Sprite goes to the next level …

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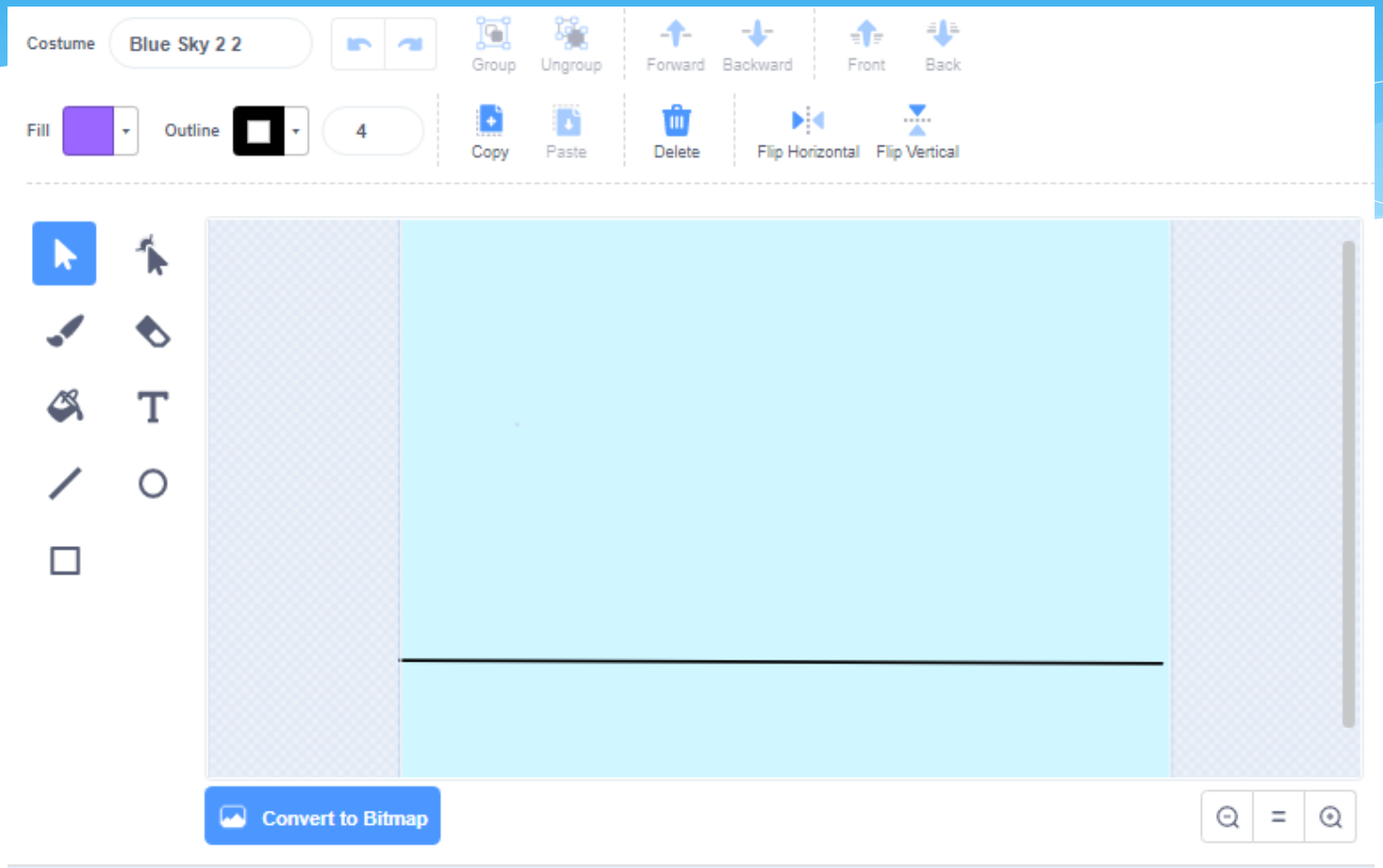
In this lesson …

* We will consolidate what we have learnt so far …
* We will build a simple version of the ‘CHROME DINO’ game.
* We will create TWO levels in this game.
* In the process, we will create a simple scrolling backdrop and use several other concepts that we have learnt.

