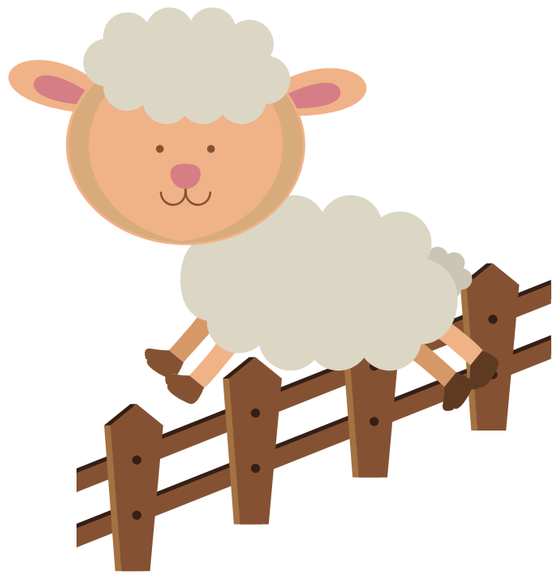
Do Ewe Even Code?

On a farm a dog can be used to herd sheep.
Can you get the sheep into the pen?

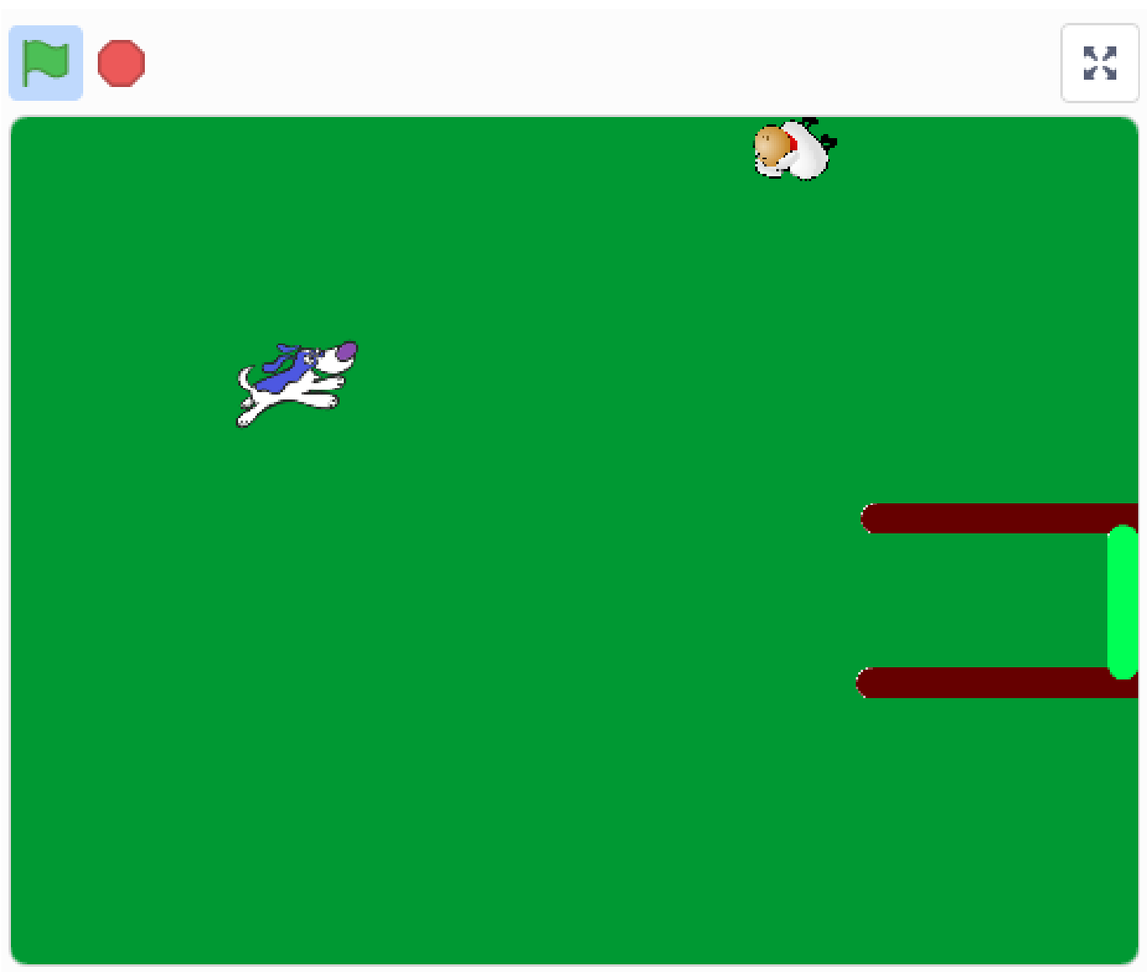
Scratch



Step 1 Introduction

What you will make

You will make a game where you can move the dog to get the sheep into the pen



What you will learn

- Add code to detect the direction of the mouse
- Add code to detect when a sprite is touching a colour in Scratch

What you will need

Hardware

- A computer capable of running Scratch 3

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Software

