



SCRATCH

Booklet 3

- Sensing
- Operators
- Variables
- Sounds
- El Torro Game

Game Control

Sensing



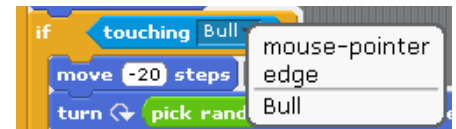
The sensing blocks are used to make a Sprite react when coming in contact with something around them or another object on the stage

In the bouncing teacher game, we used to get the Sprite to 'bounce' back if it touched the edge of the stage



You can use the touching block to sense three separate things:

- the mouse-pointer
- the edge [of the stage]
- another Sprite [in the example "Bull"]



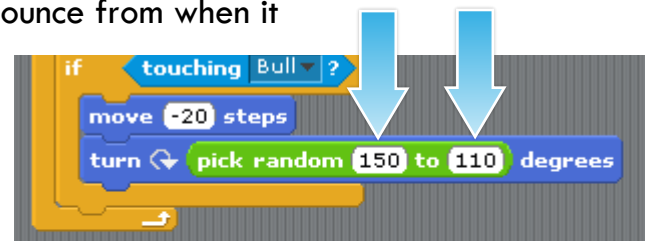
You can also program your Sprite to sense colours on the stage this is particularly useful if you are getting a Sprite to follow a track, course or racetrack on the stage.

Operators



The operators blocks are used to build in calculations or computer-generated decisions into your game.

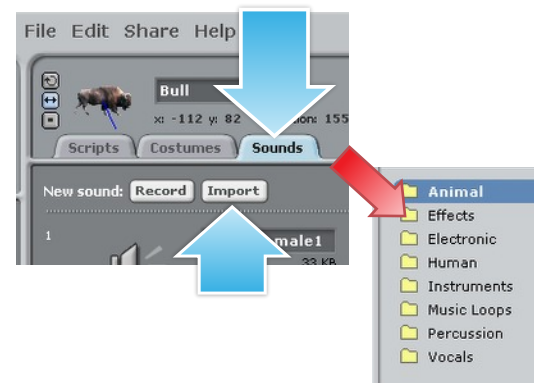
In the Bouncing Teacher game we used an operator to select a random angle between two degree values for the teacher to bounce from when it sensed the edge of the stage



Sounds



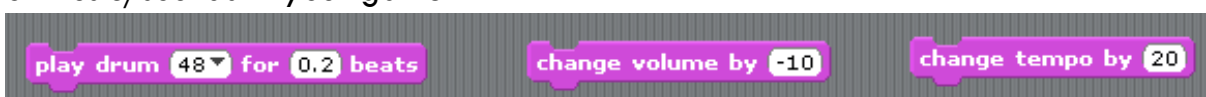
To use sounds you must first import sounds by clicking the sound tab and click import. Then select the sound clip from the different folders



The sound blocks can be used to make a Sprite play a certain sound



The blocks can also be used to play preset drums, change the volume, or the tempo of music/sounds in your game



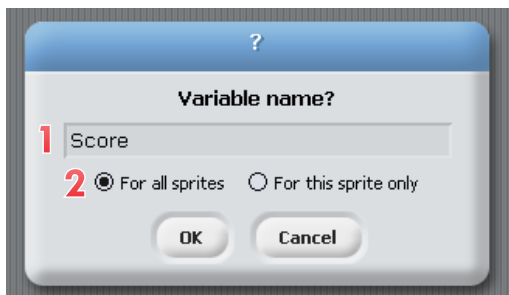
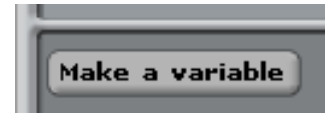
Game Control

Variables



Variables are primarily used to set up Scores in a game

To set up scoring in a game, start by clicking **Make a variable**



This will load the variable box.

- 1 Name the variable
- 2 Choose whether all sprites will score on the same system

2 If you have two sprites doing two different things in a game, you may want to set up separate scoring for each sprite

This will then load the scoring blocks.