Rules of the game …

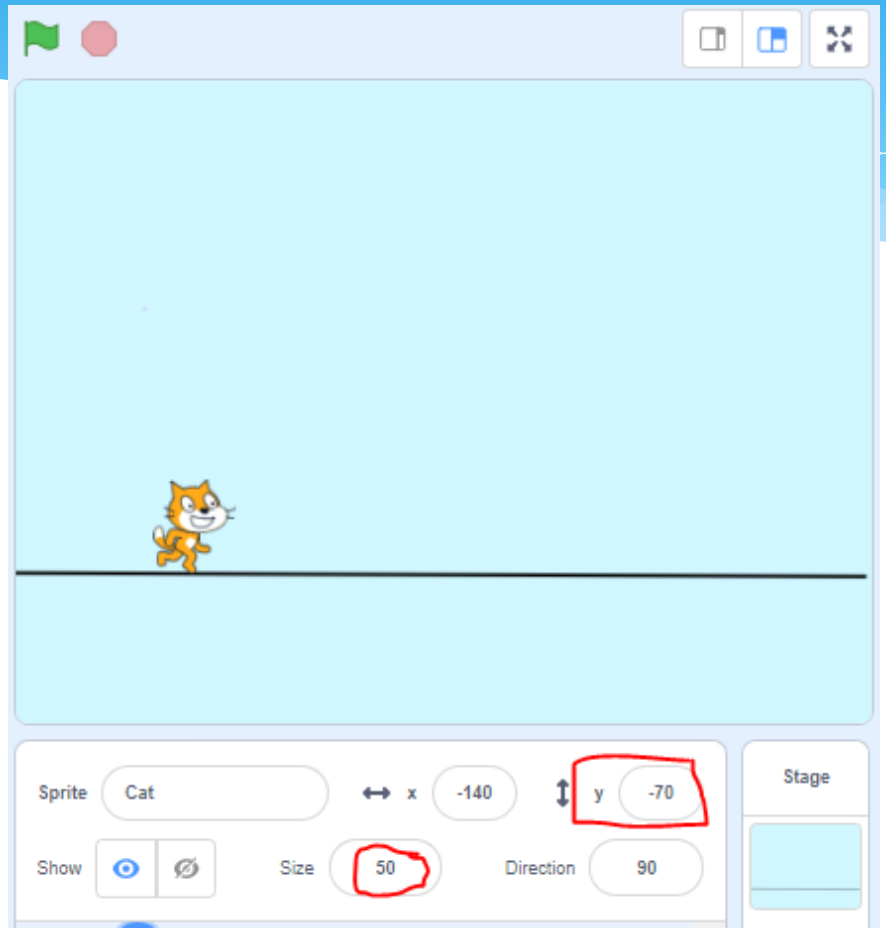
* The cat has to jump over the trees.
* Cat can jump using the space key.
* Cat has 3 lives, every time it touches the trees, it loses one life.
* But if the cat can spend 30 seconds in the garden, it reaches the second level.
* Now, the game gets harder and faster, but cat can grab LIFE BOOSTER by catching some butterflies.
* The aim of the game is to make the cat last for as long as you can.

The Backdrop



Use BLUESKY 2 and add a black line as shown.

