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## Introduction

Let's make a world cup football game in Scratch!



**Activity Checklist**

Follow these **INSTRUCTIONS** one by one



**Test your Project**

Click on the green flag to **TEST** your code



**Save your Project**

Make sure to **SAVE** your work now

## Step 1: Get the pitch ready for a game



### Activity Checklist

1. Start a new project in Scratch.
2. Click on the **stage** next to the sprite and switch to the **Backdrops** tab, then click the **Upload backdrop from file** button and choose the **resources/pitch.jpg** file.
3. Delete the original blank backdrop, and the cat sprite.
4. Our goals need nets! Create a sprite using the **Upload sprite from file** button and select **resources/net.png**. Move the net into the middle of the goal on the left. Rename it **blue goal**.
5. Right-click on the net sprite and click **duplicate**, then move this new sprite to the goal on the right and rename it **red goal**.



Save your project

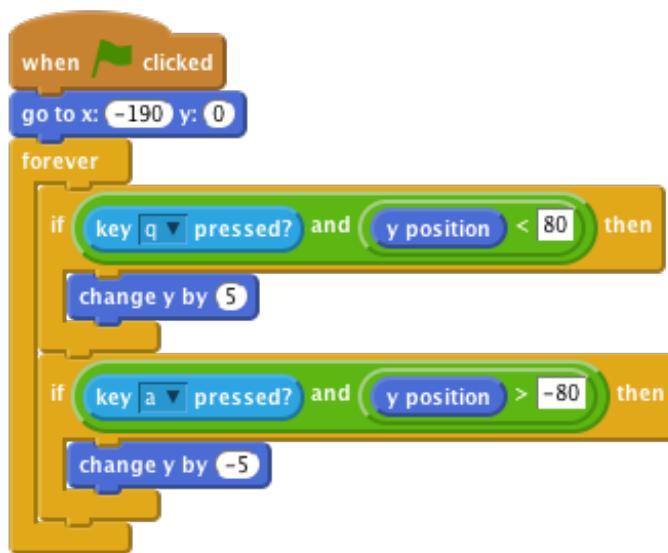
## Step 2: Add a goalie

Okay – our pitch is looking good! Now let's add some players and get them moving about.



## Activity Checklist

1. Click on `Upload sprite from file` and choose `resources/goalie_blue.png`. Rename the sprite **blue goalie**, and drag it near to the left goal.
2. Click on the `grow sprite` button, and click on the **blue goalie** sprite 10 times to scale up the sprite.
3. Click on the `Scripts` tab, and add:



Let's look at the code. We position the goalie, then we loop forever listening for key presses from the player. **Q** moves the goalie up, **A** moves it down. We check the `y position` of the goalie to stop it moving off the screen.

### Test your project

Click the green flag.

Can you control the goalie by pressing Q and A?

What happens when it gets to the edges of the pitch?



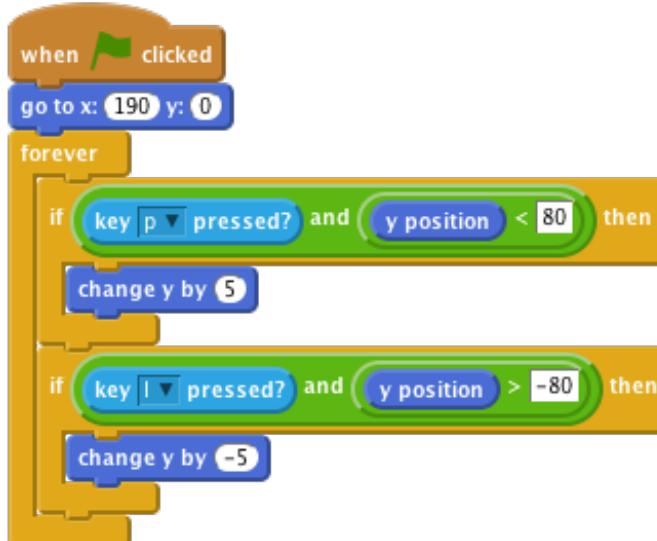
Save your project

## Step 3: Add some more players

We can't play a game of football with just one player! We need to add some more.

### Activity Checklist

1. Create another sprite using the `Upload sprite from file` button and selecting `resources/goalie_red.png`.
2. Change the name of the sprite to `red goalie`.
3. Drag the sprite on the stage to the right-hand side just in front of the goal.
4. Like before, grow the sprite 10 times so it is as big as the other goalie.
5. Select the `blue goalie` sprite and drag the script to `red goalie` to duplicate it.
6. Select `red goalie`, and modify the script so it looks like this:



You should only have to change three things: the `x position`, and which keys are pressed.

