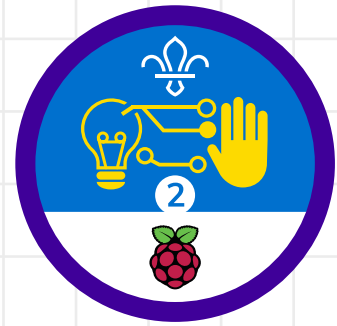


Scratch team chooser

1



Overview

This activity fulfills **Stage 2, Requirement 3** of the **Digital Maker Staged Activity Badge** ('Make a simple digital creation that uses code to interact with the wider world through inputs (such as buttons or typing on a keyboard) and outputs (such as a computer screen, sound, or lights)'). Young people will create a program in Scratch that will ask a user to enter a list of names and the number of teams they would like. Then, the program will create random teams and display them on the screen.

You will need:

- Laptops or desktop computers (one per person or pair)
- Scratch editor (online: rpf.io/scratch-new or offline: rpf.io/scratchoff)
- Activity handouts

If your meeting place has WiFi

Run Scratch online in a web browser using this link: rpf.io/scratchon.

If your meeting place doesn't have WiFi

Download the Scratch Desktop application beforehand; refer to the Scratch guide at rpf.io/scouts-scratch for instructions.



60 minutes



Individuals or pairs



If you're running this activity without access to WiFi, you will need to download the software ahead of time. You may also wish to print handouts.



Wherever you have access to computers

Key messages

- We can talk to computers using external inputs from devices like keyboards.
- We can make short programs that can perform tasks for us.



Leader instructions



- 1** If they have not used it before, introduce the young people to Scratch. Explain that they will be coding using blocks that join together like Lego bricks. Explain that the blocks are colour-coded to make them easy to find.
- 2** Show how to write a very simple program (for example, you could program the Scratch cat to move or say something) and demonstrate testing it.
- 3** Suggest moments that the young people could use their team chooser. For example, they could use it to pick groups for a game or activity.

Community and sharing

- You can share Scratch projects on the Scratch website by logging in and using the 'Share' option.
- You can share your program with younger groups who might need help picking teams but may not have started to learn any coding.

Alternatives



- Create a similar program using different technology (for example, you could try with a micro:bit if it's available).

Safety



Supervise young people when they're online. Give safety advice, and remind them about staying safe online at home.

Adaptability



- You can learn more about using sprites in Scratch by experimenting with the Scratch cat. For example, you could try to make it move or point when it calls out the names.



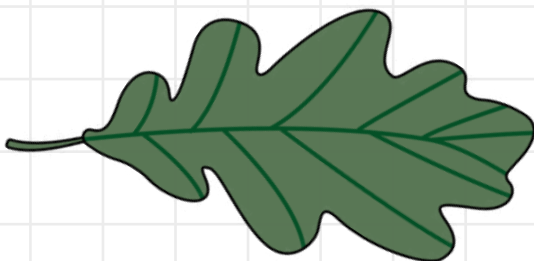
Scratch team chooser

You are going to use Scratch to make a computer program that will ask you to enter a list of names and a number of desired teams, then it will randomly divide the names into your desired number of teams. This will be useful when you need to split a group into smaller groups for games and activities during your weekly meetings.

Part 1: Get input from the keyboard

First, you will create a new Scratch project and ask for the list of names and number of teams from the user.

