Wokingham Code Club –Scratch session - 6th June 2020

In this session we created a new Scratch project called **Phrasebook**. Phrasebook allows you to enter simple words and phrases in one language and translate them to another. The translation is shown on the screen and is also audible.

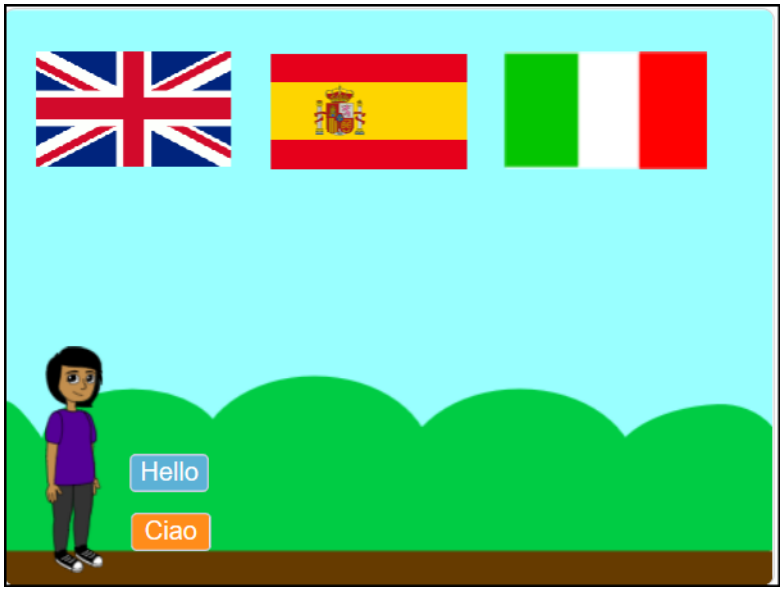
We will start with English to Spanish translations and then add a translation to Italian in the next Scratch Code Club session.

1. Demonstration project

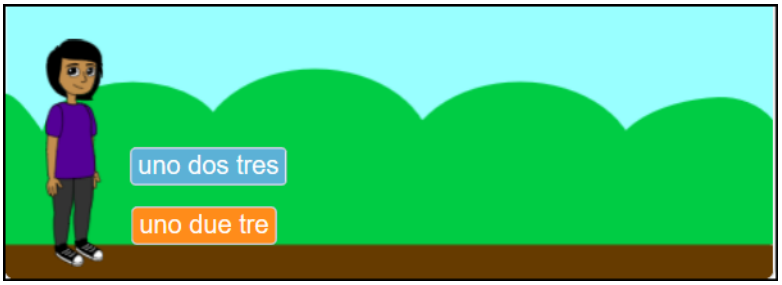
For a demonstration of how the project runs take a look at

https://scratch.mit.edu/projects/404139051/

- click the green flag;
- click the Dani sprite;
- enter the word **Hello** in the **ask** box and click the tick (or the **Return** key);
- click the Spanish flag:
  You should see the translation **Hola** under the word **Hello** and hear it spoken**;**
- click the Italian flag:
  You should see the translation **Ciao** under the word **Hello** and hear it spoken**;**



- now click on the Dani sprite again and enter the word **uno dos tres** in the **ask** box and click the tick (or the **Return** key);
- click the English flag:
  You should see the translation **one two three** under the words **uno dos tres** and hear it spoken**;**
- click the Italian flag:
  You should see the translation **uno doe tre** under the words **uno dos tres** and it spoken**;**

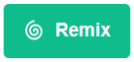


- also note that every time you click a flag the background changes and the flags other than the one clicked are hidden. After a few seconds the background changes back to the 'Home' screen and all the flags are shown again.

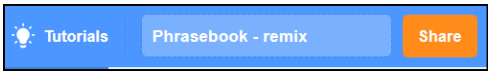
2. Let's go - Open the *Phrasebook* starter project

https://scratch.mit.edu/projects/401319914

- click **Remix**. This automatically saves your project:

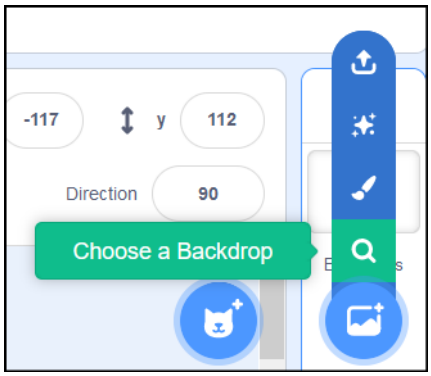


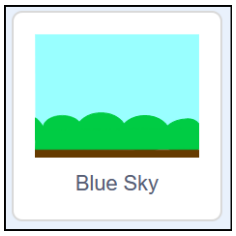
- give your project a new name, if you want to:



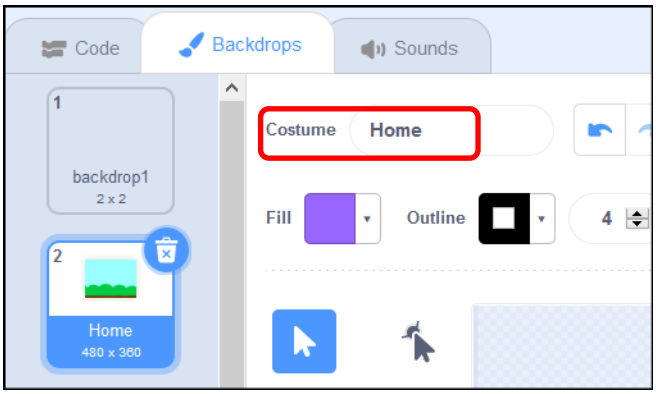
3. Set the Home screen and character sprite

- create a new background for the Home screen using the **Choose a Backdrop** option:

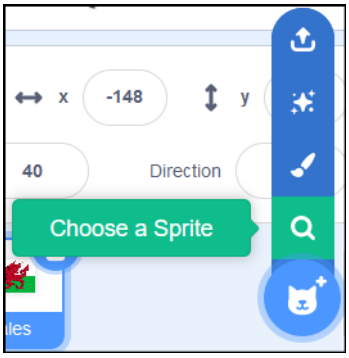


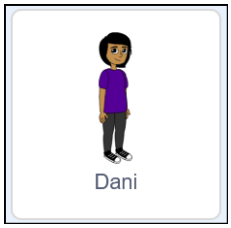


- in the **Backdrops** tab - rename it to **Home:**



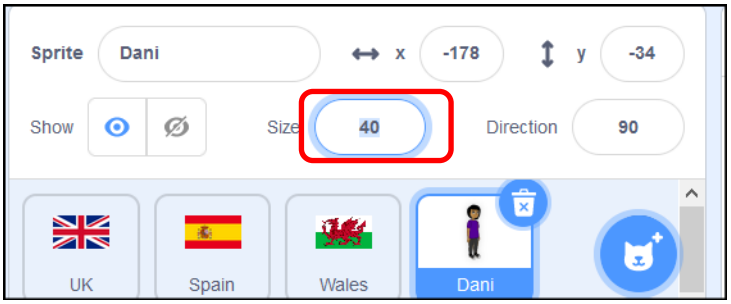
- create a new sprite choosing the **Choose a Sprite** option:



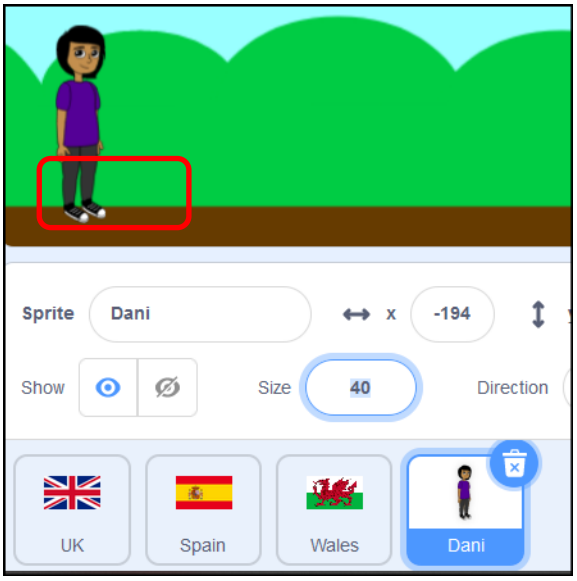


- the Dani sprite is a bit big so:

  set the size to 40% or 50%;



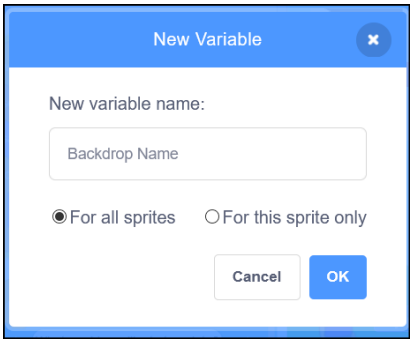
  reposition so Dani's feet are on the 'ground'.



