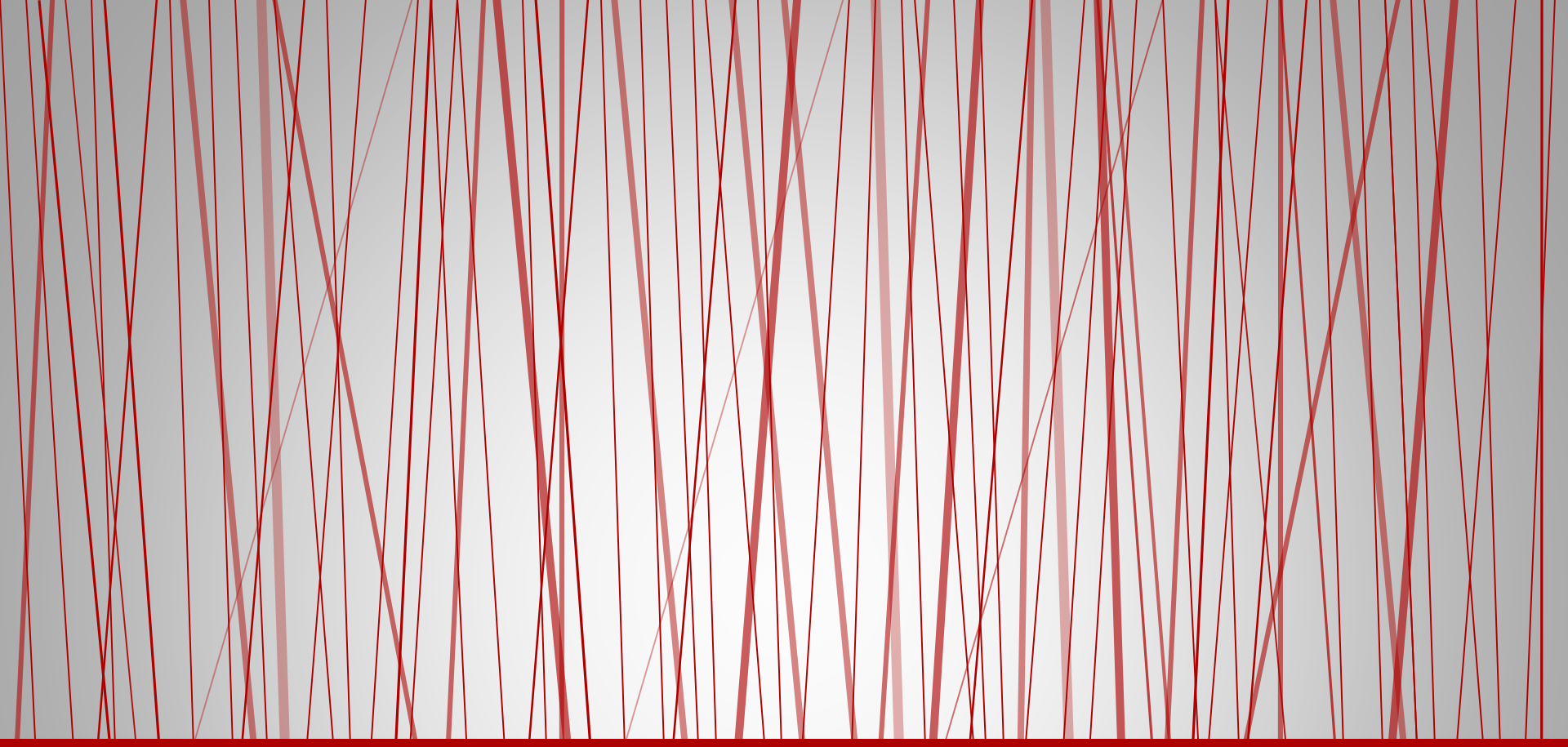
Add a second sprite:

Make variables

- Make a new variable called Lives.
- ***CHANGE*** the code on the ***CAT*** sprite to the following:



- What will this code do?
- Play the game by clicking on the green flag and moving your mouse around the screen.
- What happens when you lose all your lives?
- Try to fix the game so that it stops when the Lives = 0.