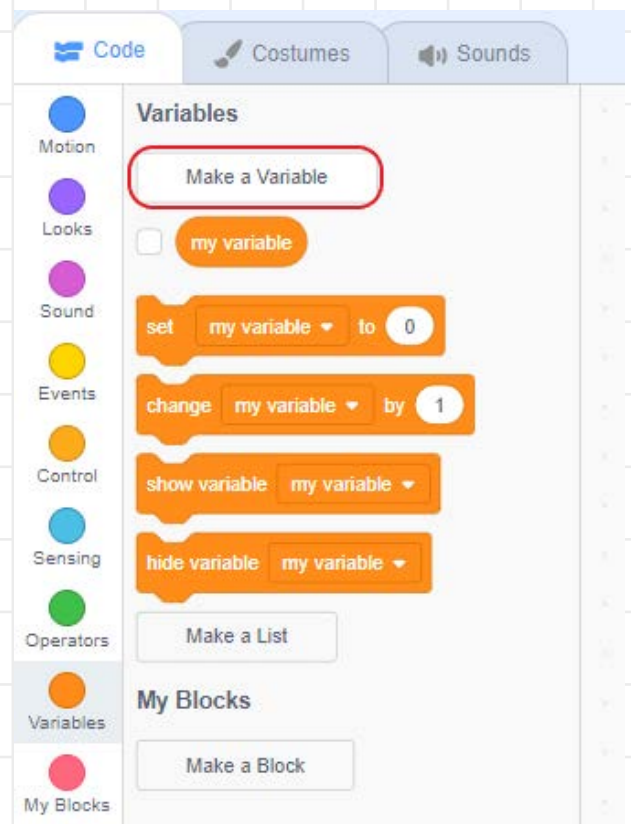
- 1** When you open Scratch, make sure that you are using a new project. To do this, click on 'File', then on 'New'.
- 2** You will need a **variable** and a **list** to store the number of teams and the list of names. To create a new variable, go to the 'Variables' menu and click on 'Make a Variable'. This variable will be for **all sprites**. Name it Number of teams and click on 'OK'.
- 3** To create a new list, go to the 'Variables' menu and click on 'Make a List'. Give it a name (e.g. List of names), then click on 'OK'. The list should also be for all sprites.



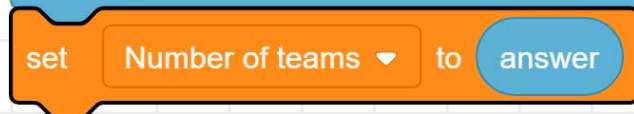
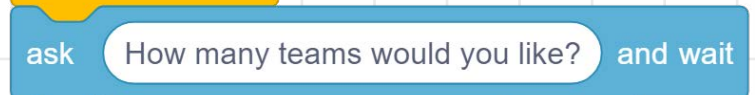
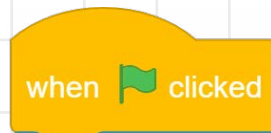
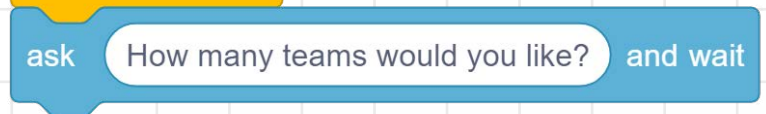
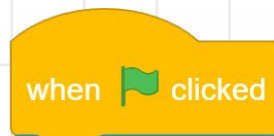
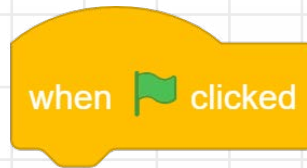
Did you know



The very first version of Scratch was created in 2003!

