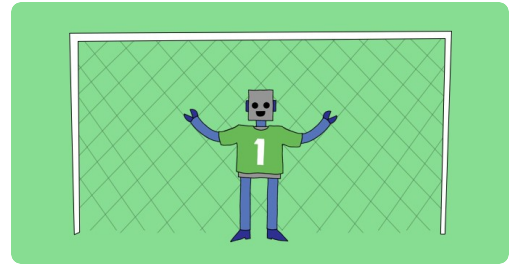


# Projects

## Beat the goalie

How many goals can you score in 30 seconds?

Scratch

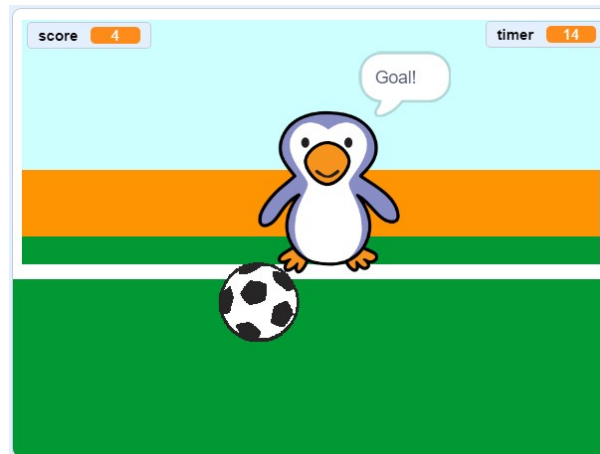


### Step 1 Introduction

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In this project you'll learn how to create a 2 player football game in which you have to score as many goals as you can in 30 seconds.

#### What you will make



#### What you will learn

- Recall how to use code to respond to key presses
- Use sensing blocks to detect when sprites touch each other
- Use broadcast blocks to communicate between sprites

### 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

The starter project can be found **here** (<http://rpf.io/p/en/beat-the-goalie-go>).

### Additional information for educators

You can find the **completed project here** (<http://rpf.io/p/en/beat-the-goalie-get>).

## Step 2 Moving the football

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Let's code the ball to move across the bottom of the stage.

Open the 'Beat the Goalie' Scratch starter project.

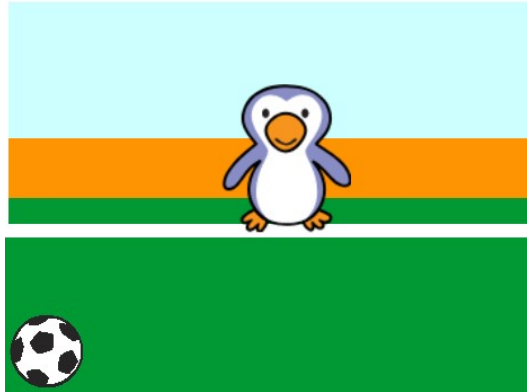
**Online:** open the starter project at **rpf.io/beat-the-goalie-on** (<http://rpf.io/beat-the-goalie-on>).

If you have a Scratch account you can make a copy by clicking **Remix**.

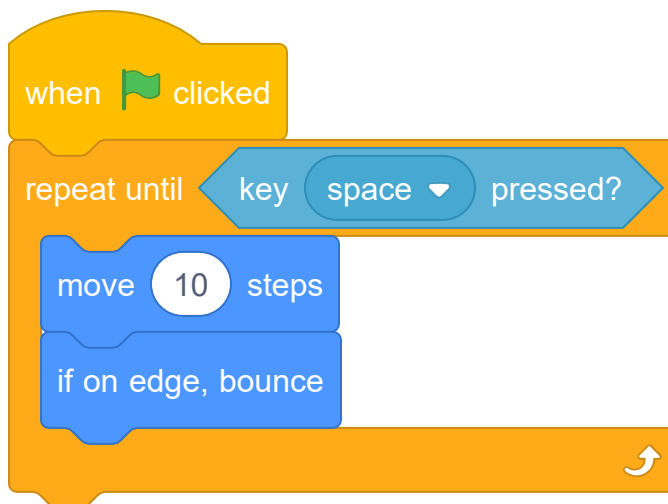
**Offline:** open the **starter project** (<http://rpf.io/p/en/beat-the-goalie-go>) in the offline editor.