Add a cat sprite

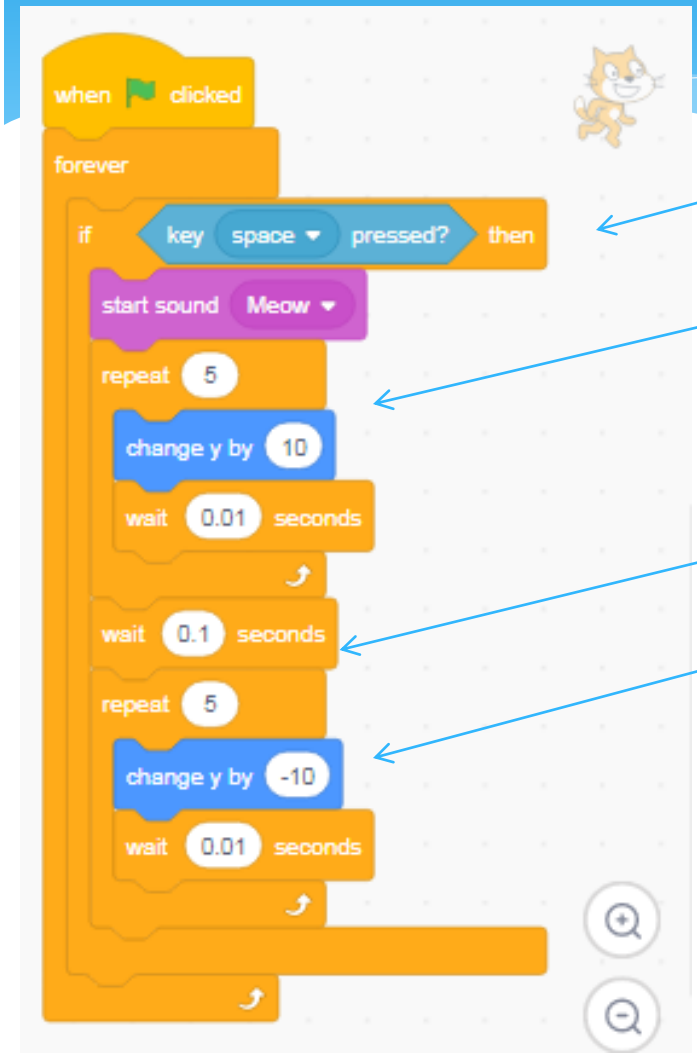


Let's remember our good old friend, the cat sprite

Giving our Cat a bit of Movement

CAT has two costumes. By using NEXT COSTUME every 0.1 sec, it appears that our cat is walking.

Getting the cat to jump



If space bar is pressed

Increase y by 10, wait for a short while, then increase again. Repeat 5 times.

Wait for a short while

And now start falling

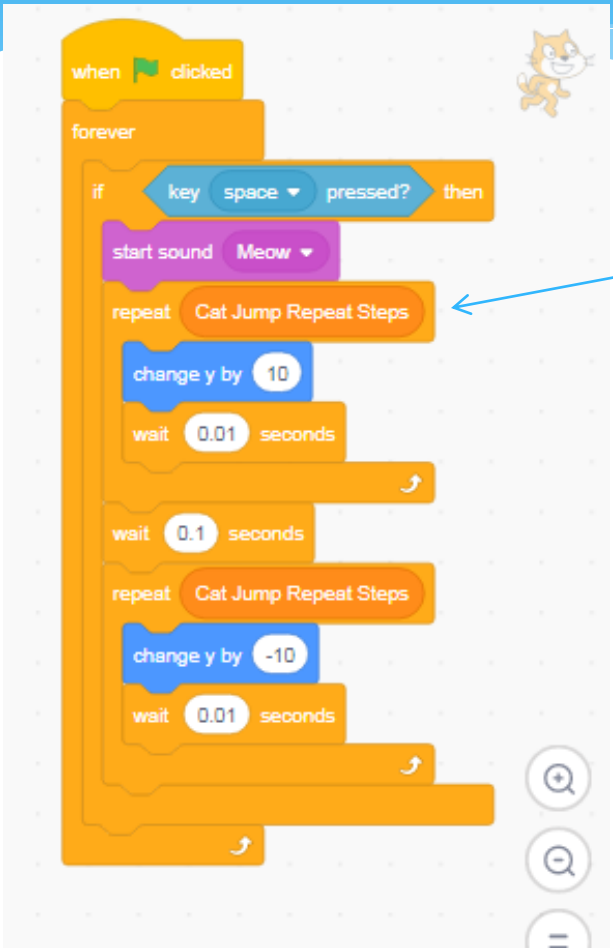
Notice

1. we are ONLY changing the y, not x.
2. This is a very simple jump. You can do more sophisticated, realistic jumps with more code.

Control Cat's jump with a variable

* Notice, in the JUMP code, we can make the cat jump higher by
  * Repeating small movements more times (e.g. 7 instead of 5) AND/OR
  * Making somewhat larger steps.
* To get some control, we create a variable called 'Cat Jump Repeat'.
* *Note: You may need to fine-tune the cat jump a bit in the game.*

Variable to control Cat Jump



This variable controls how 'high' the cat jumps. Also how 'long' it is in air.

Increasing 'Cat Jump Repeat Steps' increases the cat's jump height.

Note: This is NOT a new code block. We have only replaced the '5' from the previous JUMP block with the variable 'CAT JUMP REPEAT STEPS'

Add the Tree Sprite

Making Trees scroll

* In our game, we want a ‘random number of trees’ to move towards the cat after a ‘random amount of time’.
* We will do this with CLONING.

