SCRATCH 2 BUTTON CHALLENGE

The Challenge...

The challenge is simple...

Create a game with Scratch, but you may only use two buttons to play the game...

Selection...

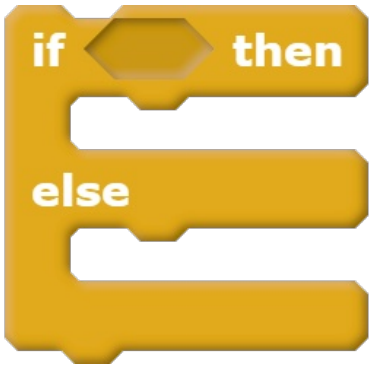
1 To make our game respond to button presses, we will make use of something in computer programming called "**selection**". Using selection we can get our programmes to make decisions based upon user input.

With selection we tell our program that "**if**" this event happens do "**this**", "**else if**" another event happens do "**that**".

In Scratch we will make use of the "**if ... then**" block. It looks like this.

You can insert whatever type of sensing block you want into the space.

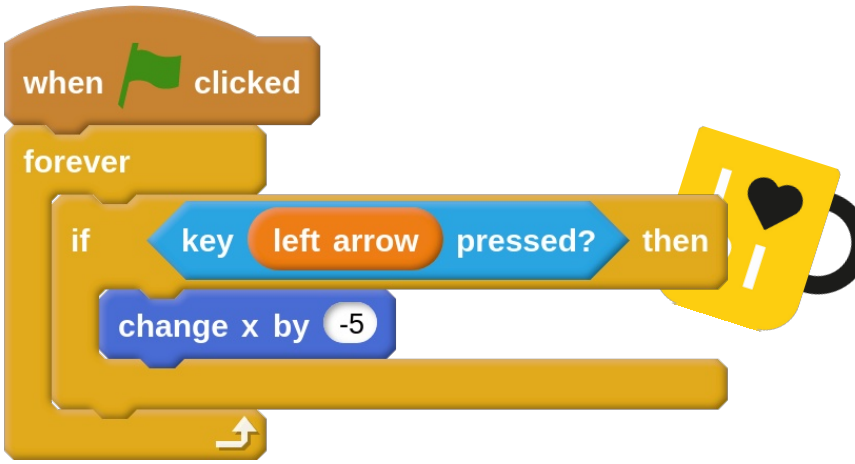
Sometimes we will want our program to do something different if we do not press a button. In this instance we will use the "**if ... then ... else**" block. This block looks like this.



In the next section we will create our own basic program which moves a character around the screen using two buttons.

Move a character...

2 Open Scratch 2 from the Programming menu and make sure you have the "**Scripts**" tab open and you have the Scratch Cat sprite selected.



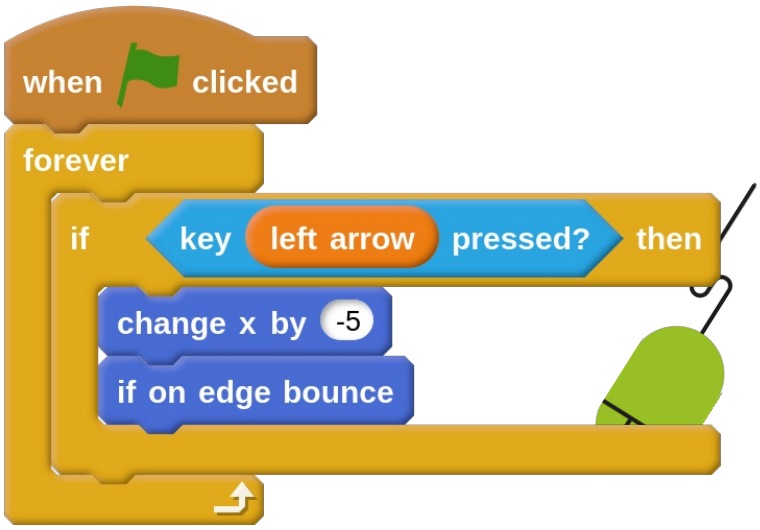
We are then going to add five blocks together to make the start of our program.