This block will set the score to a defined value

This block will change the score up or down by a chosen increment

This block shows the score

This block hides the score



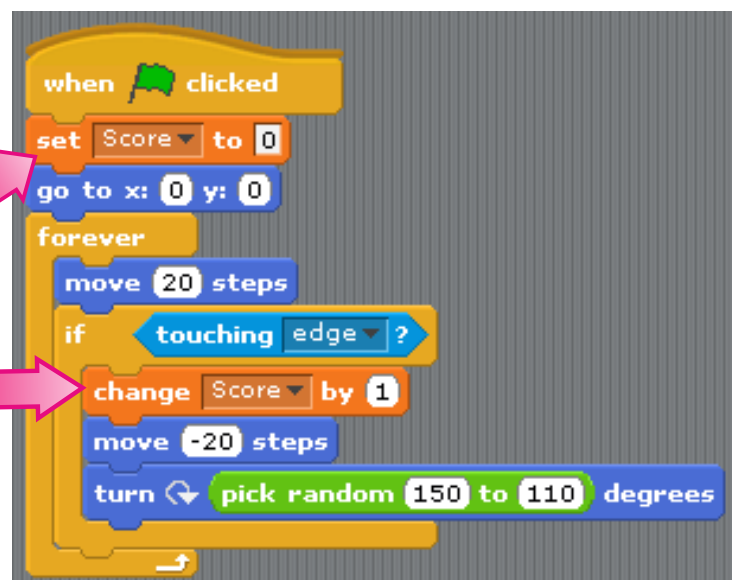
It is good practice to start a game with the score at zero

Under the first control block "When clicked" drag the "Set Score to 0" block

Looking at the Bouncing Teacher game created last lesson

This sequence starts the game with the score at zero

Each time the Teacher touches the edge of the stage then they get one point



Game Control

El Torro Game

The El Torro game pits the mighty Bull against the swooping Parrot. The aim of the game is to avoid the moving bull but using the arrow keys to fly the Parrot around the stage.

A point is awarded for each time the bull touches the edge of the stage. The game will buzz if each time you get a point

You loose all your points if the bull touches you. The parrot will scream if the bull touches you.

To start make the game, open Scratch and follow the instructions.

Setting up the background

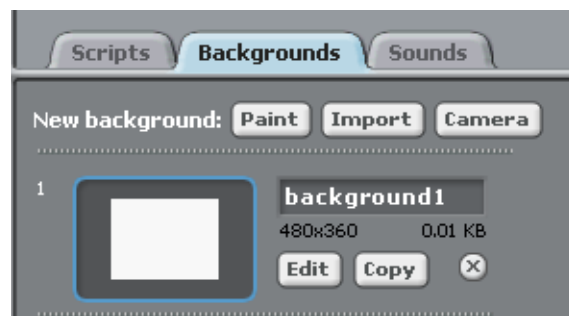
1



Double click on the stage button located to the right of the script panel

Click on the Backgrounds Tab at the top of the panel

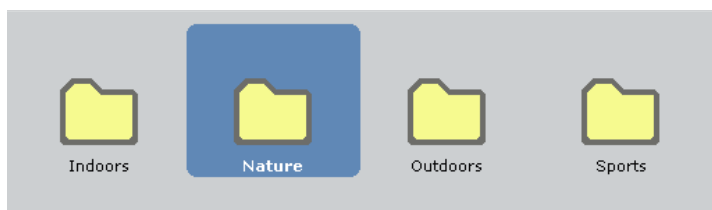
Click Import



2

Choose a background from one of the folders that loads

3



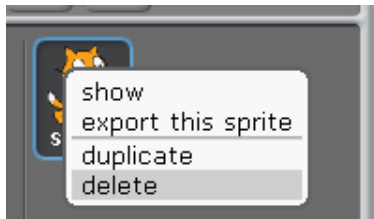
Check the background has loaded correctly



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Game Control

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Delete the default sprite by right clicking and selecting **delete**