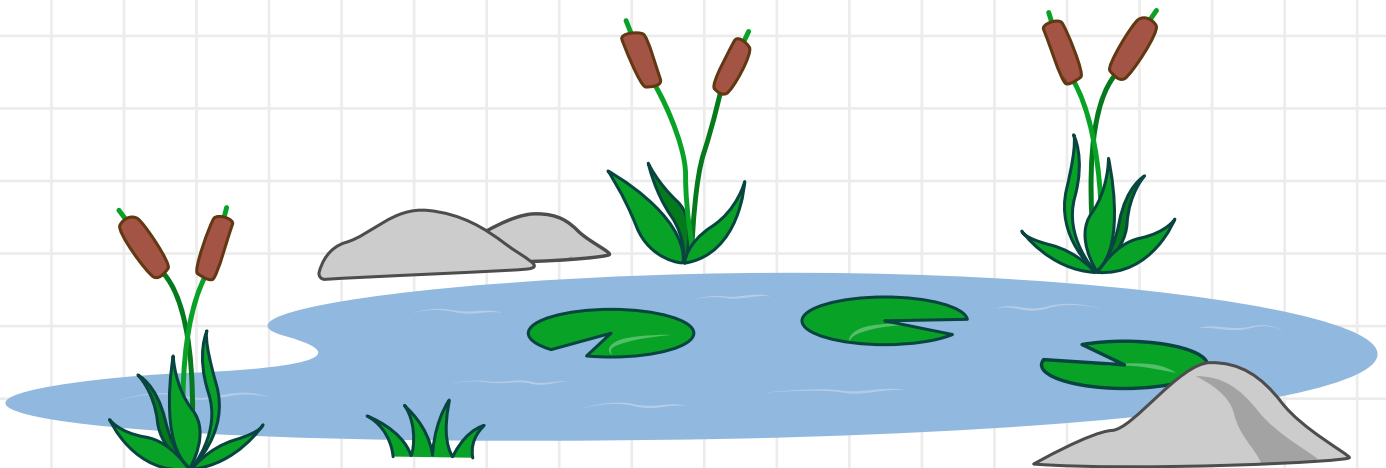


- 4 Add a **when green flag clicked** block to the program from the 'Events' menu.
- 5 Next, you will ask the user how many teams they would like. Add an **ask and wait** block beneath the **when green flag clicked** block. You can find the block in the 'Sensing' menu. Enter the question "How many teams would you like?" into the blank space in the block.
- 6 To put the user's answer into the variable **Number of teams**, add a **set my variable to** block beneath the **ask and wait** block. You can find this block in the 'Variables' menu. Use the drop-down menu in the block to change **my variable** to **Number of teams**. Finally, add an **answer** block into the space in the **set to** block. You will find the **answer** block in the 'Sensing' menu. The **answer** block will store the answer that the user gives to the question in the **ask and wait** block.

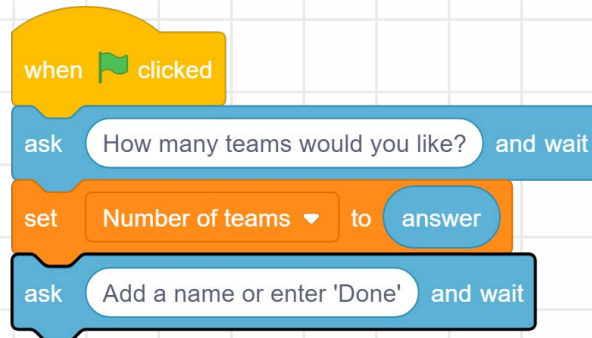


7

It's important to test your code often. Click on the green flag and the Scratch cat should ask you the question "How many teams would you like?". Enter a number, press **Enter**, and the number should appear in the box on the Stage that shows the variable (top left-hand side).



- 8 Now, you will ask for the list of names. First, add an **ask and wait** block beneath the **set** block and type in the instruction “Add a name or enter ‘Done’”. This will ask for the first name.