## Test your project

Click the green flag.

Can you control the red goalie by pressing P and L?

Do the controls for the blue goalie still work?



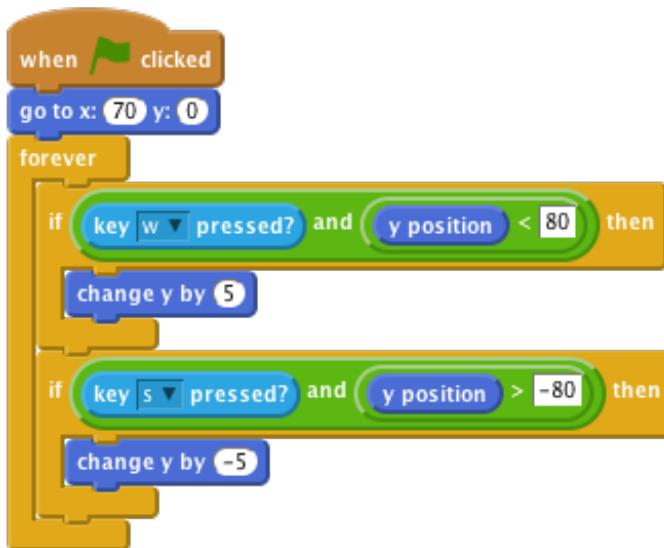
Save your project

## Step 4: Add some attacking players



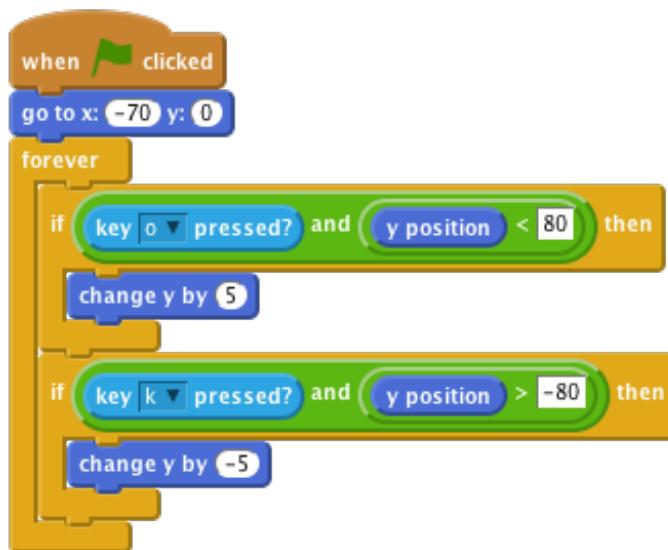
### Activity Checklist

1. Create another sprite using the `Upload sprite from file` button and selecting `resources/attack_blue.png`. Rename the sprite `blue attack`.
2. As before, grow the sprite 10 times, so the players are as big as the goalies.
3. Move the sprite into the right-hand side of the pitch, so they are attacking the red team's goal.
4. Drag the script from `blue goalie` to `blue attack`, and modify it to match this:



You should only have to change three things: the `x position`, and which keys are pressed.

5. Create one more sprite using the `upload sprite from file` button and selecting `resources/attack_red.png`. Rename sprite to `red attack`.
6. As before, grow the sprite 10 times, so all the players on the pitch are the same size.
7. Move the sprite into the left-hand side of the pitch, so they are attacking the blue team's goal.
8. Drag the script from `blue attack` to `red attack`, and modify it to match this:



You should only have to change three things: the `x position`, and which keys are pressed.

## FLAG Test your project

Click the green flag.

Do you have two teams of working players now? Try pressing Q, A, W and S to control the blue team, and P, L, O and K to control the red team.



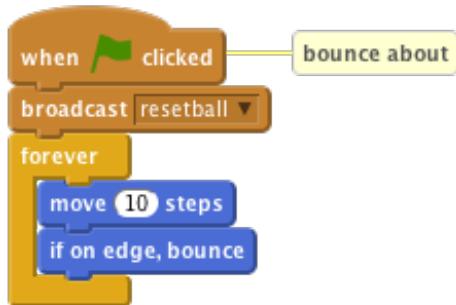
Save your project

## Step 5: Add a bouncing ball

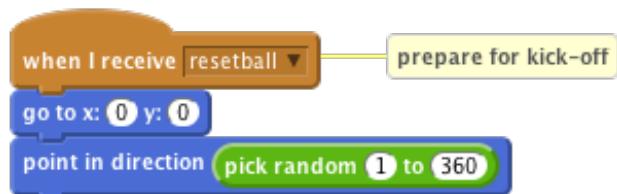
Our game of *football* has **feet**, but no **ball**! Let's fix that.