If you need to download and install the Scratch offline editor, you can find it at **rpf.io/scratchoff** (<http://rpf.io/scratchoff>).

In the starter project, you should see a goal backdrop, a football and goalie sprite.



Click on your football sprite. Add this code, so that the football moves along the bottom of the screen until the space bar is pressed.

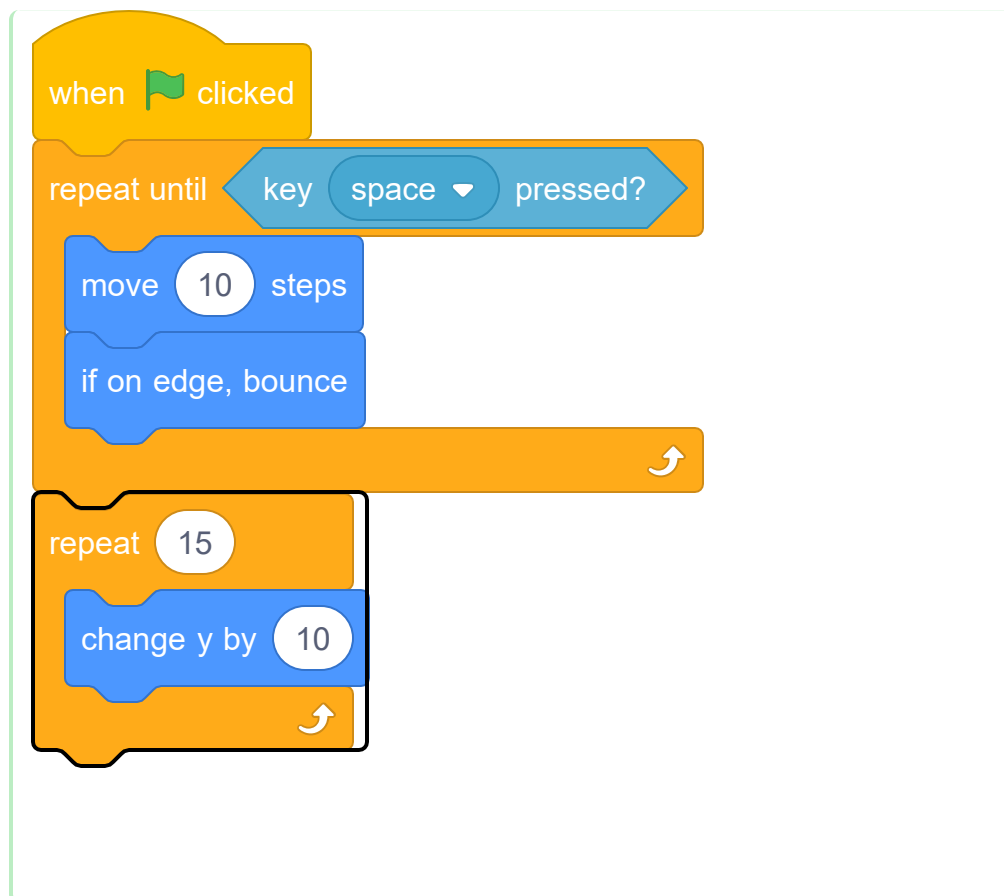


Click the green flag to test your project. Your football should bounce along the bottom of the screen until the space bar is pressed.



Add this code to your football sprite, so that the football moves towards the goal after the space bar has been pressed.