Make every clone move LEFT

Delete if on the edge

Every 3 or 4 sec, Create 1 or 2 clones of the tree

Some variables to control the tree

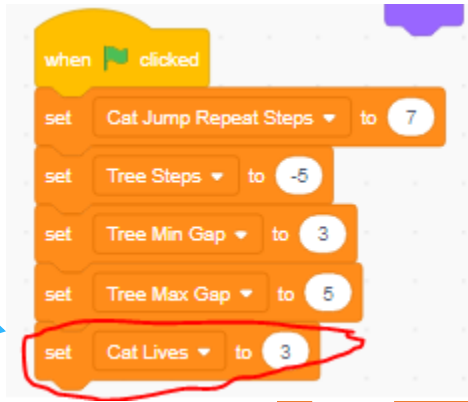
* We can add variables to control
  * How frequently the trees appear. (Tree Min Gap and Tree Max Gap)
  * How many trees appear – We can change these too, but remember to adjust the jump if you change this.)
  * How fast do the trees move. – Tree steps

Is Cat touching the Tree?

* Notice, we put this code in a separate 'WHEN I START AS A CLONE'. This way the tree's movement is not interrupted by the small 'wait' statement in this code.

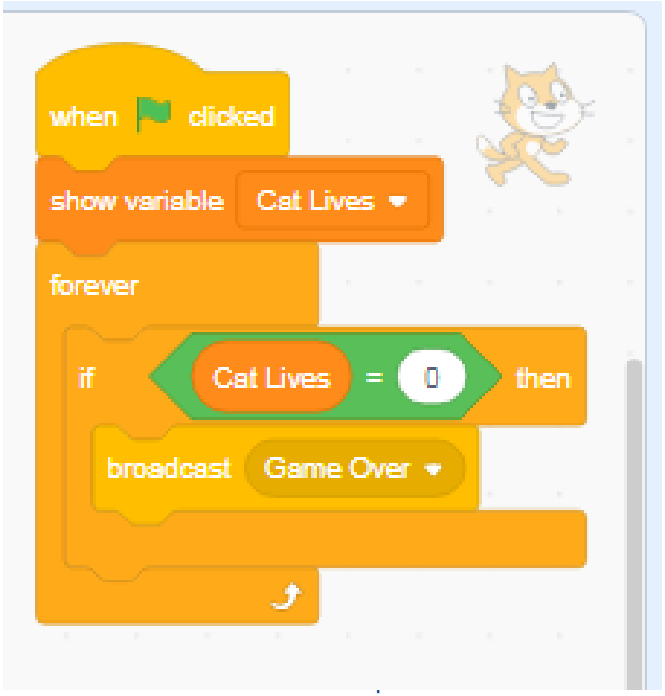
The variable 'CAT LIVES' takes care of how many lives the CAT has. Every time the CAT touches the tree, it loses 1 life.

CAT has 3 lives in the beginning



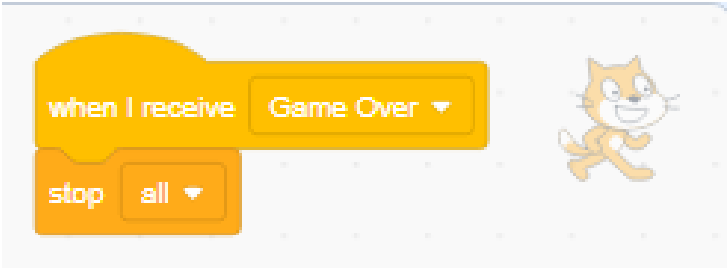
Keeping Track of Cat Lives

* If Cat Lives becomes 0, we broadcast ‘GAME OVER’