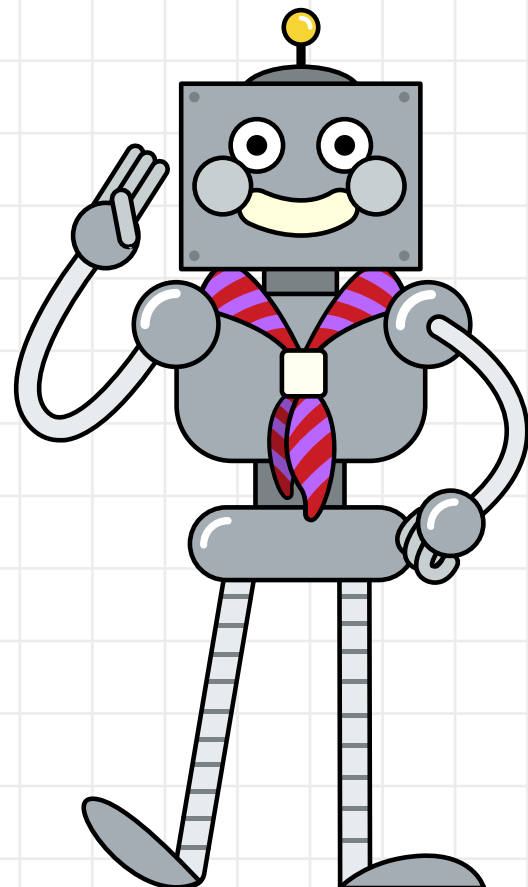
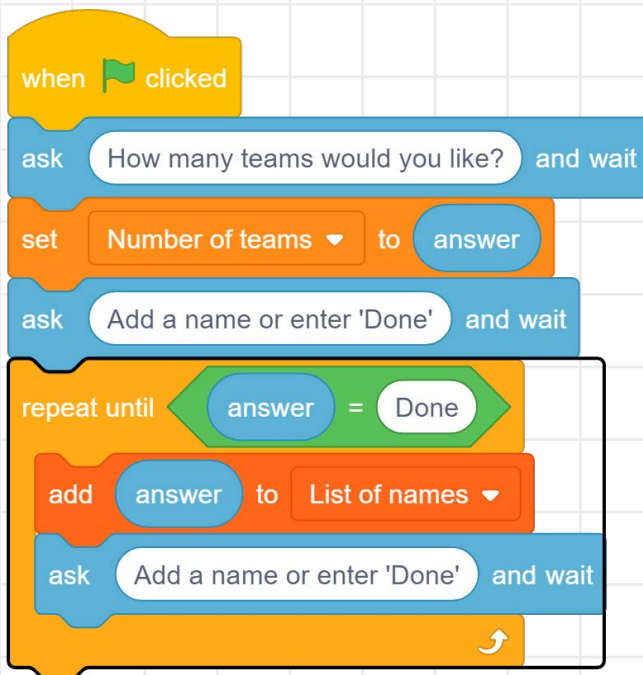


- 9 Add a **repeat until** block from the ‘Control’ menu beneath your **ask and wait** block.

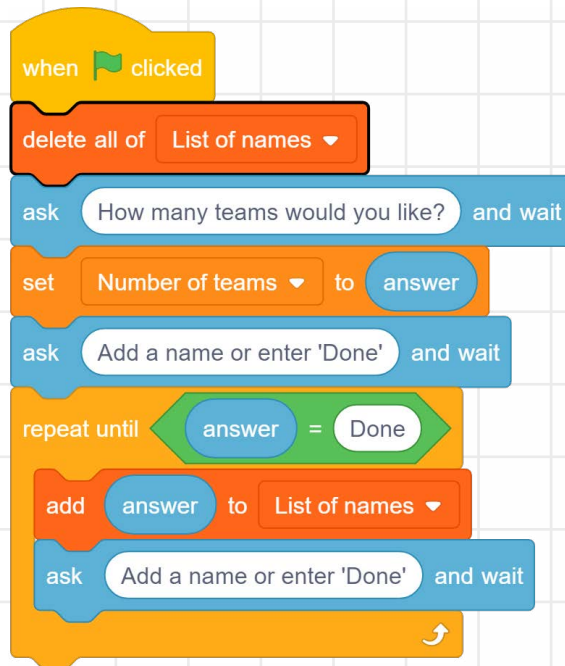
- 10 Select an ‘=’ block from the ‘Operators’ menu. Into this, you can place an **answer** block on the left and the word “Done” on the right.



