





Introducing Scratch

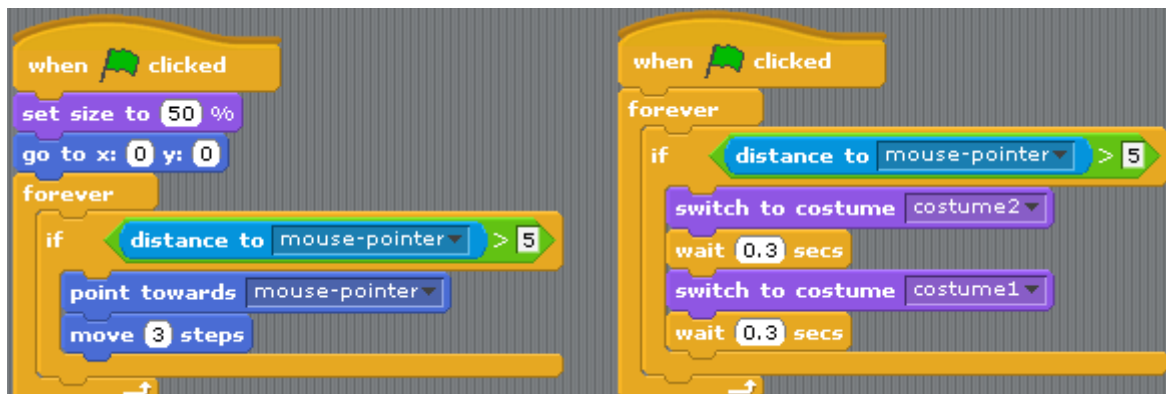
Exercise 1. Cat and Dog

Yep! It's time to make use of that cat you keep on seeing every time you start Scratch. We're going to make a program that allows the user to control the cat as he avoids dogs that are moving around the stage.

1. Start a new scratch project. Your cat should be on the **stage** as *Sprite 1*.
2. Rename the sprite as *Cat*.
3. Click the **Costumes** tab.  You will see that there are already two costumes for the cat. We'll use them later for animating the cat.
4. Click back on the **Scripts** tab. 


If you've done exercise 1 and 2 you should be familiar with how to find scripting blocks and place them together by now.

5. Add the following program blocks to the *Cat* sprite.



The first block will resize the cat and move it toward the mouse pointer, if it isn't already close to it. The second block will make the cat switch between its 2 costumes when it is moving to make it look like the cat is running.

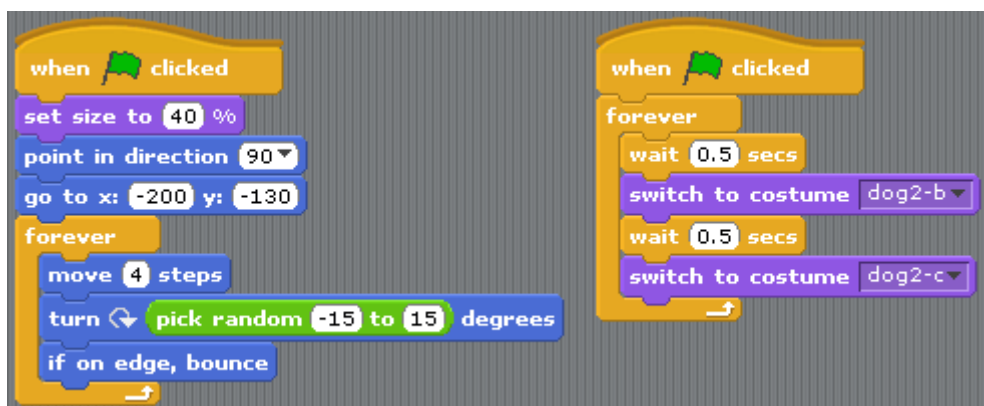
Exercise 2. Adding the Dog

1. Click the **Choose new sprite from file** button .
2. Import the picture *dog2-b* from the *Animals* folder.



dog2-b

3. Rename the sprite as *Dog*.
4. Switch to the costumes tab.
5. Import both the *dog2-c* picture and the *dog2-a* picture. You should have all 3 listed in your costumes tab.
6. Return to your **scripts** tab.
7. Add the following scripts for the *Dog*.






The first block resizes and positions the dog when the program starts. It then begins moving the dog in random directions and turns around if it touches the edge. The other block switches between two costumes to make it look like the dog is running.



Try running the program to see how it all works so far. The idea will be for the user to move the cat so that it avoids the dog (later there will be more than one dog). We will add some script blocks to determine what happens when the cat gets caught and we will also add a timer to see how long the player has gone without getting caught.

Exercise 3. Catching the Cat

1. Make sure the *Dog* sprite is still selected and click the  tab.
2. Click the  button and select the *Dog1* sound from the *Animals* folder.
3. Return to the  tab.
4. Add the following script blocks to the bottom of your main group.



Note When you add the **Broadcast** block, you will need to select **New** from the list and then enter **Caught** as the name that will be broadcast. When this block is used, it will put out a message that other parts of our program later will use.

5. Select the *Cat* sprite and add the following script blocks.



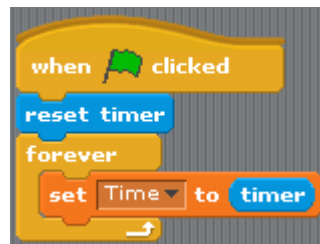
These blocks will change the colour of the cat and stop the program when it is touched by the dog.

6. Test your program to see what happens now when the cat gets touched by the dog.



Exercise 4. Adding a timer.

1. Click on the **stage** in the **Sprite list** area.
2. Select the **Variables** category from the top of the script list.
3. Click **Make a variable** and enter *Time* for the name.
A range of new script blocks will become available.
4. Add the following script blocks to the Stage.



Tip They are all from the **Control**, **Sensing** and **Variables** categories.

Test the program. The timer should now be ticking away until the cat is caught.

5. Save the program as *Cat and Dog*.
6. Try it out and see how long you can go without getting caught (if it's too easy try some of the suggestions on the next page to make it harder).

Exercise 5. Additional things to try

- **Change the background** of the stage to something more interesting.
- **Change the speed** of the cat and/or dog to make it harder or easier.
- **Change the timer** – double-click (or right click) on the timer to change the variable style.
- **More dogs!** Right click on the dog sprite and select duplicate (rename the new sprite to something suitable). Change the first group of script blocks for the new dog so it looks like the example below. Now you'll have two dogs chasing the cat from different directions. You could add more to make it even harder.



- **Add a High Score** – If you can't remember how to add a high score with the timer, refer to the example in the Bat Maze exercise (exercise 2). Below is an example of how it could be done (remember that in programming there is often more than one way of getting the result you need).



