Scratch Table Football

Introduction

It's the Football World Cup! So to celebrate, let's make a world cup football game in Scratch!

Step 1: Get the pitch ready for a game

✅ Activity Checklist

- ☐ Start a new project in Scratch.
- ☐ 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.
- ☐ Delete the original blank backdrop, and the cat sprite.
- ☐ 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**.
- ☐ 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**.
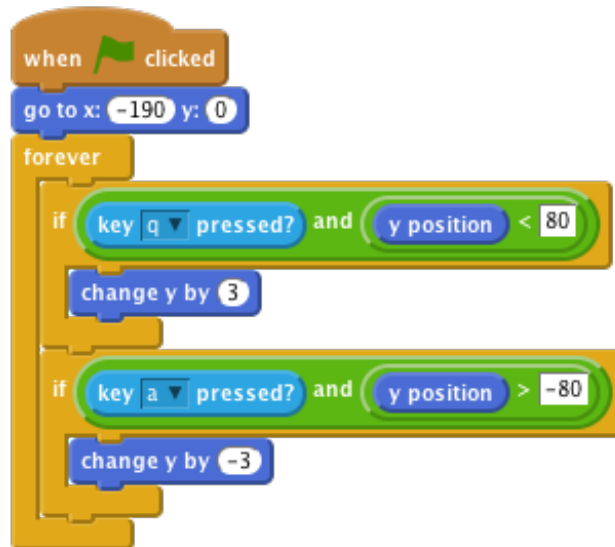
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Step 2: Add a goalie

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

✅ Activity Checklist

- ☐ 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.
- ☐ Click on the `grow sprite` button, and click on the **blue goalie** sprite 10 times to scale up the sprite.
- ☐ Click on the `Scripts` tab, and add:

```
when 🚩 clicked
go to x: -190 y: 0
forever
    if  key q pressed?  and  y position < 80
        change y by 3
    if  key a pressed?  and  y position > -80
        change y by -3
```

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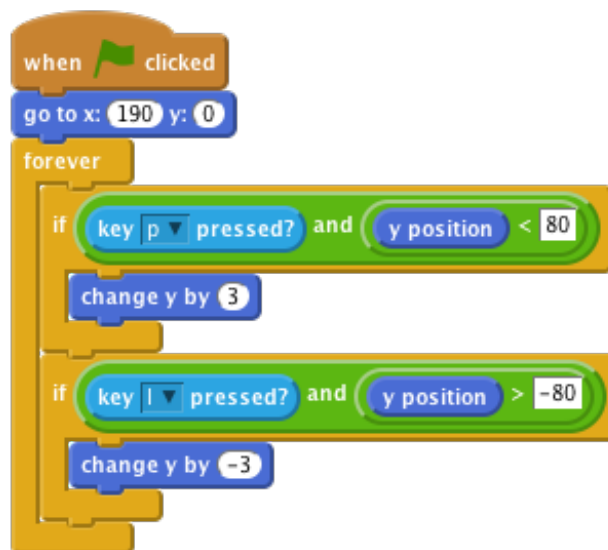- ☐ What happens when it gets to the edges of the pitch?

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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

☐ Create another sprite using the `Upload sprite from file` button and selecting **resources/goalie_red.png**.

☐ Change the name of the sprite to **red goalie**.

☐ Drag the sprite on the stage to the right-hand side just in front of the goal.

☐ Like before, grow the sprite 10 times so it is as big as the other goalie.

☐ Select the **blue goalie** sprite and drag the script to **red goalie** to duplicate it.

☐ Select **red goalie**, and modify the script so it looks like this:

```
when [flag] clicked
go to x: 190 y: 0
forever
  if < key [p ▼] pressed? > and < (y position) < [80] >
    change y by 3

  if < key [l ▼] pressed? > and < (y position) > [-80] >
    change y by -3
```

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

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Step 4: Add some attacking players

✅ Activity Checklist

☐ Create another sprite using the `Upload sprite from file` button and selecting **resources/attack_blue.png**. Rename the sprite **blue attack**.

☐ As before, grow the sprite 10 times, so the players are as big as the goalies.

☐ Move the sprite into the right-hand side of the pitch, so they are attacking the red team's goal.

☐ Drag the script from **blue goalie** to **blue attack**, and modify it to match this:

```
when 🏳️ clicked
go to x: 70 y: 0
forever
  if  key w ▾ pressed?  and  y position < 80
    change y by 3

  if  key s ▾ pressed?  and  y position > -80
    change y by -3
```
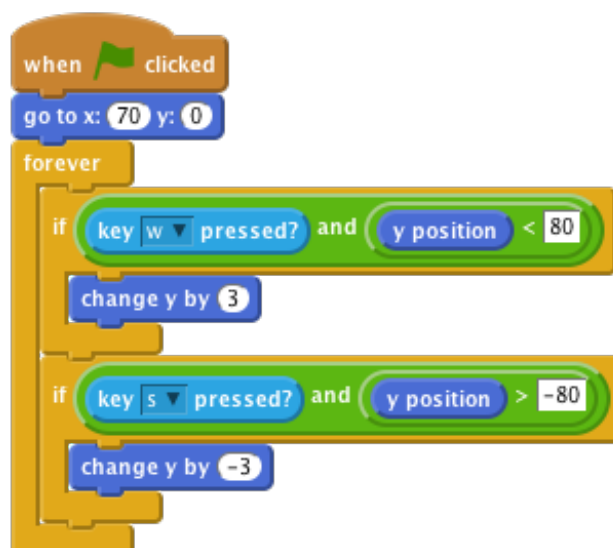
You should only have to change three things: the `x position`, and

which keys are pressed.