- Scratch 3 (either **online** (http://rpf.io/scratchon) or **offline** (http://rpf.io/scratchoff)

Downloads

- Offline starter project (https://scratch.mit.edu/projects/333496752/)

Additional notes for educators

Here is a link to the completed project
https://scratch.mit.edu/projects/333498256

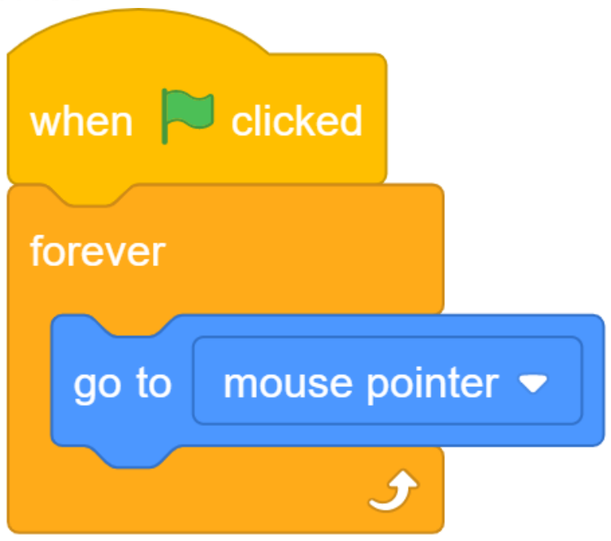
Step 2 Move the Dog

We need to control the movement of the dog so that we can herd the sheep later. We'll do this by making the sprite follow the mouse pointer.

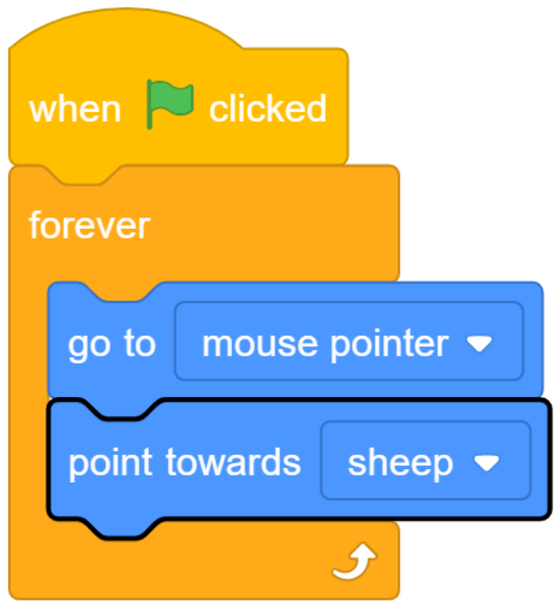
- [ ] Open the Starter Project - https://scratch.mit.edu/projects/333496752/

  Select 'See Inside'