4. Set loop for painting the backdrop

- we want to change the backdrop every time we click a flag; we also want it to switch back to the Home screen after a translation;
- first create a variable to store the **Backdrop Name**

ensure **For all sprites** is selected

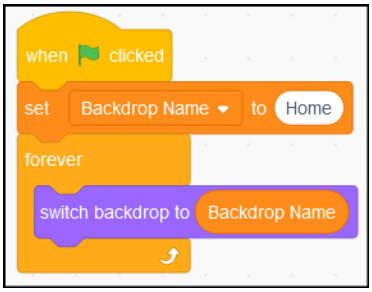


- click on the Dani sprite and add a **when green flag clicked** block:

  set the **Backdrop Name** to **Home;**

  set up a **forever** loop to set the backdrop:

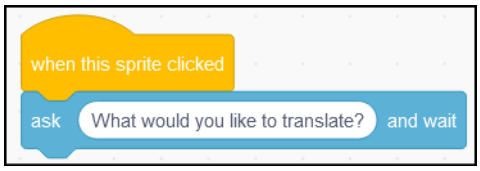
  note that it is possible to drop a variable into the 'drop list'; the contents of the variable must match one of the backdrops that have been defined.



5. Get the phrase to be translated

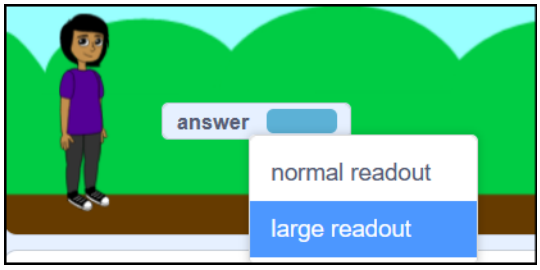
- get the **Dani** sprite to tell you how to work the program, so add another **when green flag clicked** blocks:

- now add a **when this sprite clicked** block:



- tick the **answer** variable in the **Scratch block palette** to make it visible on the **Home** screen:

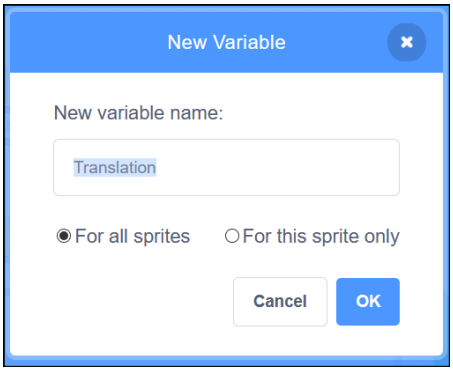
- default position for **answer** is top left; move **answer** to alongside sprite and choose **large readout**:



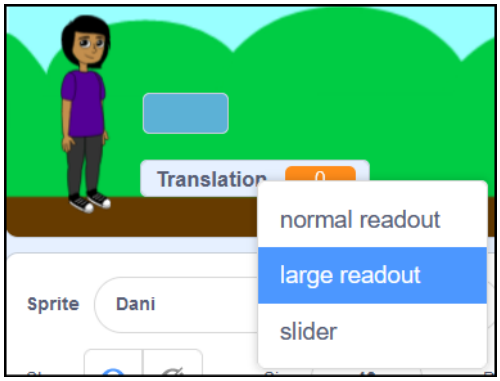
Note that if we wanted to use another ask in the program we would need to save our answers in different variables to prevent them from being overwritten. Phrasebook only needs to ask one question, so we can make use of the answer variable that is inbuilt in Scratch.

6. Set up variable for storing & showing the translation

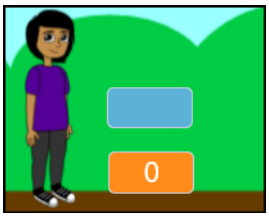
- create a **Translation** variable & make it available for all sprites



- tick the **Translation** variable so it is visible on the **Home** screen:
- move **Translation** to underneath the **answer** variable and choose **large readout**:

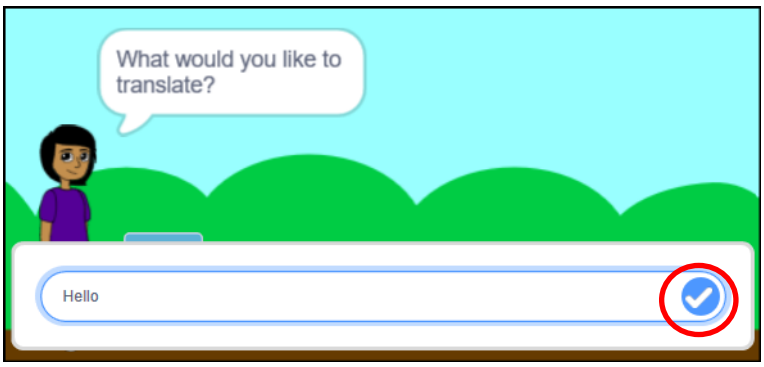


- the **Translation** variable defaults to **0**:

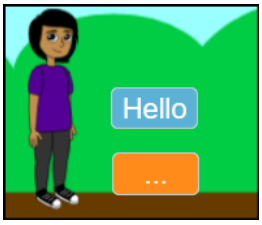


- click on the Dani sprite - add a **set Translation** block to set the empty translation to "**…**";

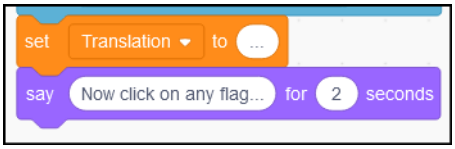
- test code by clicking the Dani sprite and entering a word (e.g "**Hello**") into the Ask box that appears;



- click the tick (or press the Return key) and you should see :

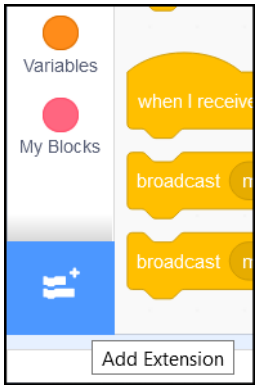


- get the Dani sprite to tell you what to do next by adding a **say** block:

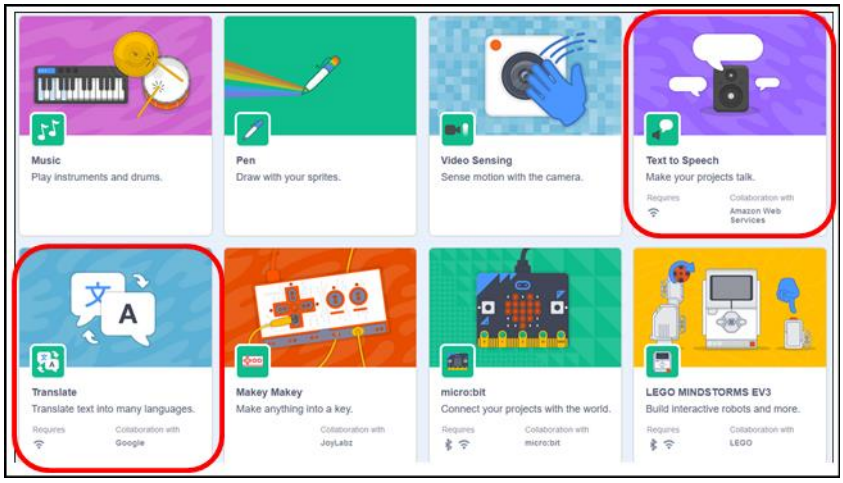


7. Load the Translation & Text to Speech extensions

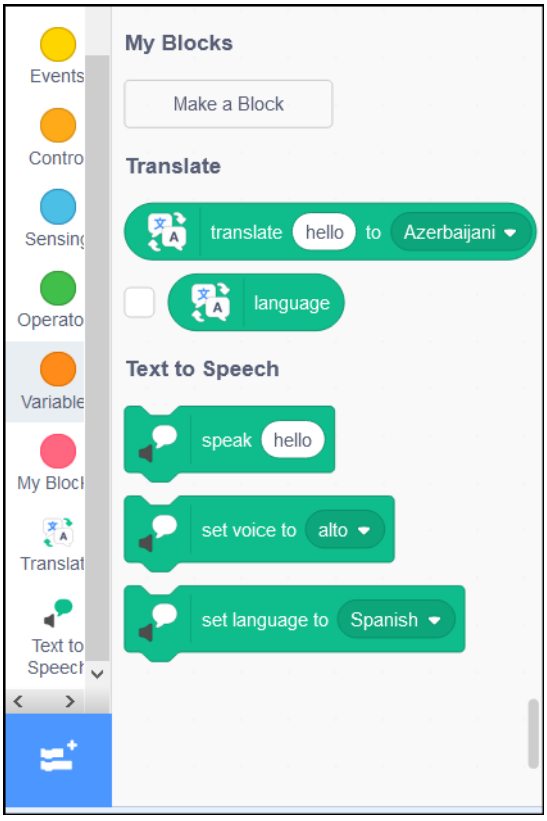
- click on the **Add Extension** button at the bottom left:



- click on the **Translate** option & repeat for the **Text to Speech** option:



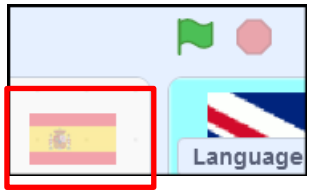
- should see the new blocks that are available:



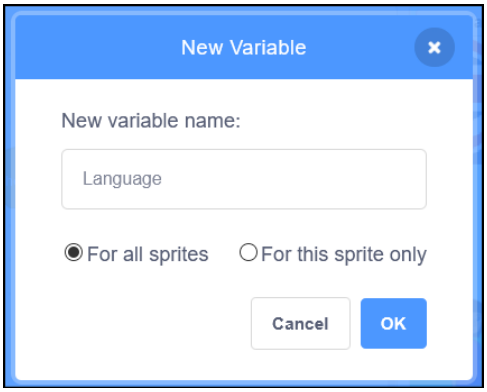
In the image above you can see that the Code Palette (left hand pane) now has a vertical scroll bar. This is because there are more section blocks than can be displayed at the same time. If you have a big screen you may not see this.

8. Translate the Phrase into Spanish

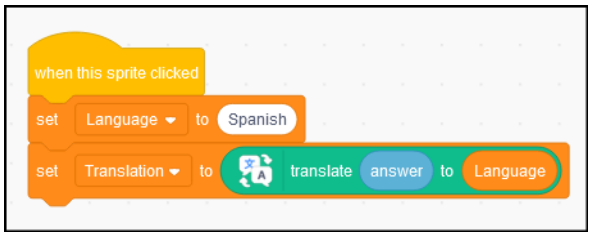
- click the **Spain** flag sprite; make sure the spite appears in the top right of the Code window:



- create a **Language** variable & make it available for all sprites:

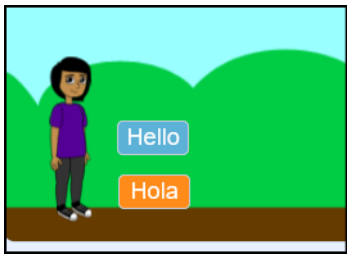


- add code to **when this sprite is clicked** to do the translation:

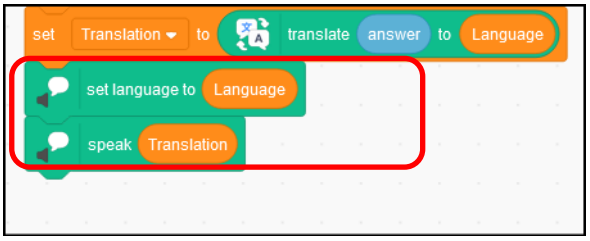


*Note that the **translate** block has a drop list of counties. It is possible to add own variable (in this case **Language**) instead. The replacement must be a country name that is in the list.*

- test the code by clicking on the Spanish flag – the translation should now be visible on the screen:



- and now add **set language to** and **speak** blocks from the **Text to Speech** section to 'speak' the Translation:



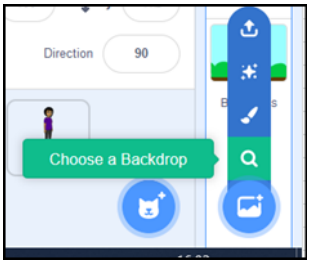
- test the code by clicking on the Spanish flag again – you should hear the translation in Spanish; *you may need to adjust the volume controls on your PC*

- it is possible to change the voice of the spoken translation. To do this you need to add the **set voice to** block from the **Text to Speech** section:

- Experiment with the different options – **alto, tenor, squeak, giant** and **kitten**. *Can you think of a reason why you'd want to use the kitten option?*