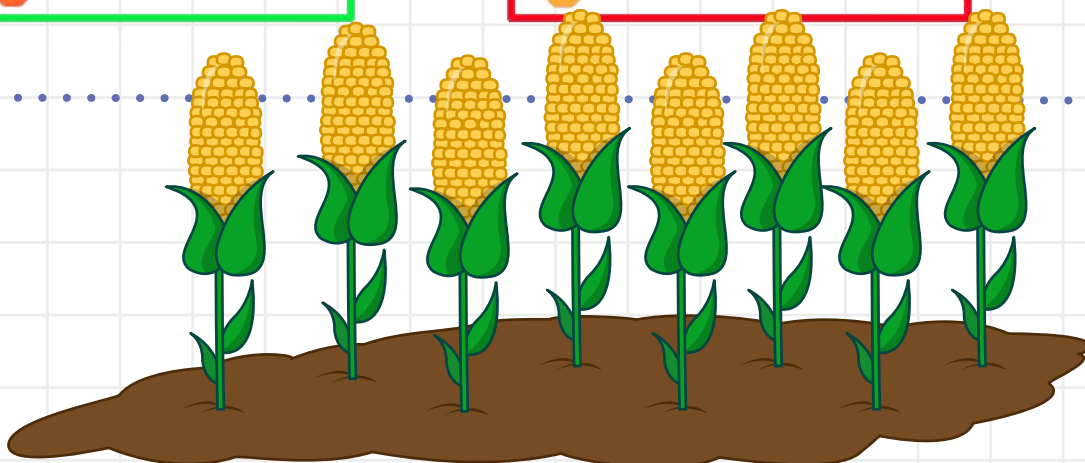
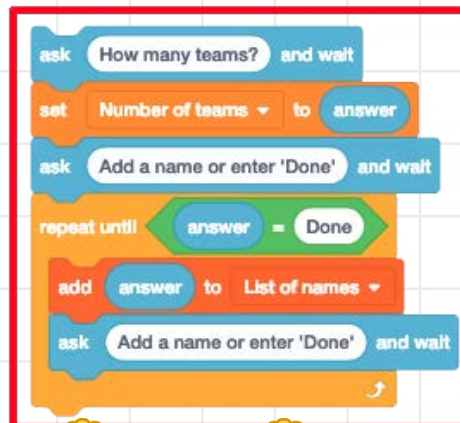
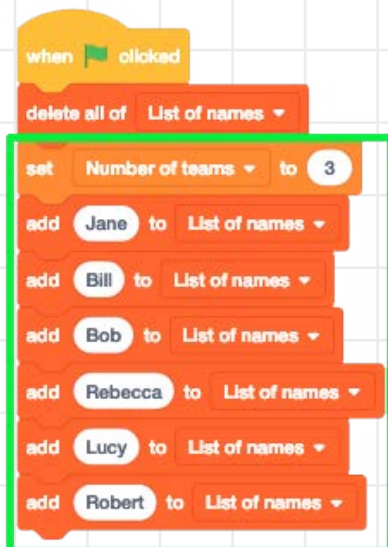
- 11 Use the ‘=’ operator block to keep checking if the user enters the word **Done**. Inside your loop, add an **add to list** block from the ‘Variables’ menu and another **ask and wait** block to repeat the instruction. Your code should look like this:



12 Test your code once more. Can you see your list fill up? If you run your code a few times, you will see that the list keeps the old names. To prevent this, you can **delete all** of your list. Add the block from the 'Variables' menu to the start of your code, directly below the **when green flag clicked** block.



13 To make it easier to test the program, you can use **add** blocks to fill the list automatically. Keep the code that you have already written to the side for later.