  Add this code to your dog sprite



- [ ] The dog needs to point towards the sheep

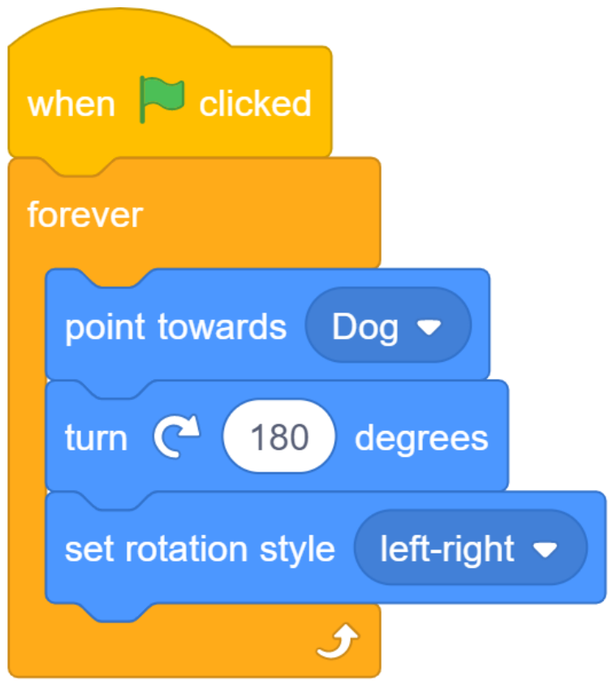


Click the 'drop down arrow' to change it.
If you click the green flag, the dog will go to the mouse pointer and point towards the sheep.

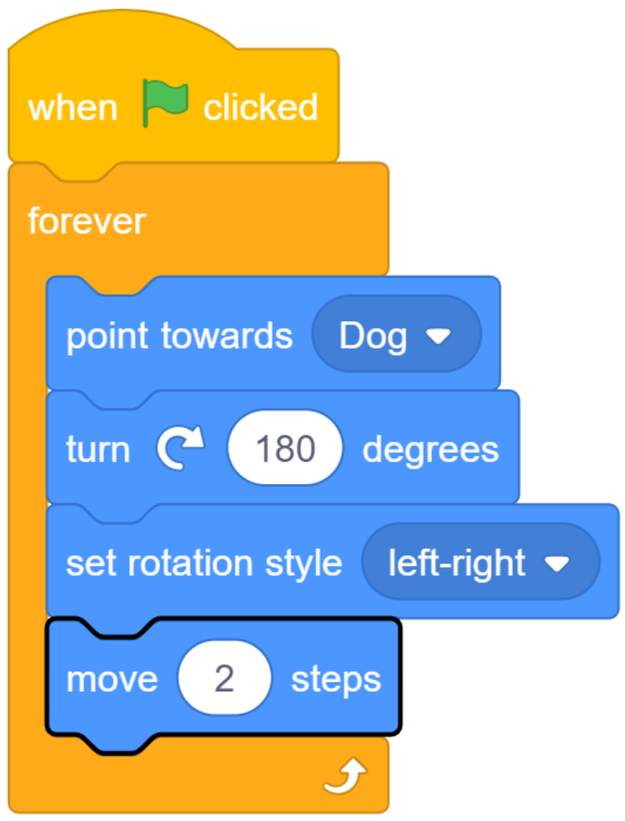
Step 3 Make the Sheep run away

We need to get the sheep to move away from the dog into the pen.

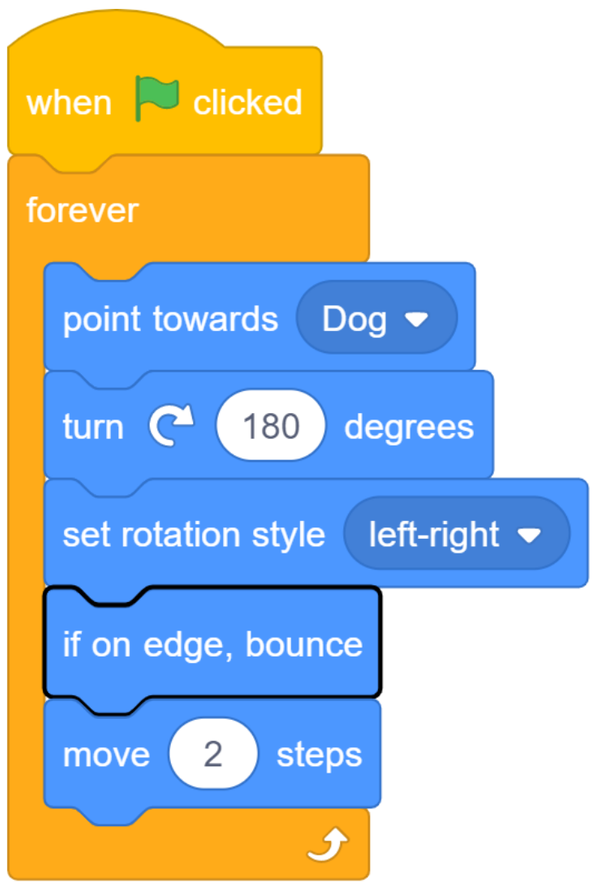
- [ ] Click on the sheep sprite.
Make the sheep face away from the dog and stay upright. We can do this by combining a point towards block and a turn block, with a set rotation style block