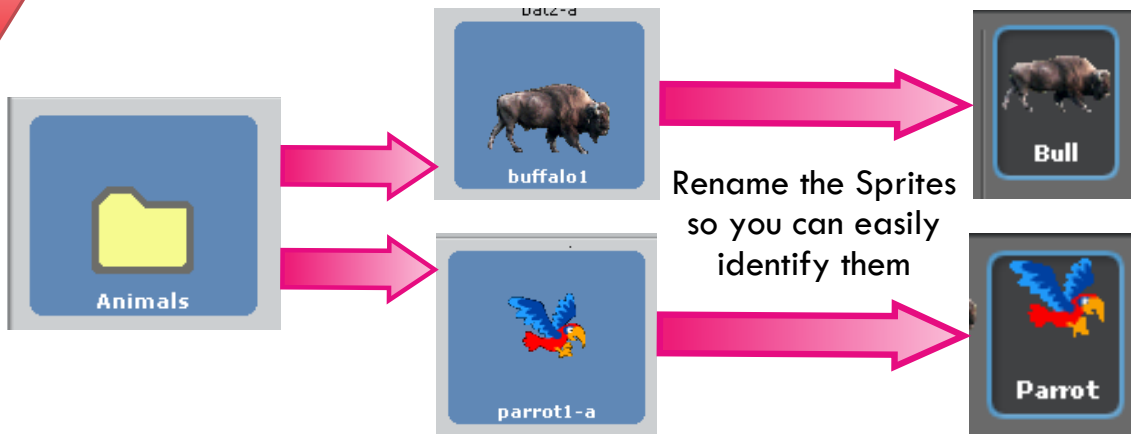
Import two new sprites by selecting the open new sprite button



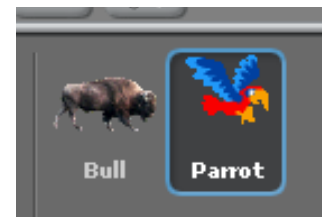
6

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Open the animals folder and find the Bull, repeat step 6 and find the Parrot

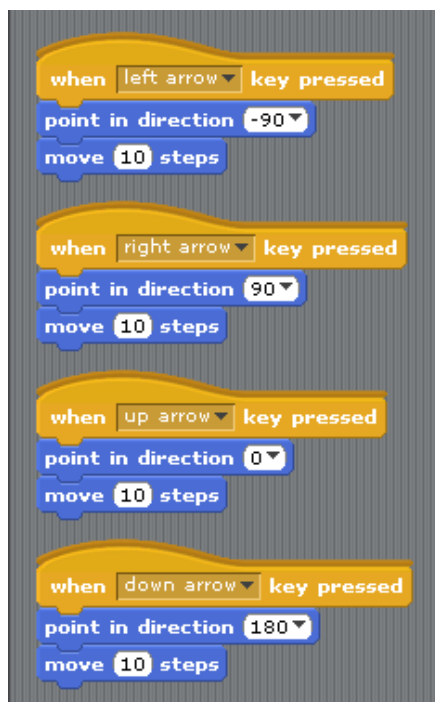


Double click on the Parrot to open the script panel for that Sprite



8

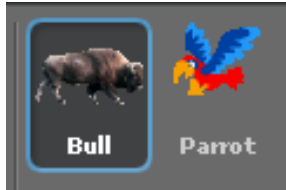
9



Program the Parrot to move based on the arrow keys as we did in the first and second lesson

Game Control

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Double click the Bull to load the script for that Sprite