- ☐ Create one more sprite using the `Upload sprite from file` button and selecting **resources/attack_red.png**. Rename sprite to **red attack**.
- ☐ As before, grow the sprite 10 times, so all the players on the pitch are the same size.
- ☐ Move the sprite into the left-hand side of the pitch, so they are attacking the blue team's goal.
- ☐ Drag the script from **blue attack** to **red attack**, and modify it to match this:
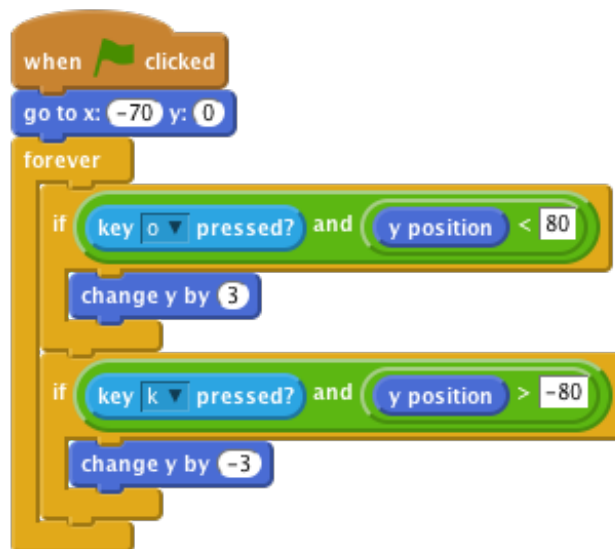
You should only have to change three things: the `x position`, and which keys are pressed.

🚩 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.
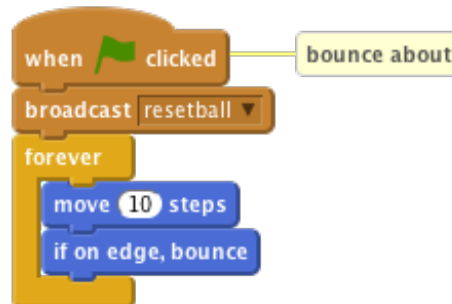
SAVE YOUR PROJECT

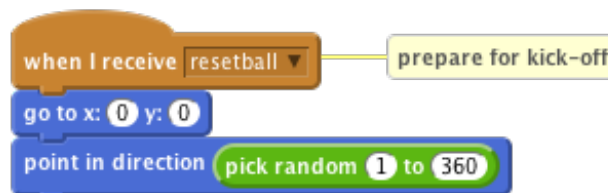# Step 5: Add a bouncing ball

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

✅ Activity Checklist

- ☐ Click `Upload sprite from file`
- ☐ Select **resources/ball.png**, and rename the sprite **ball**.
- ☐ In the `Scripts` tab for the ball, add the following:

```
when [green flag] clicked          [bounce about]
broadcast resetball ▼
forever
    move 10 steps
    if on edge, bounce
```

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

```
when I receive resetball ▼         [prepare for kick-off]
go to x: 0 y: 0
point in direction (pick random 1 to 360)
```

  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`?

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

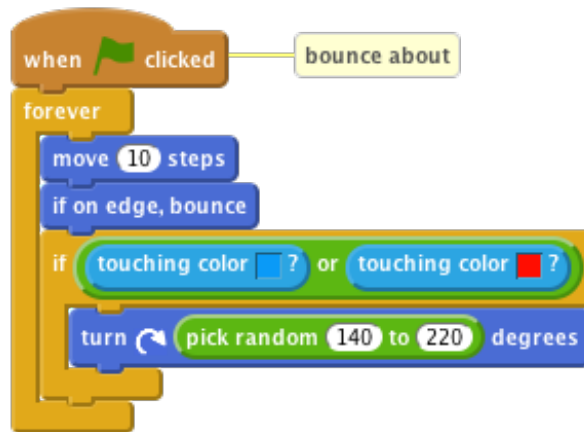## ⚑ Test your project

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?

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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).
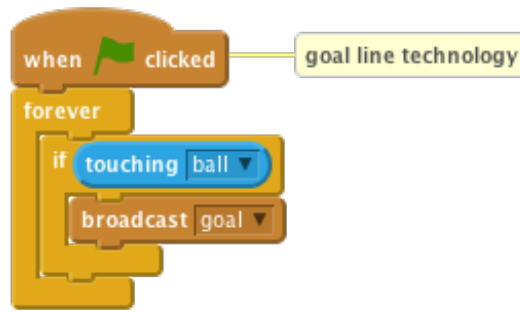

⚑ Test your project

Press the green flag.

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

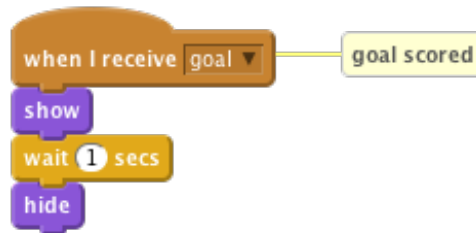**SAVE YOUR PROJECT**

Step 7: GOOOOOOAAAAAALLLLLLLLL!!!!!!!!

✅ Activity Checklist

☐ 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.

☐ Drag the script to **blue goal** to copy it there as well.

☐ Now we need to do something when **goal** is broadcast. Click `Upload sprite from file`.

☐ Select **resources/goal_text.png**, and rename the sprite **goal text**.

☐ Add this script to **goal text**:

☐ Finally, add one more script to **goal text**:
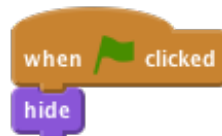
…to ensure the **goal text** begins the game hidden.

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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?