Press the green flag to run your program and see what happens to your character when you press the left arrow on your keyboard.

A problem...

3 We have a problem that needs to be solved...

If we keep pressing the left arrow we will walk off the edge of the screen! We can use the "**if on edge bounce**" block to solve this.



Adjust your blocks so they look like this.

Move right...

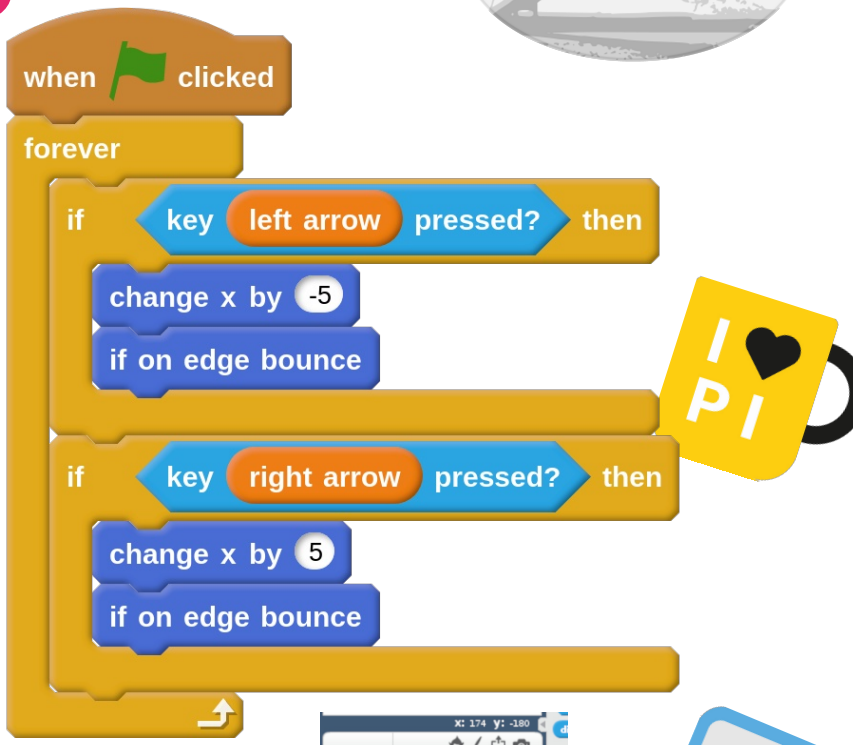
4 Now we can move left and not walk off the edge of the screen; great!

Can you work out what you need to add to be able to walk right too?

Hint: You will need a second "**if ... then**" block inside the "**forever**" loop! Go to the next page to see a solution if you are stuck!

Move right - a solution

5 Here is how your blocks should look now to be able to move your character left and right.

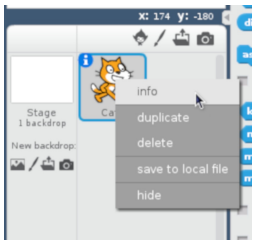


Test it out. What happens when you reach the right hand side?

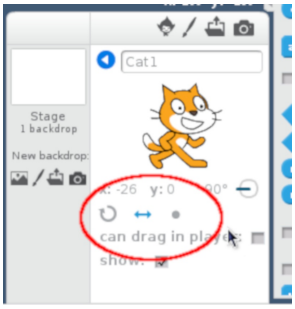
Your sprite flips upside-down! Let's fix that now...

Problem 2...

6 We have another problem! When we bounce on the right-hand edge of the screen, our cat flips upside-down!



We can fix that by adjusting the rotation of the sprite. Right click on the Scratch Cat sprite in the sprite pallette at the bottom and select "**info**".



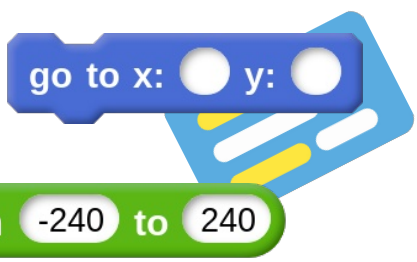
You then need to select the straight arrows to stop your sprite from rotating.