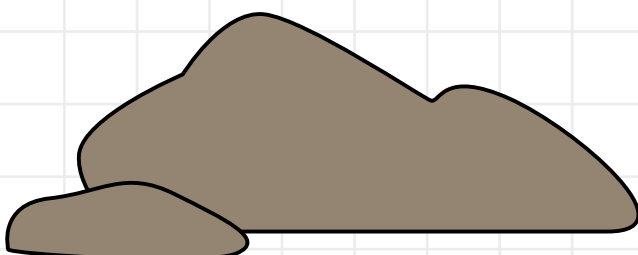
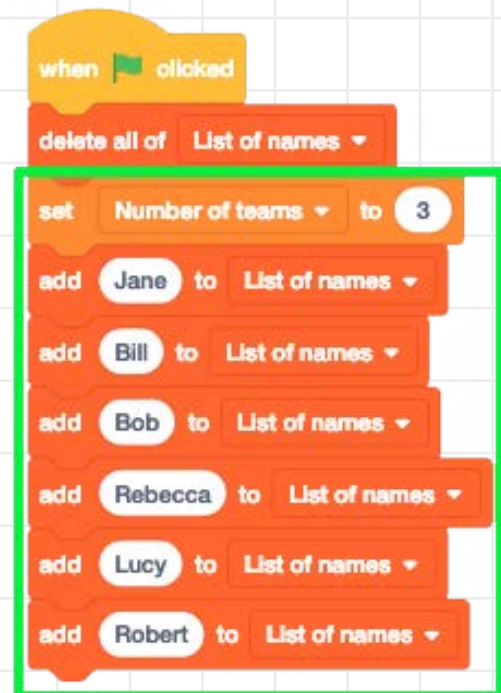
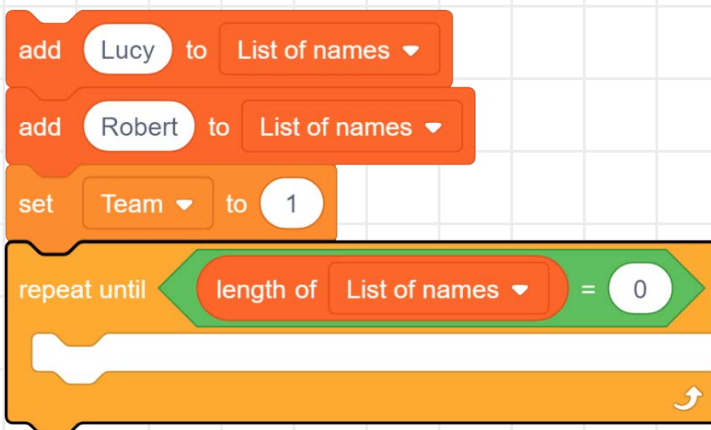
Part 2: Display the teams

Now, you will go through your list and assign a random name to a team. For each name, you will change the team number to keep the number of names per team fair. Then, the Scratch cat will say each name and the team that the person is in.

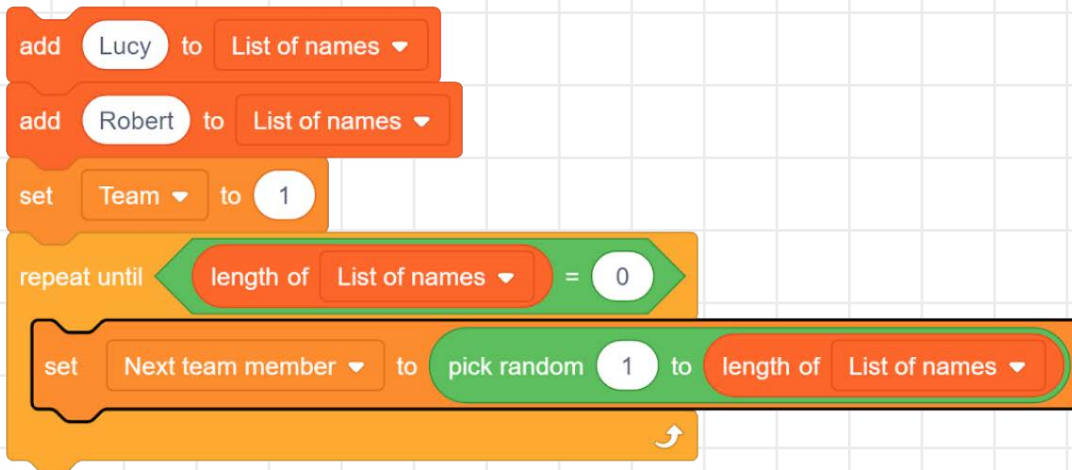
1 Create two new variables called **Team** (to store the current team) and **Next team member** (to store the next team member).