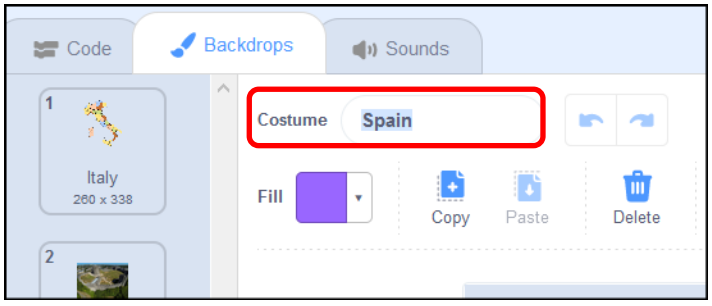
9. Set a background for Spain

- Open the Choose a Backdrop screen:

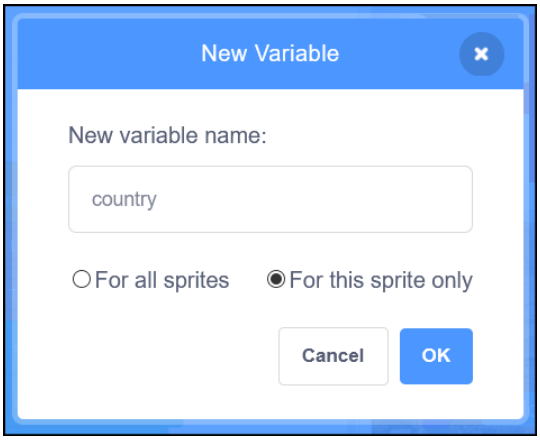


- pick the Canyon option, or anything you like:

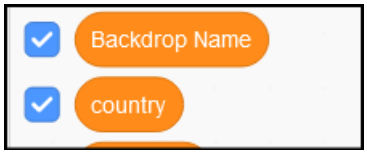
- in the **Backdrops** tab - rename it to **Spain;**



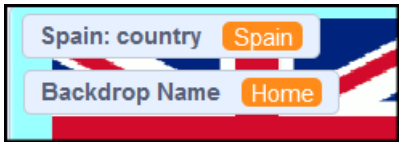
- click on the **Spain** sprite - create a variable called **country** & set it **For this sprite only:**



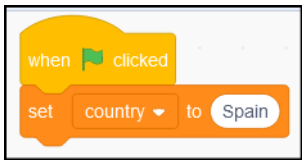
- *note that you can always check if your variable is **For this sprite only** or **For all sprites** by displaying the variable in the Stage area. A variable **For this sprite only** will be prefixed by the name of the sprite, as in the screen shot showing the **country** variable for Spain below.*



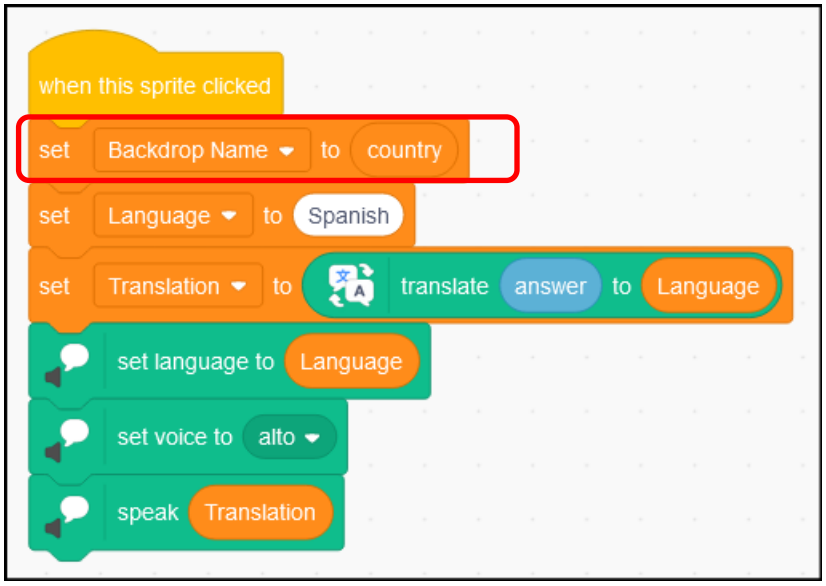
Local variable is prefixed with sprite name;
Global variable doesn't have sprite name.



- click on the **Spain** sprite - initialise the **country** variable in a **when green flag clicked** block:



- in the **when this sprite clicked** code insert a set variable block to set **Backdrop Name** variable to the **country** variable:



- test the code by clicking on the Spanish flag – *note that backdrop changes due to the **switch backdrop** block that we put in the **forever** loop in the **Dani** sprite code (see paragraph 4).*

This completes what was covered during the Scratch session. The project is to be completed in the Scratch Code Club session on Saturday 20th June 2020.