Scratch +

Table Football

All Code Clubs <u>must be registered</u>. Registered clubs appear on the map at codeclubworld.org - if your club is not on the map then visit jumpto.cc/18CpLPy to find out what to do.

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**

①

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.
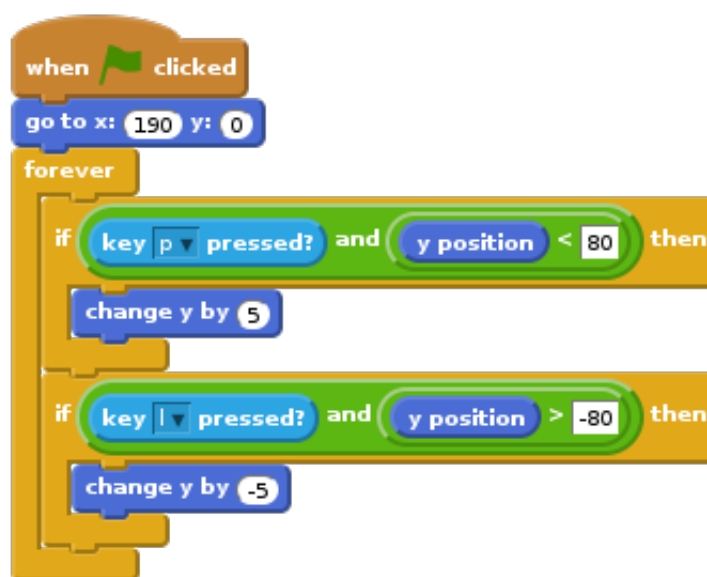
Step 3: Add some more players

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

✅ Activity Checklist

③

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: ☐

```
when ⚑ clicked
go to x: 190 y: 0
forever
  if  key p ▼ pressed?  and  y position < 80  then
    change y by 5

  if  key l ▼ pressed?  and  y position > -80  then
    change y by -5
```

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

④

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 the 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: ☐

```
when 🏳 clicked
go to x: -70 y: 0
forever
    if  key o ▾ pressed?  and  y position < 80  then
        change y by 5
    if  key k ▾ pressed?  and  y position > -80  then
        change y by -5
```

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.
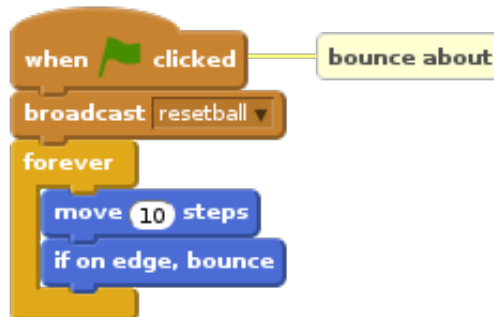

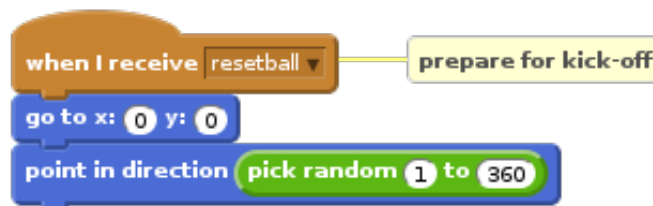🔺 Save your project

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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:


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

4. Right-click on this script and click `add comment`. Add the comment "bounce about".

5. 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`?

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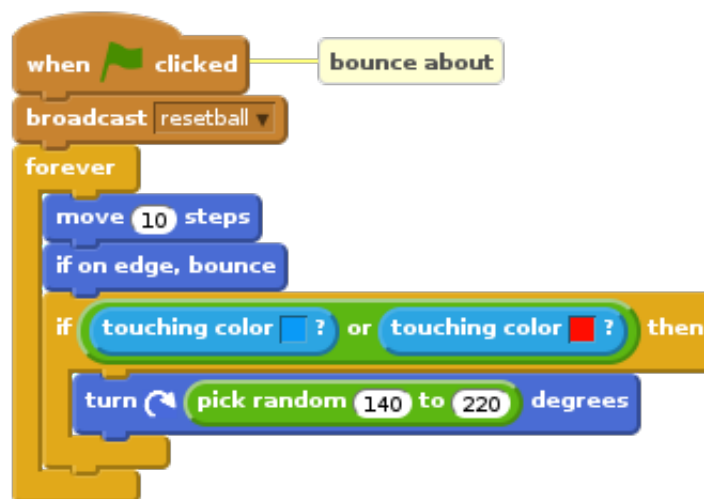
⏏ Save your project

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: GOOOOOOAAAAAALLLLLLLLL!!!!!!!!

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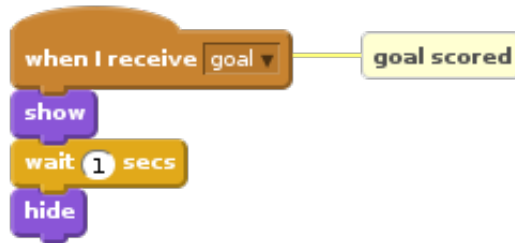
6. Finally, add one more script to goal text: ☐
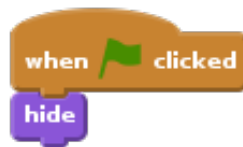
...to ensure the goal text begins the game hidden.

⏏ 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?