- [ ] Next, we'll make the sheep move away from the dog by adding a move block



- [ ] The sheep gets stuck on the edge. We can fix this by adding this block



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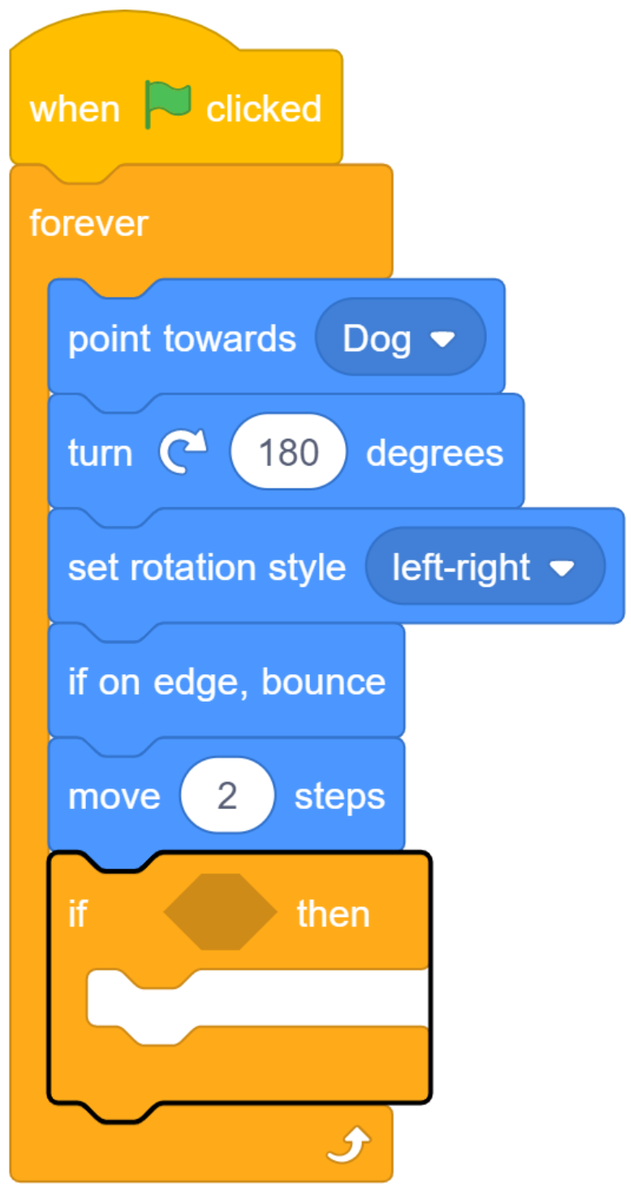
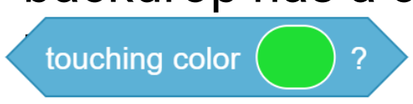
Step 4 End the game when the goal is reached

Every game has to end eventually! We want to end the game when the goal is reached