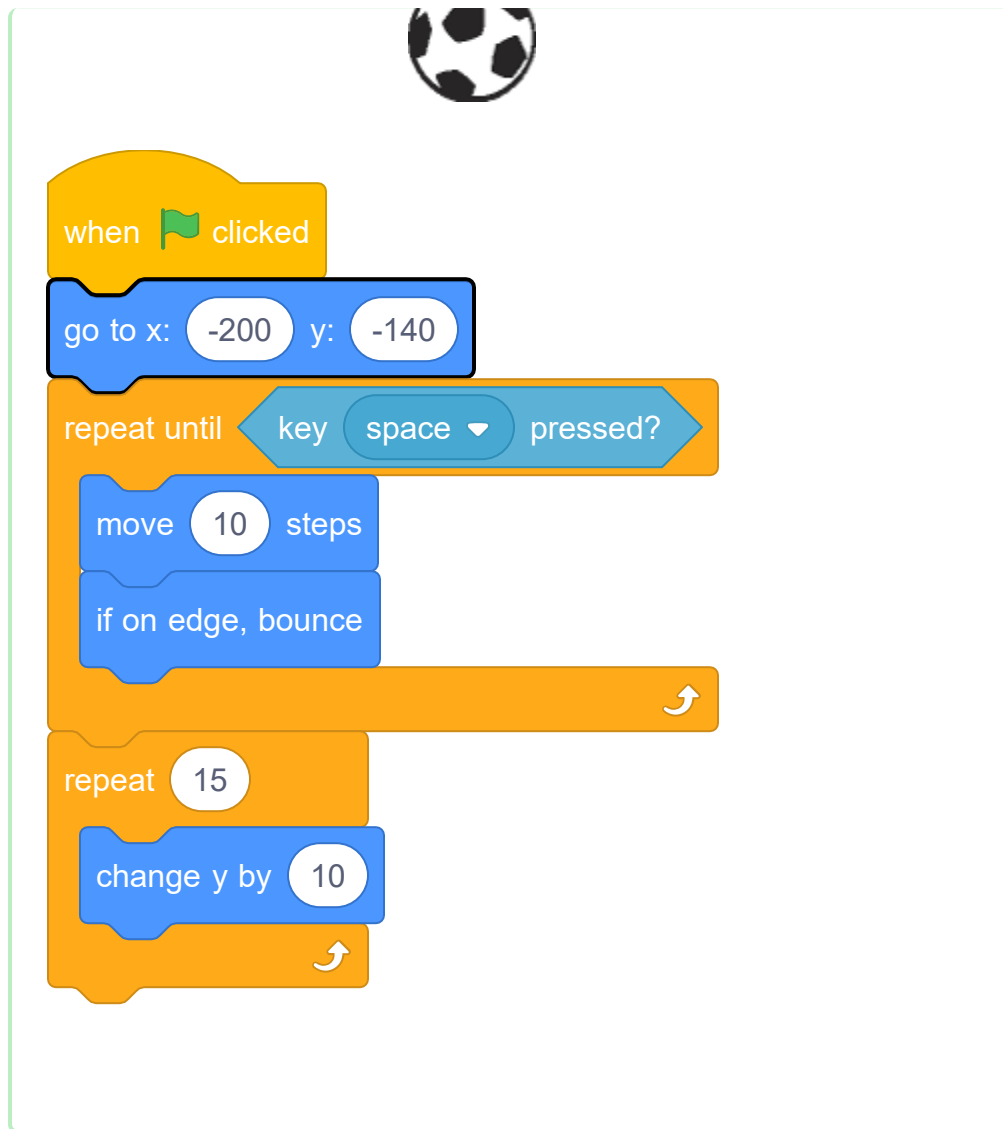
Click the green flag to test your code. This time, press the space bar and your football should move towards the goal.



Click the green flag to test your code. What happens if you click the flag a second time? Can you fix the problem?

Your code should look like this:



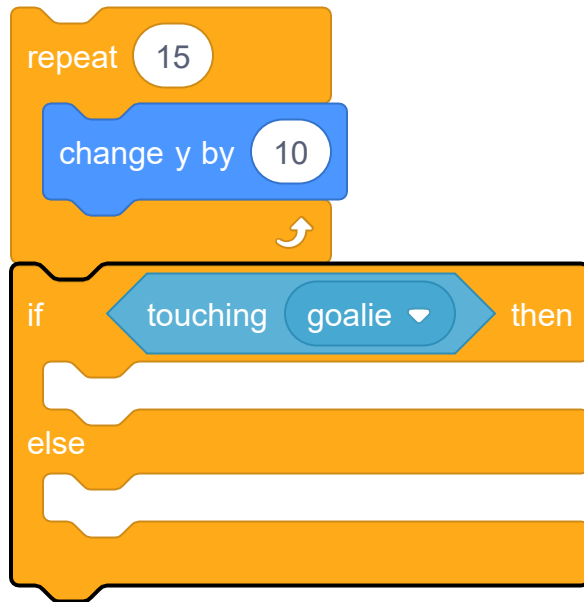


### Step 3 Was it a goal?

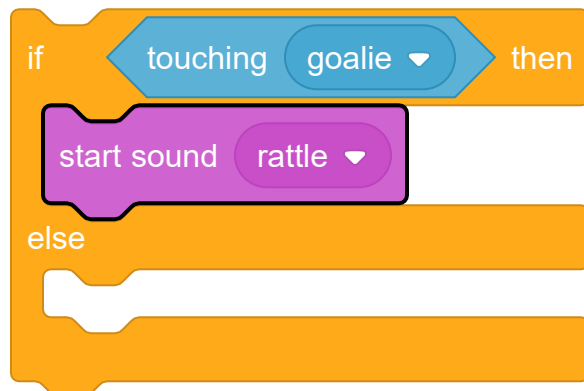
Once the ball has reached the goal, there's a decision to make. **If** the ball is touching the goalie then it has been saved, **else** it's a goal.

Add this code to the end of your football sprite code, so that you can check whether the ball is touching the goalie.



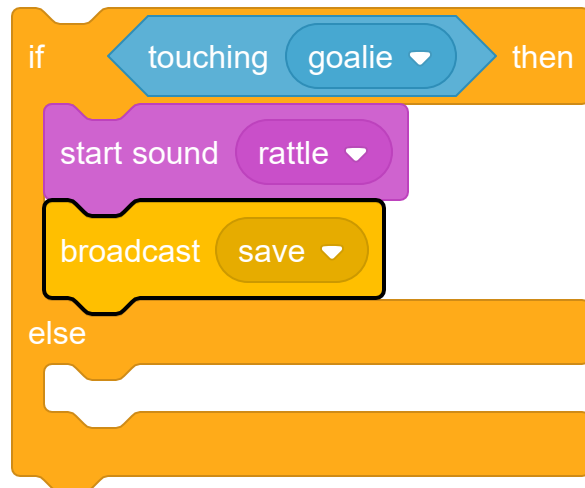


Start the 'rattle' sound if the goalie has saved the ball.

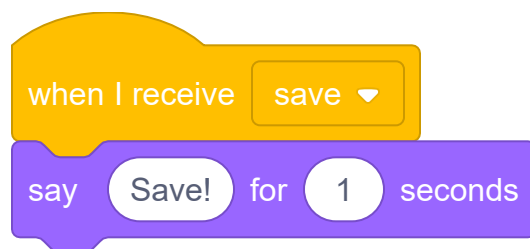


You can also broadcast a message to the goalie, so that they can tell you that the ball has been saved.

Broadcast a 'save' message when the ball has been saved.



You can now code your goalie to say 'Save!' when they receive the message.





Test your code by trying to score a goal. If your goalie saves the goal they should say 'Save!'.



#### Step 4 Goal!

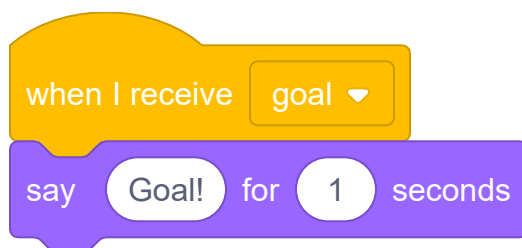
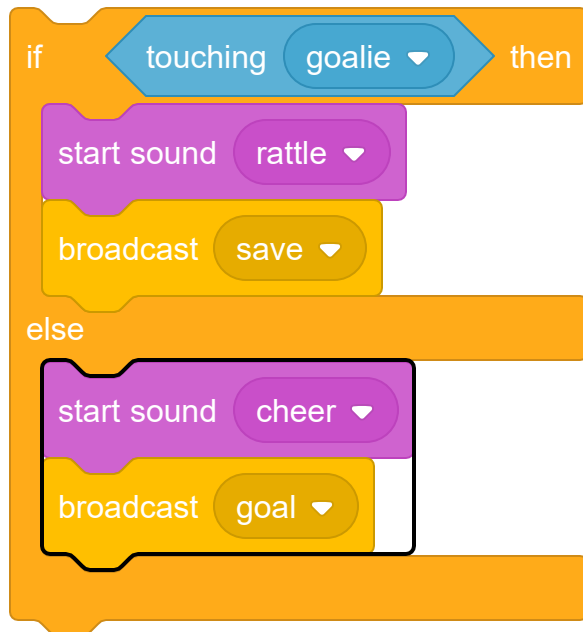
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Can you play a sound and code your goalie to say 'Goal!' when a goal has been scored?