2 Add a **set to** block from the 'Variables' menu to the bottom of your code and set the variable **Team** to 1.

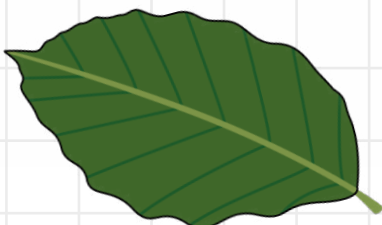
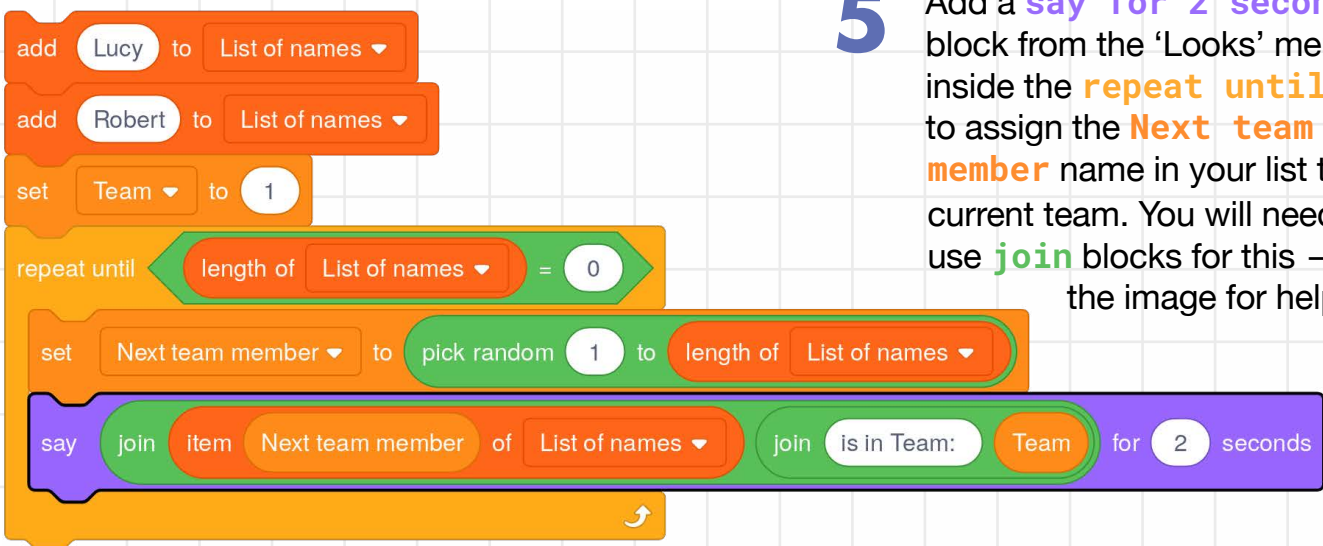
3 Add a **repeat until** block to repeat until the length of the list is equal to 0.



- 4 Use **set to** and **pick random** blocks from the 'Variables' and 'Operators' menus to set the **Next team member** variable to a random number. Add a **length of** block from the 'Variables' menu, so that the program will pick a random number between 1 and the number of names.

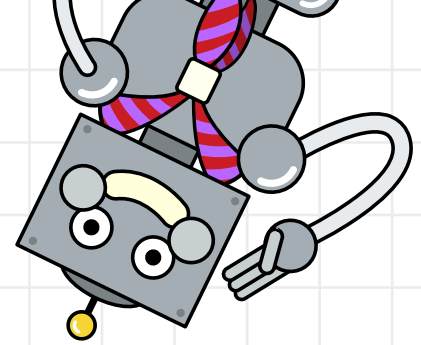


- 5 Add a **say for 2 seconds** block from the 'Looks' menu inside the **repeat until** block to assign the **Next team member** name in your list to the current team. You will need to use **join** blocks for this — see the image for help.