- [ ] To let the program know the goal is reached, we need to put an 

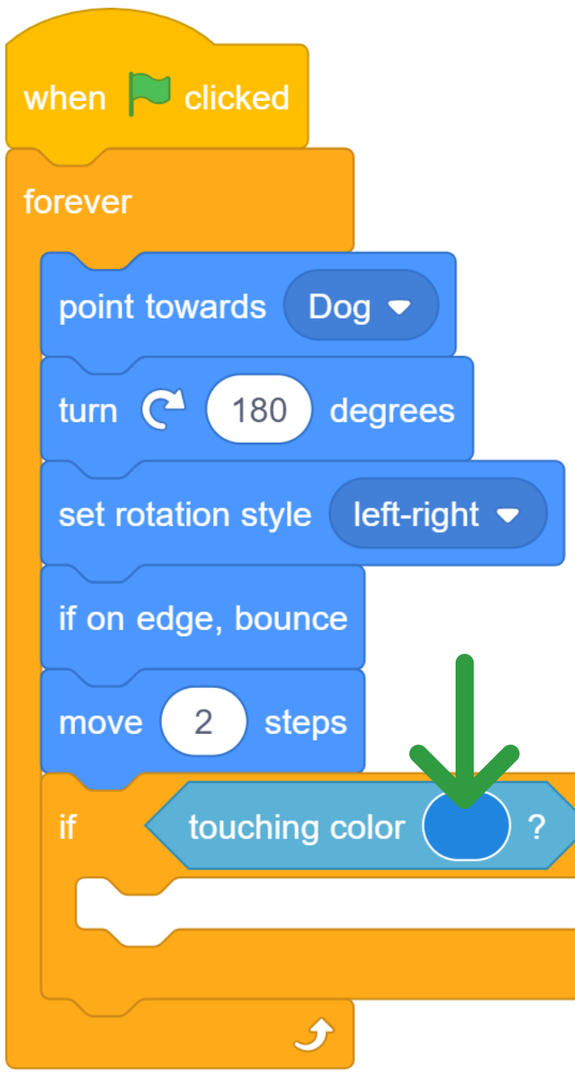
statement inside our forever loop

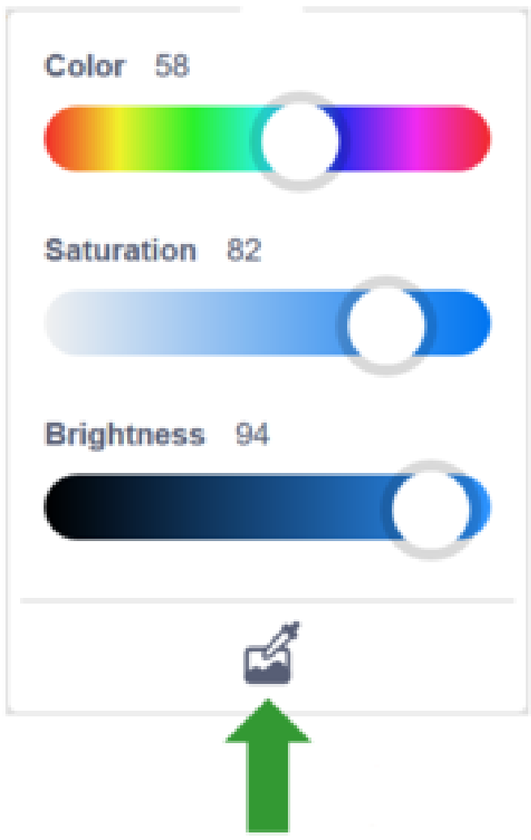


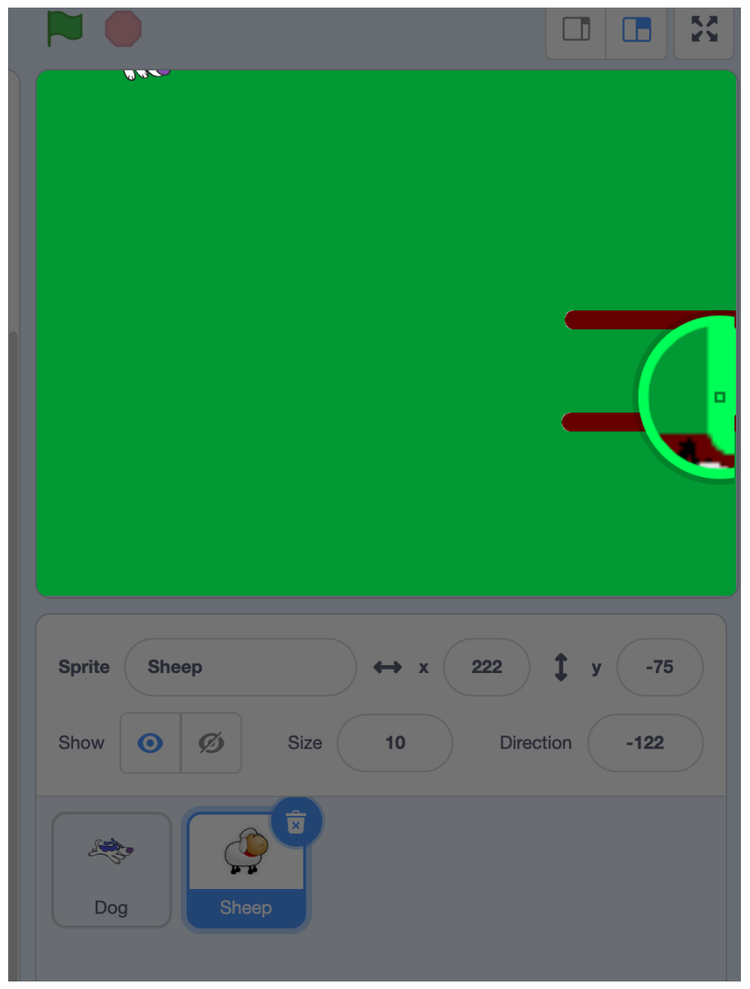
We need to define what the end condition will be. The Sheep Pen on our backdrop has a colour that indicates the end position, so we'll use the 