Scratch

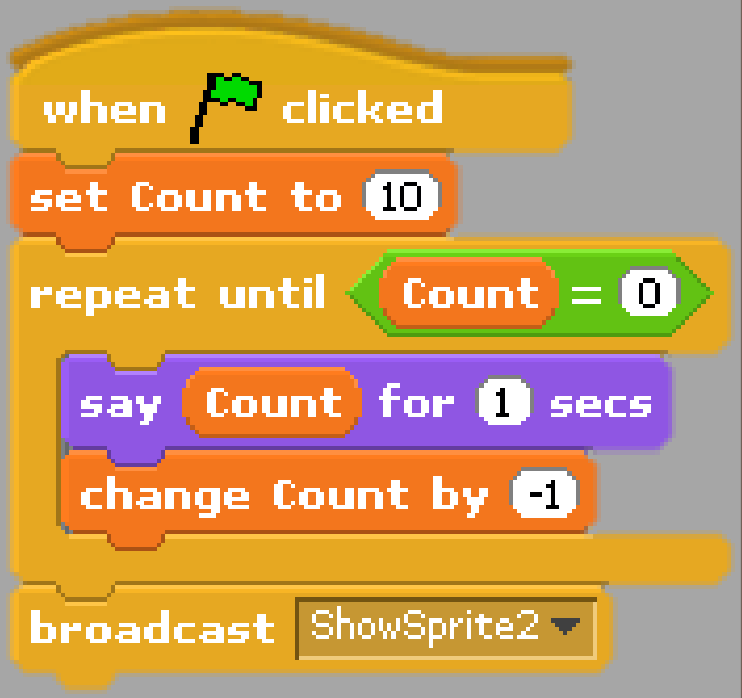
Broadcast Message

Broadcast messages

- A broadcast message is a message that is sent out to all objects in the project.
- This message can notify them that something has happened and they need to act.
- We are going to use a broadcast message to get another sprite to show when a countdown gets to 0.

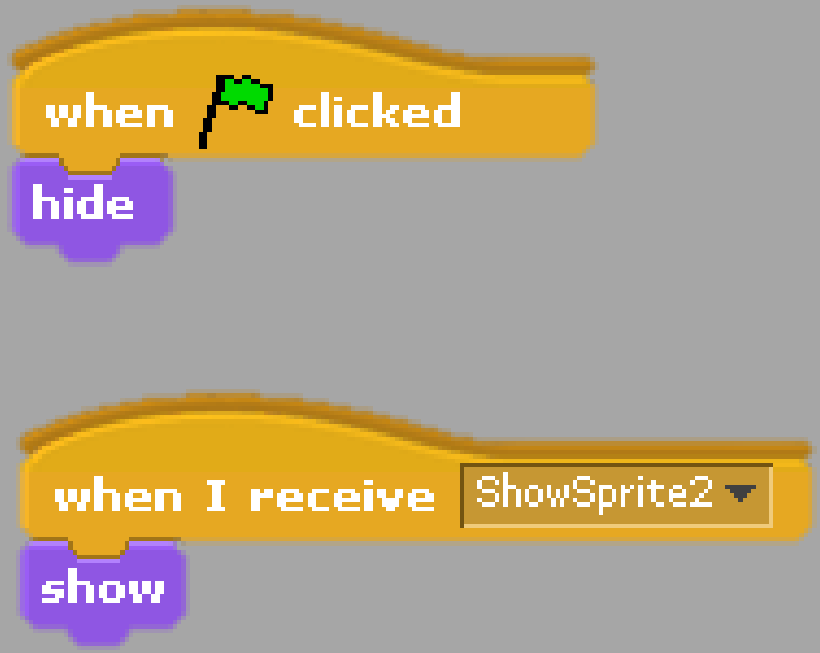
Broadcast Message

- Start a new project and add code so that once the repeat statement has finished it will broadcast a message called ***ShowSprite2***.
- ***Note:*** the name of the broadcast message does not include spaces and uses capital letters to show where the words start.



Create a second sprite

- Add a second sprite of your choice.
- Add the following two “threads” to the second sprite.



Change the code

- Instead of simply showing the second sprite, change the sprite so that when it receives the broadcast message:
  - It shows
  - It waits 2 seconds
  - It hides again
  - It broadcasts a message called StartAgain
- Return to the first sprite and duplicate the code. Change it so that the second thread runs when it receives the StartAgain message.

How much do you remember?

- Create a new project.
- Delete the cat sprite and add another of your choice.
- Make your new sprite move when you use the arrow keys.
- Add a second sprite of your choice.
- Make it move around and bounce off the screen.
- Make a variable called Score.
- If the second sprite touches the first sprite add 1 to the score and broadcast the message HideNow.
- When the first sprite receives the HideNow message, it hides for 2 seconds and then shows again.