Start the Bull's script with the when flag clicked

Set the score to 0 using the **Variables** block

Set the Bull to start in the centre of the stage using the motion block



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Add a forever loop

Add a move 10 steps motion block

Add a wait control block

Set the value to 0.025 secs

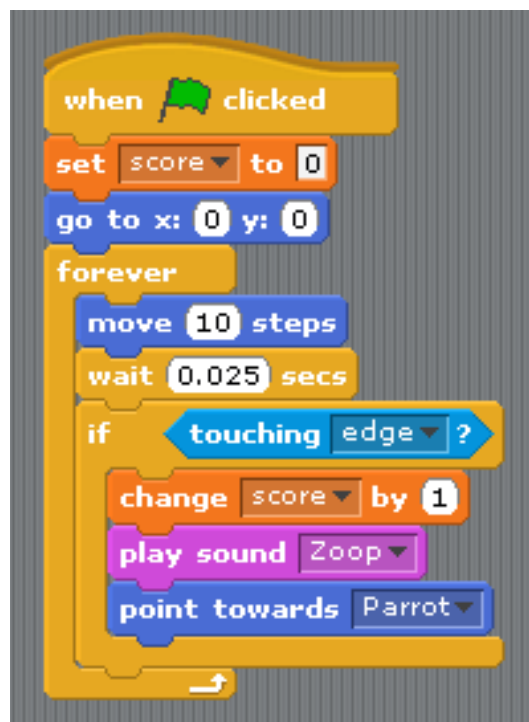
This will slow the bull down slightly

Add in an 'IF' control block

Add a **Variables** 'change score by 1' block

Add in a **Sound** for the score

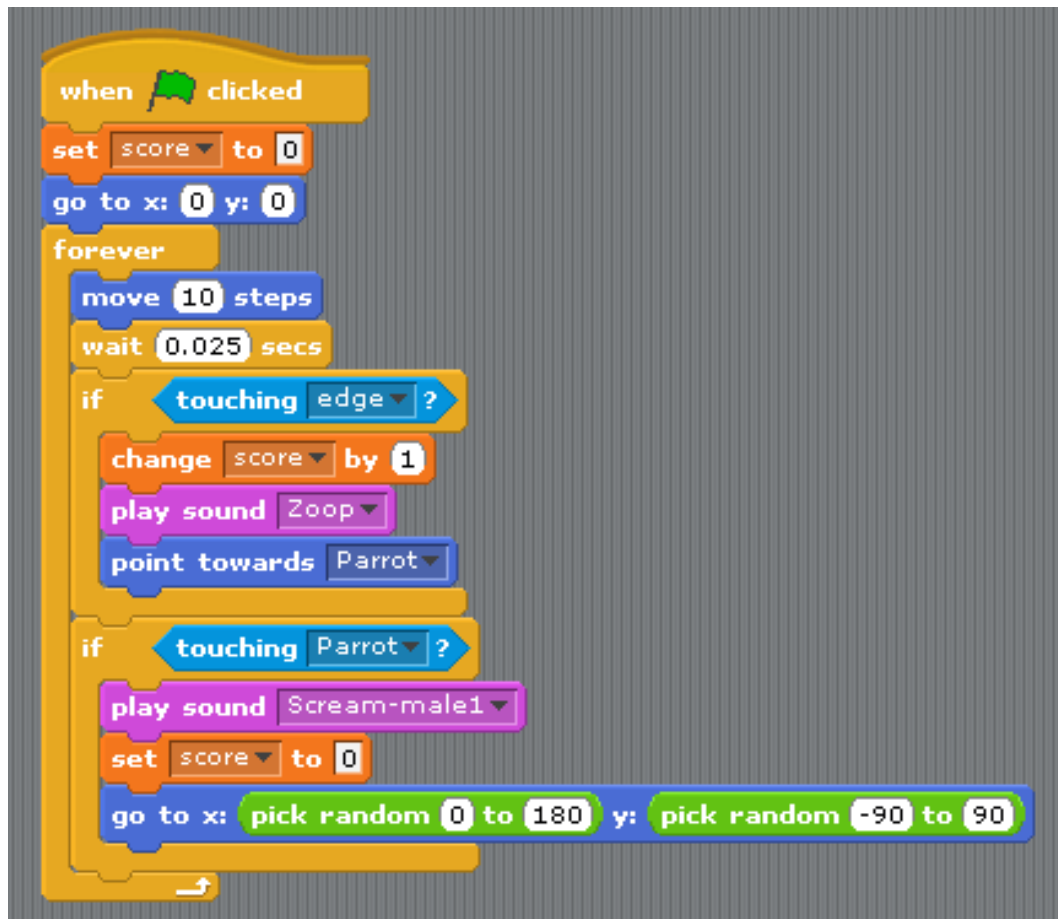
Add a **Motion** block 'point towards Parrot'



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Game Control

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Add in a second if statement

Use a **Sensing** block - 'touching Parrot'

Add in **Sound** for when the bull touches the parrot

Add in a **Variables** block which sets the score to 0

Add in a **Motion** block

Add in two **Operators** blocks to pick a random co-ordinate for X and Y

X



Y



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Test your game to check it works properly.

You should:

- Be able to move the parrot using the arrow keys
- See the Bull move on its own accord, it will face the parrot when it hits the edge of the stage
- Get a point each time the Bull hits the edge of the stage
- Lose your points if the bull hits you

File > Save as
Save the project in your documents
as El Torro Game

Take a printscreen and paste
into your project diary.
Then complete your diary for this lesson