block

Use the Eye Dropper tool to match the bright green colour of the Sheep Pen.





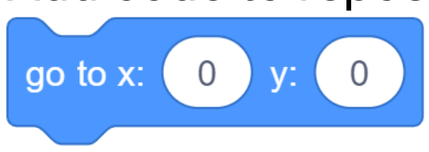


Click the colour Select the eye dropper Select the colour you want

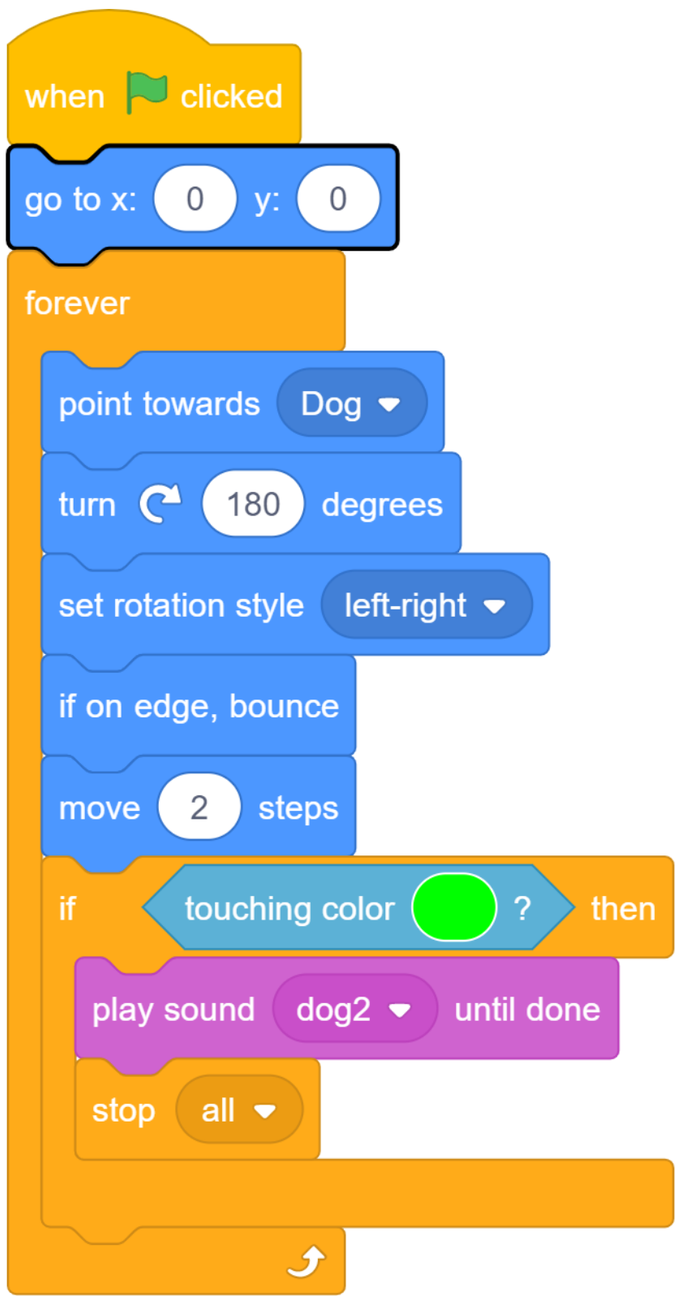
- [ ] Let's add a little celebration when the game ends. We'll celebrate with the play sound of a dog barking.