Dodge the crab

6 Great; so we have a character we can move across the screen; but it's not the most exciting game is it?

We are now going to add a new sprite that will "**fall**" down the screen at a random point until it gets to the bottom. It will then reappear at a random point at the top and fall down again. We will have to try and dodge the falling cows!

Add a new sprite. To make it appear at the top of the screen we can use the "**go to x: ( ) y: ( )**" block and to make the position random we can add a "**pick random ( ) to ( )**" block for x value setting the range from "**-240**" to "**240**" and setting y to "**180**"

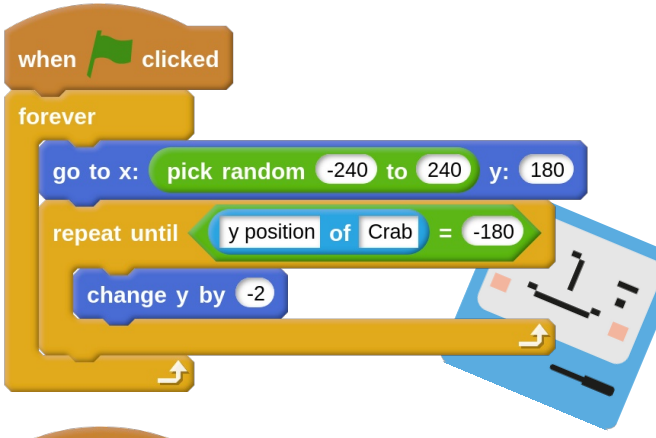


Dodge the crab continued

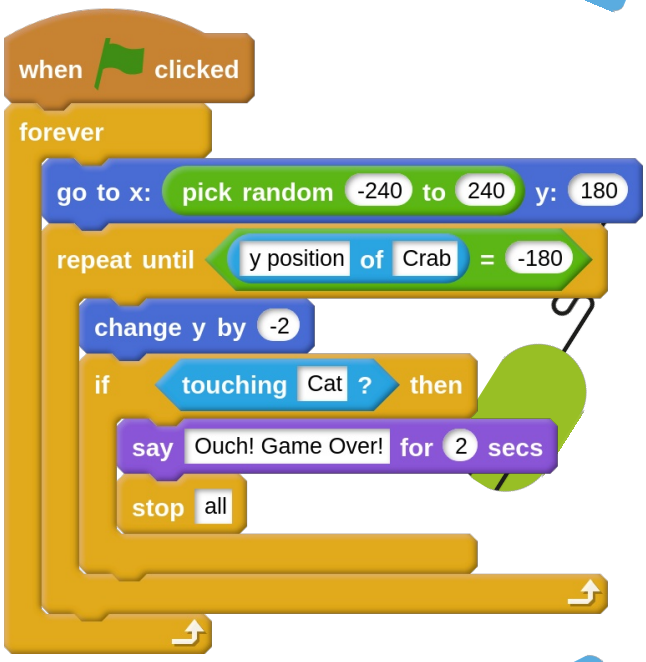
7 So now we can get our crab to appear at a random point on the top of the screen; we need to think about how we put the whole crab program together.

We want it to start as soon as we click the green flag, so that will be our first block. We then want the crab to keep appearing once it gets to the bottom, so we will put it all insde a "**forever**" block. Next comes our "**go to x: y:**" block. Putting that together we should have the following.

If we run our program now, our crab just keeps appearing at random locations across the top the screen. We can use the "**repeat until...**" block to help us here. We want to keep decreasing the value of the y position of our crab until it reaches the bottom of the screen. It should then reappear at the top. Adjust your blocks to match this.



Almost there... We now need to the game to stop if the crab touches the cat. We will use another "**if ... then**" block to do this. We will have the crab sprite check if it is touching the cat sprite after every time it moves down the screen. If it is then we will say "**Ouch! Game Over!**" for 2 seconds and then stop all scripts. Adjust your crab program to match this.



Over to you...

8 Make it you own!
There is a folder of different images on the desktop. Use these for your sprites or draw your own!
Can you make the crab move down at a random speed?
Can you add a score?
Can you add a level function?
How about more crabs!