Remember that a goal has been scored if the ball is not touching the goalie.



Your code should look like this:



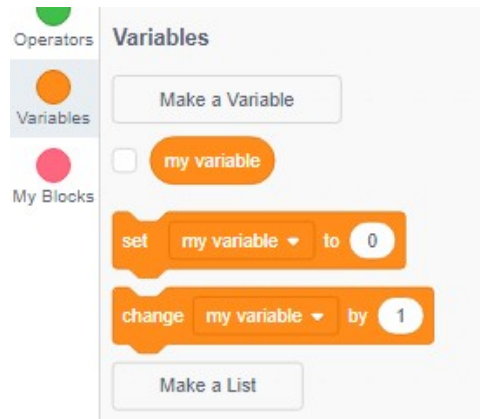
## Step 5 Adding a timer

Let's add a timer, so that the player has to score as many goals as they can in 30 seconds.

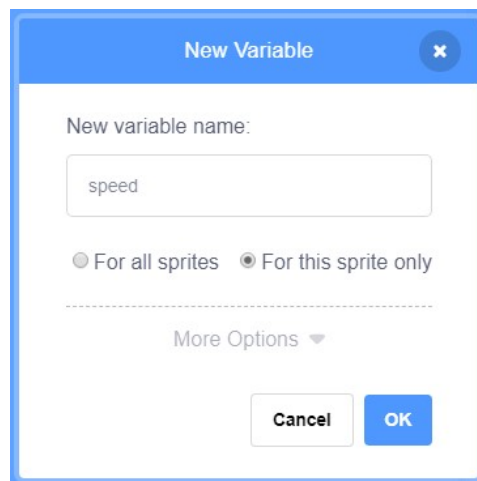
Make  
a new variable called timer.

### Add a variable in Scratch

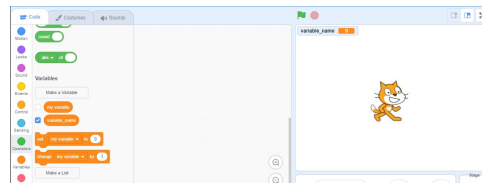
- Click on **Variables** in the Code tab, then click on **Make a Variable**.



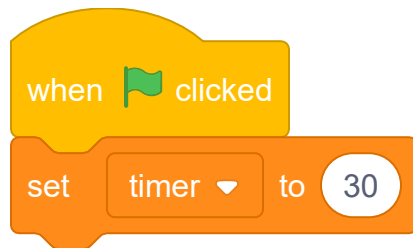
- Type in the name of your variable. You can choose whether you would like your variable to be available to all sprites, or to only this sprite. Press **OK**.



- Once you have created the variable, it will be displayed on the Stage, or you can untick the variable in the Scripts tab to hide it.

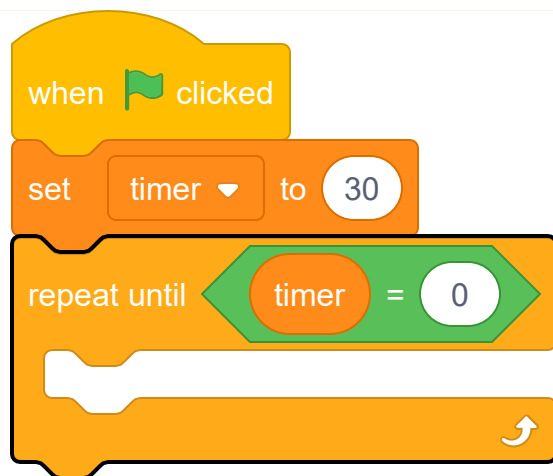


Click on your **stage**, and add this code to set the **timer** to 30 at the start of the game.