Step 5 Reset the Game

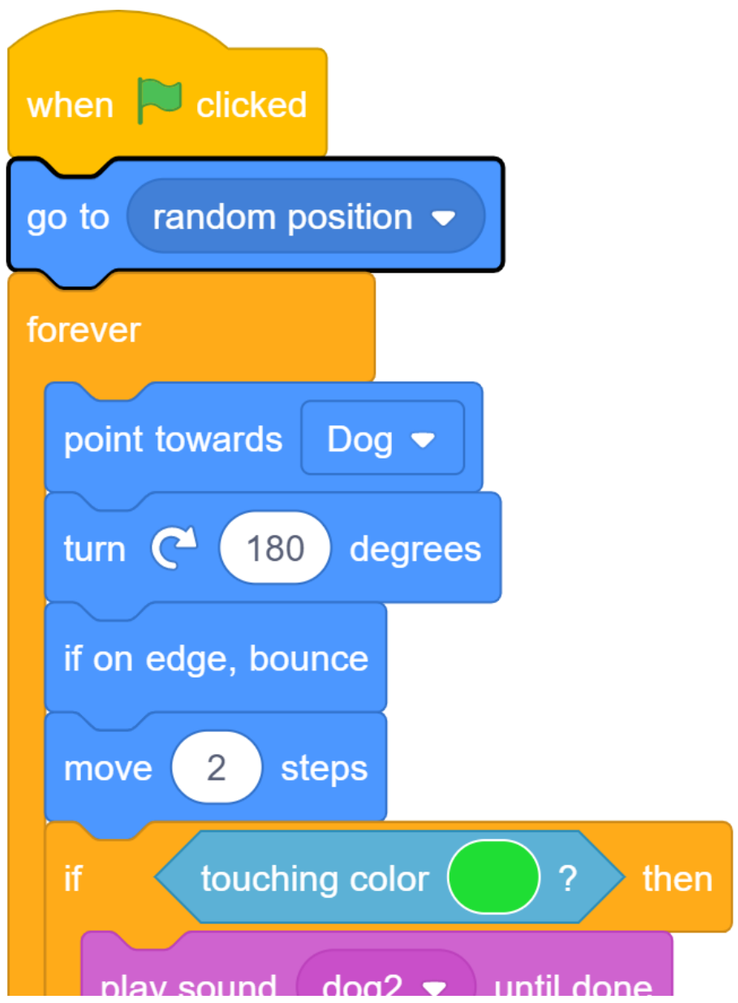
Test the game. What happens at the end of the game? And then when you want to play again? Because the sheep is already touching the green, the game will finish straight away. We need to fix that!

- [ ] Add code to reposition the sheep each time you start. You can do this with a 

block.



- [ ] This is much better, but it's still a little predictable. Let's add a bit of randomness to our game by choosing a random position.



Step 6 Make the fence solid

The fences don't pose any obstacle at the moment. Let's make them solid.

- [ ] Add the following code, in the forever loop, to make the sheep sprite move back when it touches the fence

Challenge!

More levels

The game only has one level! Add another backdrop to create another level of the game. How can you make it more difficult? Make sure players start on Level 1!

Celebrate

Can you add a text bubble to the sheep or dog after it's successfully in the pen?

Timer

Can you add a timer?