When I receive GAME Over

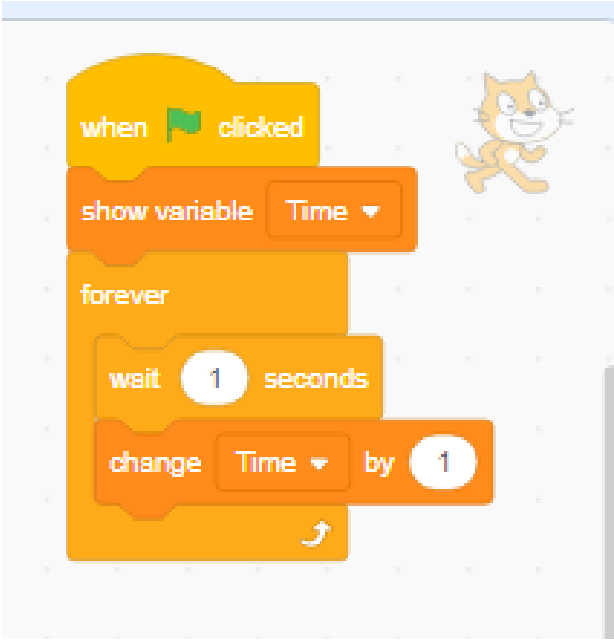
STOP Everything



Display The GAME OVER MESSAGE (Another sprite)

Keeping Track of Time

* Notice, here the Time is INCREASING. The goal of the game is to last as long as you can. (Unlike previous games where the game lasted for a certain amount of time).

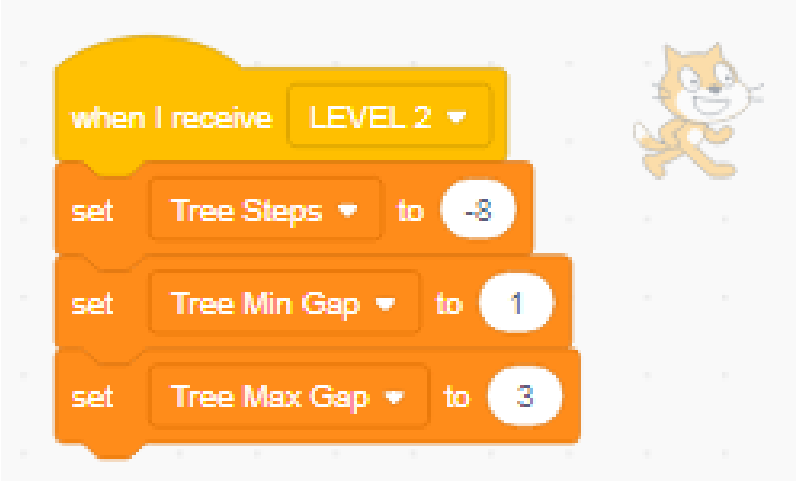


Moving to LEVEL 2

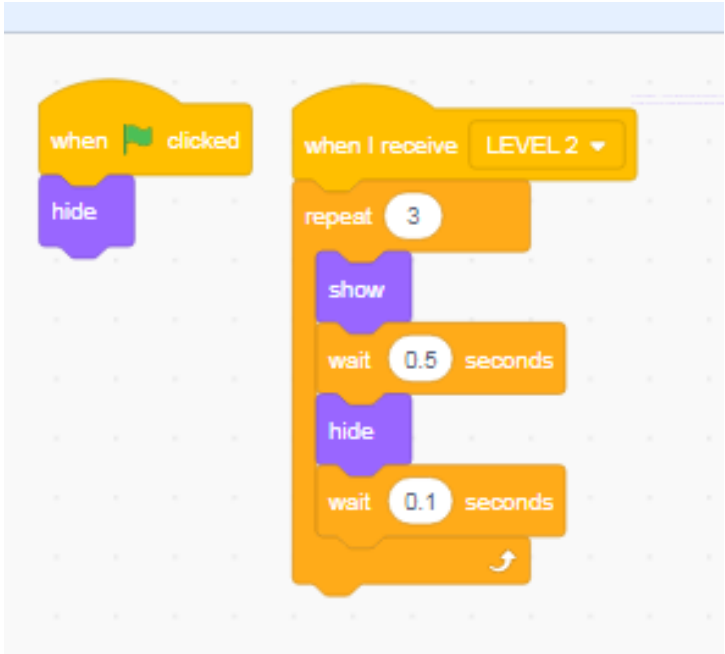
When TIME reaches Level 2 Target, broadcast a message called 'LEVEL 2'