### Activity Checklist

1. Click **Upload sprite from file**
2. Select **resources/ball.png**, and rename the sprite **ball**.
3. In the **Scripts** tab for the ball, add the following:



4. Right-click on this script and click **add comment**. Add the comment **"bounce about"**.
5. Add another script to the ball:



This tells the ball to move to the middle of the pitch for kick-off, and then point in a random direction. Why do we use **resetball**?

6. Don't forget to add the **"prepare for kick-off"** comment, so we remember what this script does!

## Test your project

Click the green flag.

Does the ball move?

What happens when it hits the edges?

Are you happy with the ball speed? Try changing the `move` block to have a smaller or larger number until you're happy with it.

What happens when the ball hits your players?

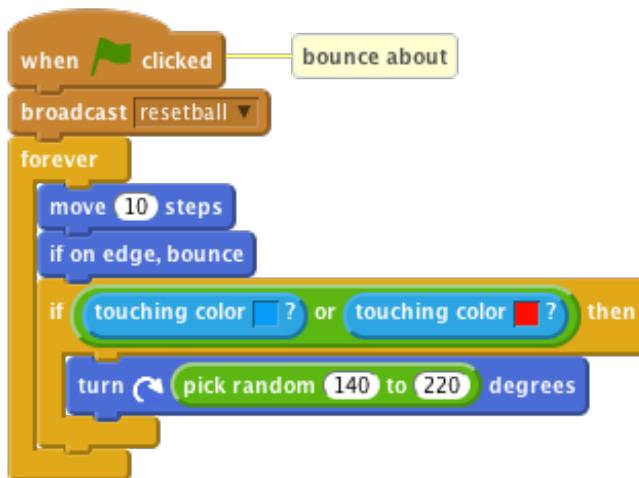


Save your project

## Step 6: Kicking the ball

We need the ball to bounce off the players on the pitch.

- Modify the last code block you created ("bounce about") to look like this:



You should select the colours by clicking on the football players. This change makes the ball sense it is touching a player, and then bounce off them by turning (with a bit of randomness).

### 🏁 Test your project

Press the green flag.

What happens now when the ball hits your players? Is it working for both red and blue players?



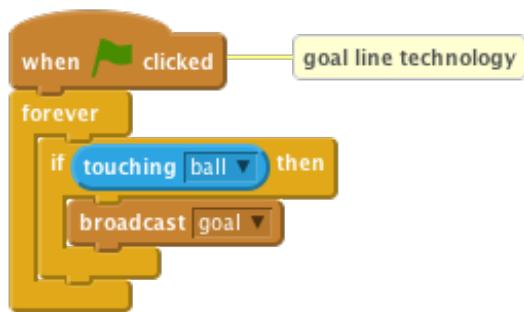
Save your project

## Step 7: GOOOOOOAAAAAAALLLLLLL!!!!!!!



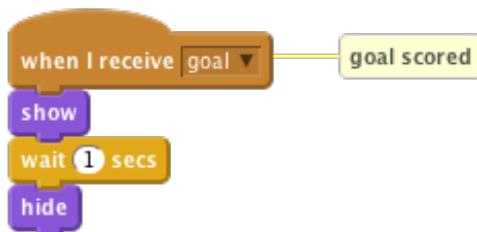
## Activity Checklist

1. Select **red goal** and add the following script:

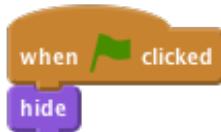


This is like goal line technology - it runs all the time, checking whether the ball is touching the goal, and broadcasting a message when it is.

2. Drag the script to **blue goal** to copy it there as well.
3. Now we need to do something when **goal** is broadcast. Click **Upload sprite from file**.
4. Select **resources/goal\_text.png**, and rename the sprite **goal text**.
5. Add this script to **goal text**:



6. Finally, add one more script to **goal text**:



...to ensure the **goal text** begins the game hidden.



Save your project

## Test your project

You're ready to play a game! Press the green flag.

What happens when the ball goes in?

Try challenging a partner to a game!

### Challenge 1: Keep score

Can you add variables that will keep track of scores for the red and blue teams?

### Challenge 2: Tip the table

You might notice sometimes the ball gets stuck bouncing where the players can't reach. Can you add a script to the ball to fix this by "tipping the table" when the spacebar is pressed?

### Challenge 3: Referee's whistle

Can you add the sound effect `resources/whistle.mp3` so that the whistle sounds whenever a kick-off takes place?