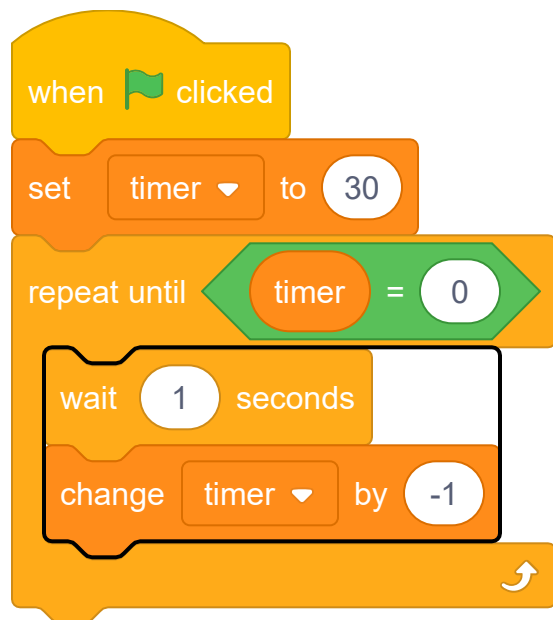


Next, you'll need to add a **repeat until** block, so that the timer can run until it gets to 0.



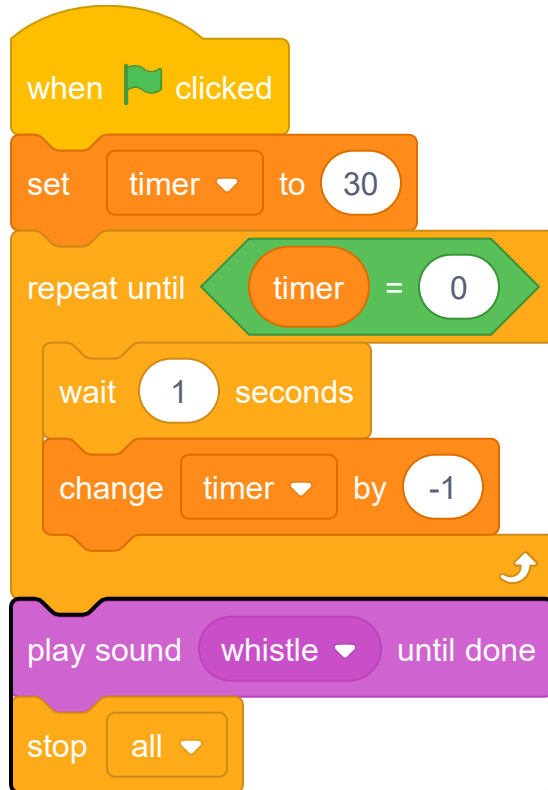


Reduce your timer by 1 every second until it reaches 0.



Once the timer has reached 0, you should play the

'whistle' sound and then stop the game.



Click the green flag to test your code. Your timer should start at 30, and end at 0.



You can change your timer to start at 10 if you don't want to wait for 30 seconds!

You only have the chance to score 1 goal! To have more than 1 chance, add a **forever** block around your **football** code. You can also add a **wait** block between attempts.



when  clicked

forever

go to x: -200 y: -140

repeat until key space ▼ pressed?

move 10 steps

if on edge, bounce

repeat 15

change y by 10

if touching goalie ▼ then

start sound rattle ▼

broadcast save ▼

else

start sound cheer ▼

broadcast goal ▼



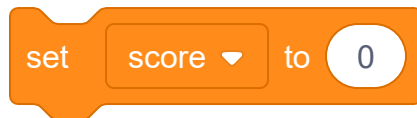
## Challenge

### Challenge: adding a score

Can you add a `score` variable to your game?

- You should set the score to 0 at the start of the game;
- You should add 1 to your score every time a goal is scored.

You will need these blocks:



## Step 6 Control the goalie

It's far too easy to score a goal! Let's allow a second player to try and save goals.

Click on your **Goalie** sprite and add this code to change the goalie's x position when the left arrow is pressed.



when left arrow ▼ key pressed

change x by -10

Press the left arrow to test your new code. Your goalie should move to the left.



Use blocks similar to the ones above to make the **Goalie** move to the right when the right arrow key is pressed.

Your code should look like this:



when right arrow ▼ key pressed

change x by 10

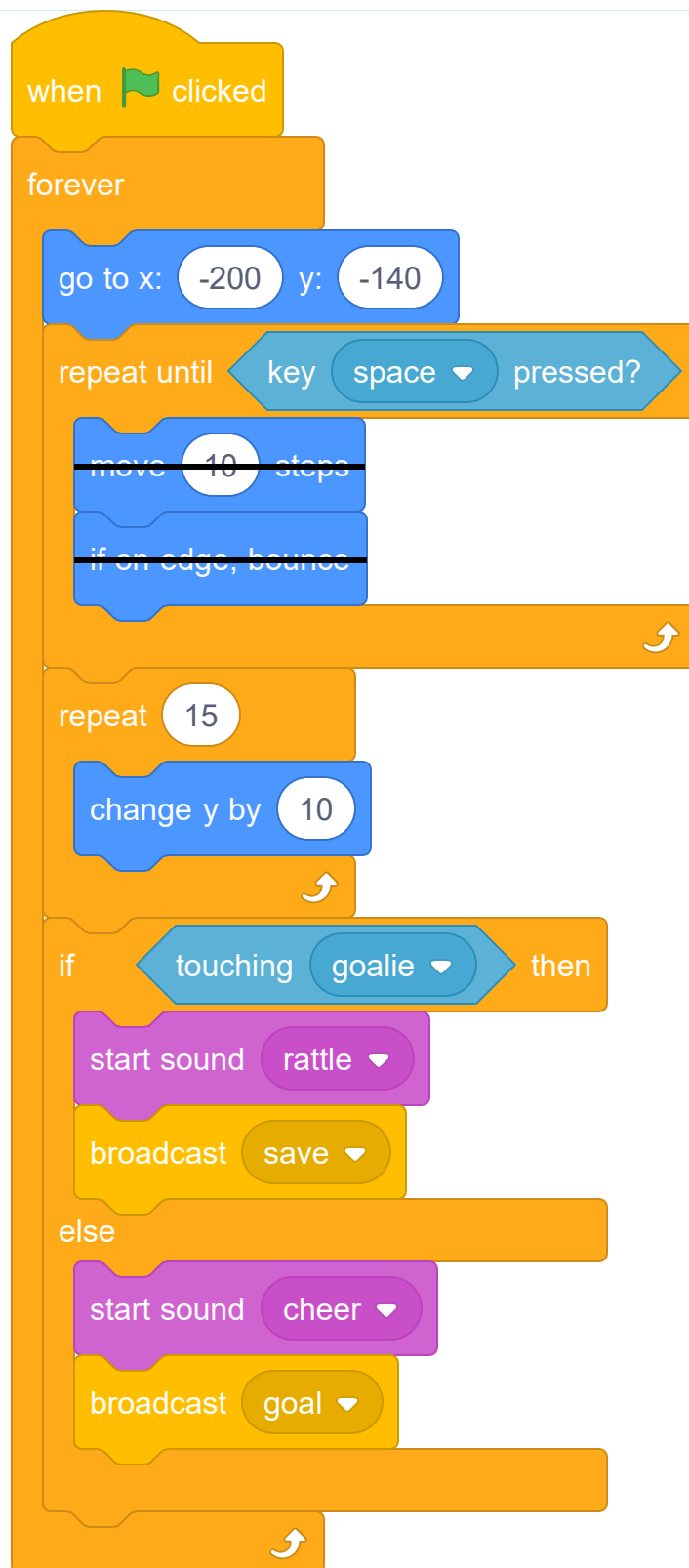
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## Challenge!

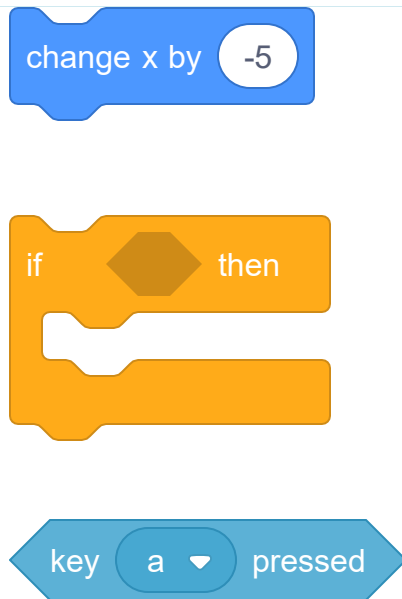
### **Challenge: manual control**

Instead of the ball moving left and right automatically, can you allow your player to control the ball with the **a** and **d** keys?

To do this you'll need to remove the code for moving the ball left and right.



You can then add code to move the ball when the keys are pressed.  
Here are some code blocks to help you:



## Step 7 What next?

Take a look at the **Ada's Poetry Generator** (<https://projects.raspberrypi.org/en/projects/poetry-generator>) Scratch project.



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View project & license on GitHub (<https://github.com/RaspberryPiLearning/beat-the-goalie>)