When I receive LEVEL 2

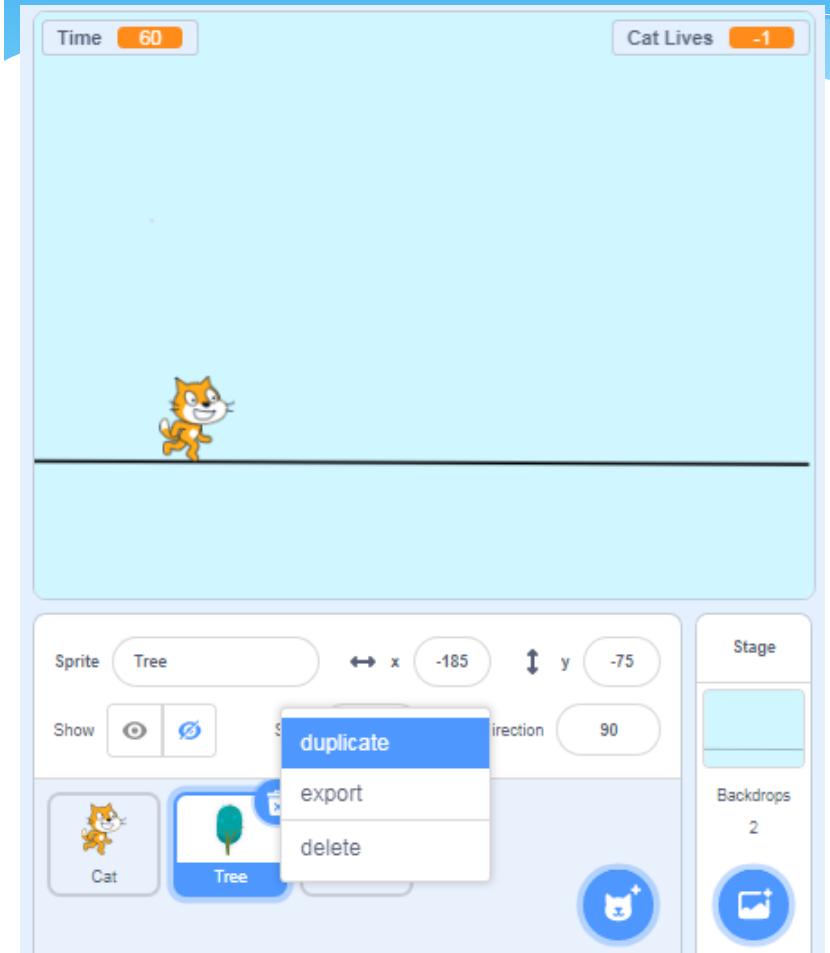
The game gets harder

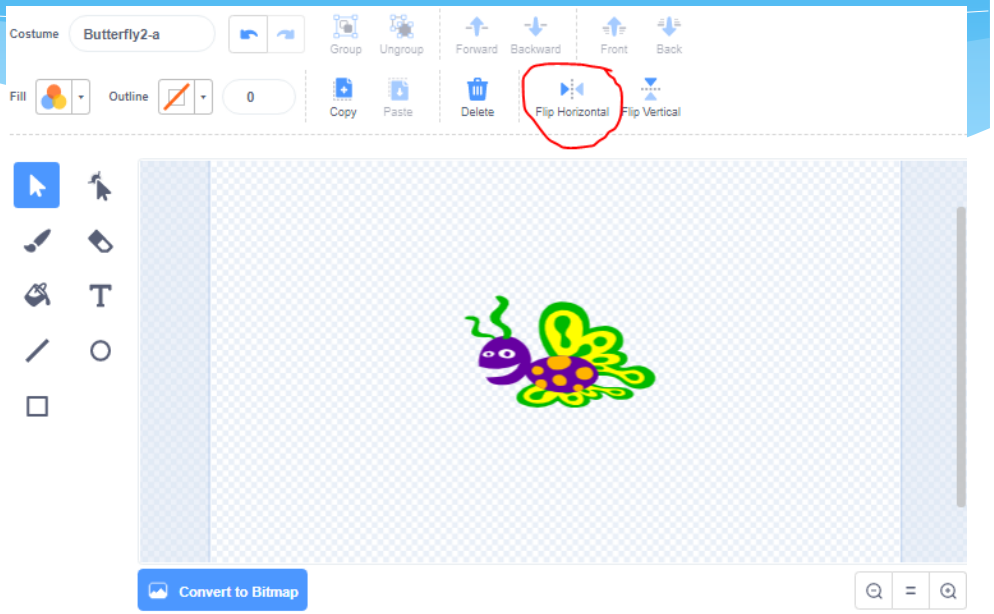


Display a brief message to tell you are in LEVEL 2



