

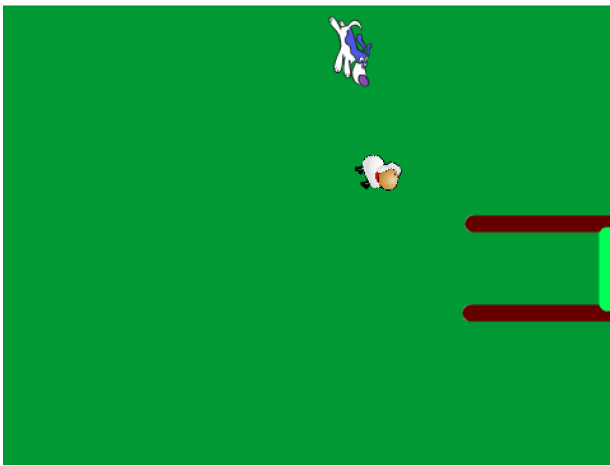
Do Ewe Even Code?

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

INTRODUCTION

What you will make

You will make a game where you move the dog to herd the sheep into the pen.



What you will need

HARDWARE

A computer capable of running Scratch 3

SOFTWARE

Scratch 3:
either online
<http://rpf.io/scratchon>
or offline
<http://rpf.io/scratchoff>

DOWNLOADS

Offline starter project
bit.ly/ewecode

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.

Additional notes for educators

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

Code Club Australia recognises the Traditional Custodians of the land across Australia and their continuing connection to land, cultures, and communities. Australia's traditional owners are the world's first innovators.

1. 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 - bit.ly/ewecode
- Select **See Inside**.
- Add this code to your **dog sprite**.

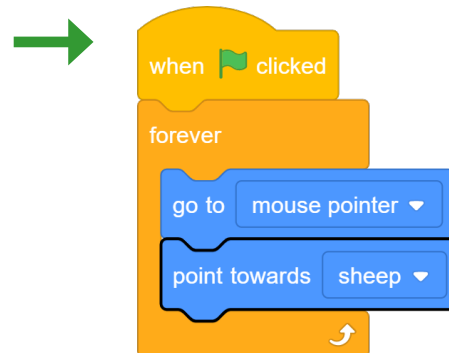


when clicked

forever

go to mouse-pointer

- The dog needs to **point towards** the sheep.
- Add this code block.
- Click the **drop down arrow** to change the option.



when clicked

forever

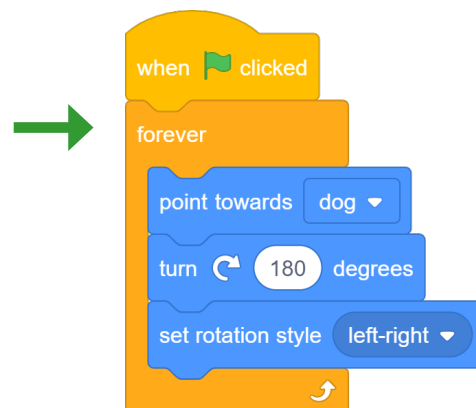
go to mouse pointer

point towards sheep

2. MAKE THE SHEEP MOVE AWAY

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

- Click on the **sheep sprite**.
Let's make the sheep face away from the dog and stay upright.
- Add this code:



when clicked

forever

point towards dog

turn 180 degrees

set rotation style left-right

- Next, we'll make the sheep **move** away from the dog by adding this block:

```
when green flag clicked
  forever loop
    point towards dog
    turn 180 degrees
    set rotation style left-right
    move 2 steps
```

- The sheep gets stuck on the edge! We can fix this by adding this block:

```
when green flag clicked
  forever loop
    point towards dog
    turn 180 degrees
    set rotation style left-right
    if on edge, bounce
    move 2 steps
```

3. END THE GAME

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 **if then statement** inside our **forever** loop.

```
if on edge, bounce
  move 2 steps
  if then
```