Scratch team chooser

9



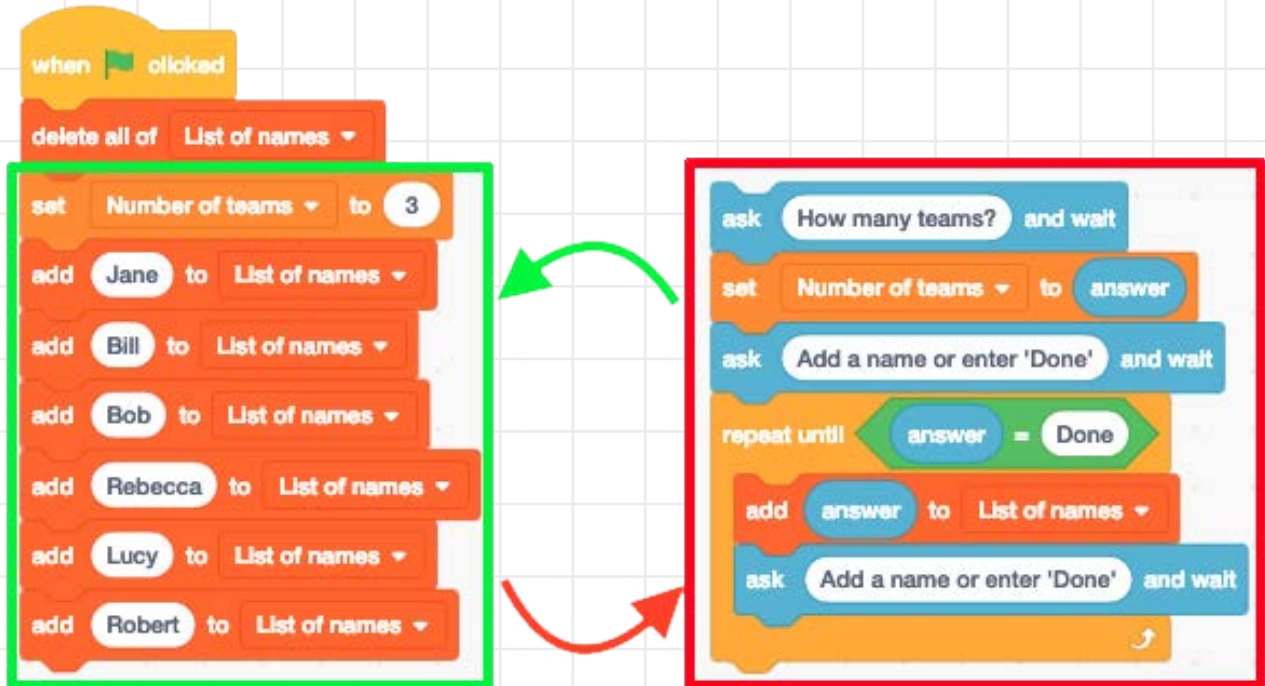
- 6 Add a **delete** block to delete that name from the list and add a **change by** block to increase the **Team** variable by 1.

```
add Lucy to List of names
add Robert to List of names
set Team to 1
repeat until length of List of names = 0
  set Next team member to pick random 1 to length of List of names
  say join item Next team member of List of names join is in Team: Team for 2 seconds
  delete Next team member of List of names
  change Team by 1
```

- 7 You need to make sure that the **Team** variable never goes above the **Number of teams** that the user entered. Add an **if then** block from the 'Control' menu to check for this and a **set to** block to set **Team** back to 1 if it happens.

```
add Lucy to List of names
add Robert to List of names
set Team to 1
repeat until length of List of names = 0
  set Next team member to pick random 1 to length of List of names
  say join item Next team member of List of names join is in Team: Team for 2 seconds
  delete Next team member of List of names
  change Team by 1
  if Team > Number of teams then
    set Team to 1
```

- 8 Test your code to make sure that everything works. You should see the Scratch cat announce each name with a team number beside it and see the list slowly empty as each name is displayed. If your code is working as expected, you can add your code from part 1 back in.



Discuss

What types of games or activities could you use this program for? Think about what it means to be a good team member. Ask the young people to think about the different types of teams that they are part of — it may be a sports team, school team, or another team.

Tip

If you need a block that you have already used, you can duplicate it instead of searching for it again by right-clicking on the block.