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



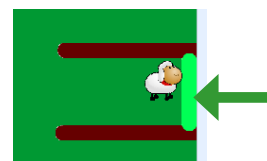
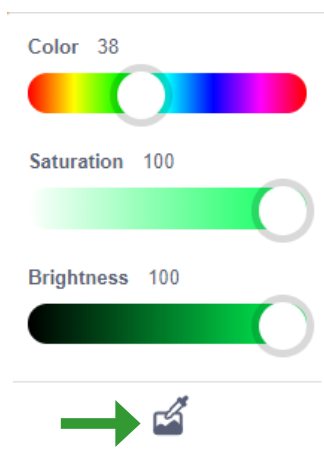
```

turn 180 degrees
set rotation style left-right
if on edge, bounce
move 2 steps
if touching color [green] then
  
```

- Use the **Eye Dropper** tool to match the bright green colour of the Sheep Pen.
- First, click the circle with the colour you need to change on the **touching colour** block.
- Then click the **eye dropper tool**.
- Followed by the **colour** you want to match.

```

when clicked
forever
  point towards Dog
  turn 180 degrees
  set rotation style left-right
  if on edge, bounce
  move 2 steps
  if touching color [brown] ? then
    
```



- Let's add a little celebration when the game ends. We'll celebrate with the **sound** of a dog barking.
- Finally, add the **stop all** block. This will stop all the actions and end your game.



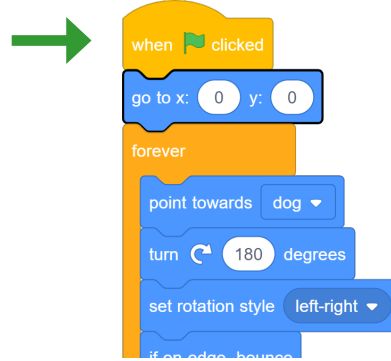
```

if on edge, bounce
move 2 steps
if touching color [green] then
  play sound dog2 until done
  stop all
  
```

4. RESET THE GAME

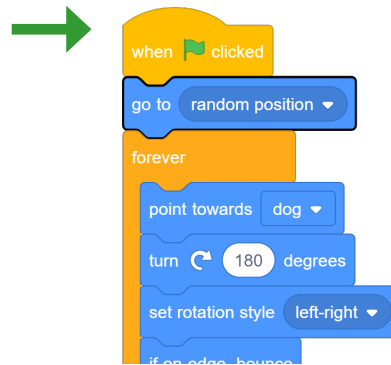
Test the game. What happens at the end of the game? And then when you want to play again?

- Because the sheep is already touching the green edge, the game will finish straight away.
- Add code to reposition the sheep each time you start.



```
when green flag clicked
  go to x: 0 y: 0
  forever loop
    point towards dog
    turn 180 degrees
    set rotation style left-right
```

- 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**.
- Remove the **go to x: y:** block and replace it with this block.

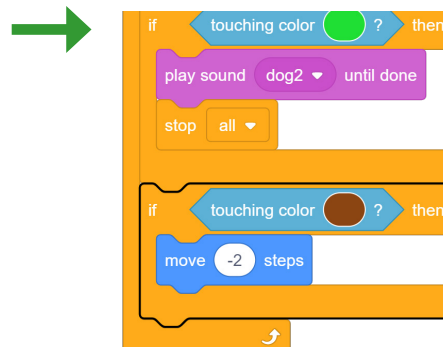


```
when green flag clicked
  go to random position
  forever loop
    point towards dog
    turn 180 degrees
    set rotation style left-right
```

5. MAKE THE FENCE SOLID

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

- The sheep can move right through the fence!
- To make the sheep sprite **move** back when it touches the fence, add this code inside the **forever** loop.
- Don't forget to change the colour using the dropper tool again!



```
if touching color green ? then
  play sound dog2 until done
  stop all
if touching color brown ? then
  move -2 steps
```

CONGRATULATIONS!

You've finished this project! Try one of the challenges below, or maybe add your own?

Challenges:

Add some extra challenges to your game!

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:

How quickly can you get the sheep into the pen? Add a timer to see.

Find out more...

Did you know that there are over 70 million sheep in Australia? That means there are three sheep for every person!

Sheep farmers lead very busy lives looking after their sheep. They breed and raise the animals, provide feed for them, look after their paddocks and more!

We've written a blog post, all about sheep! Head to our blog for more info -

medium.com/code-club-australia

And don't miss the other coding resources available on our website. There are videos, interview and more lessons all about Agriculture and other topics!

codeclubau.org/projects/topics/agriculture/