Let's Add Butterfly sprite – Duplicate the Tree and Change Costume

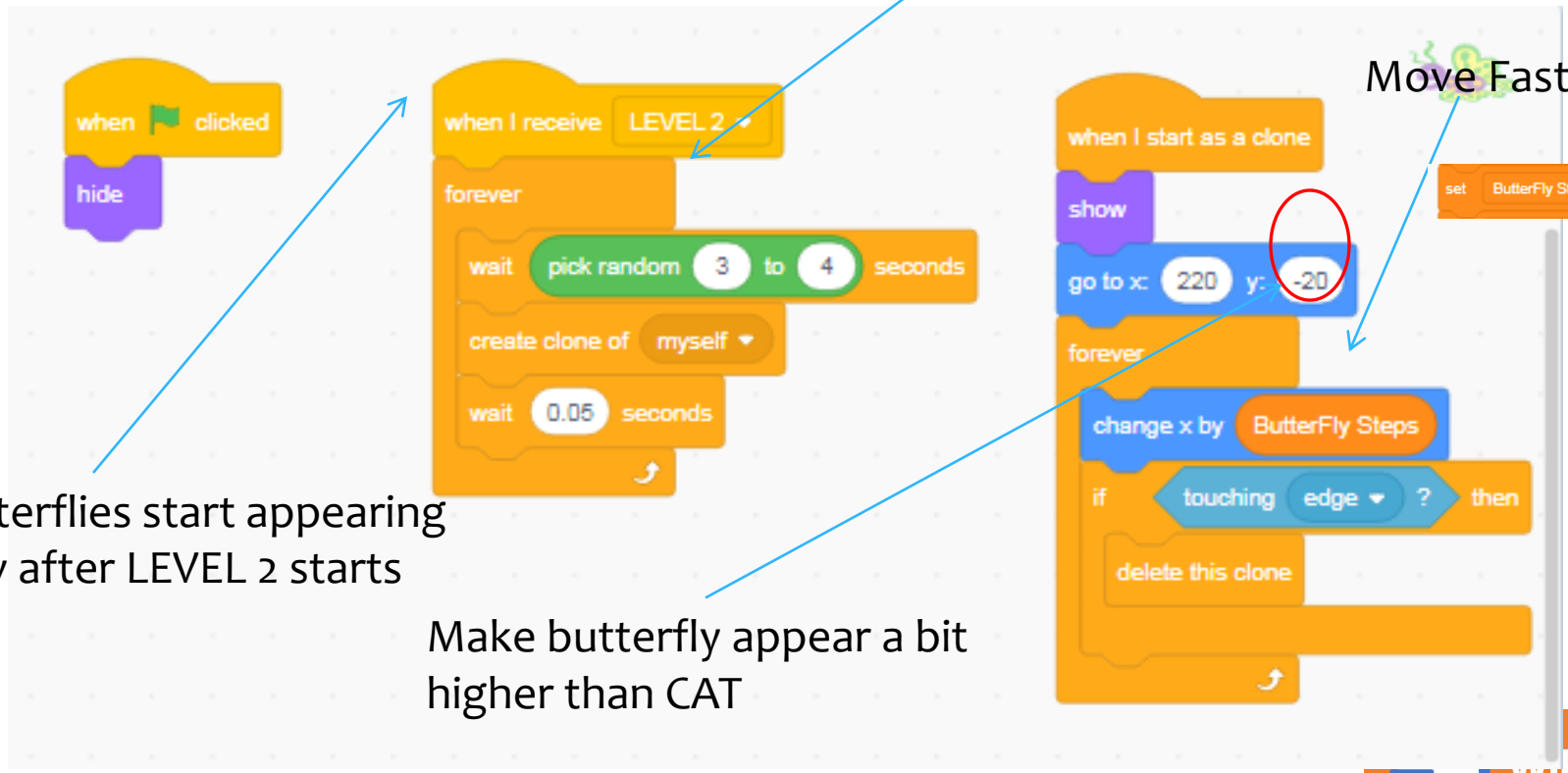




We added a costume called Butterfly and FLIPPED it HORIZONTALLY

Making Butterfly Move

* Just Modify the code from the TREE sprite



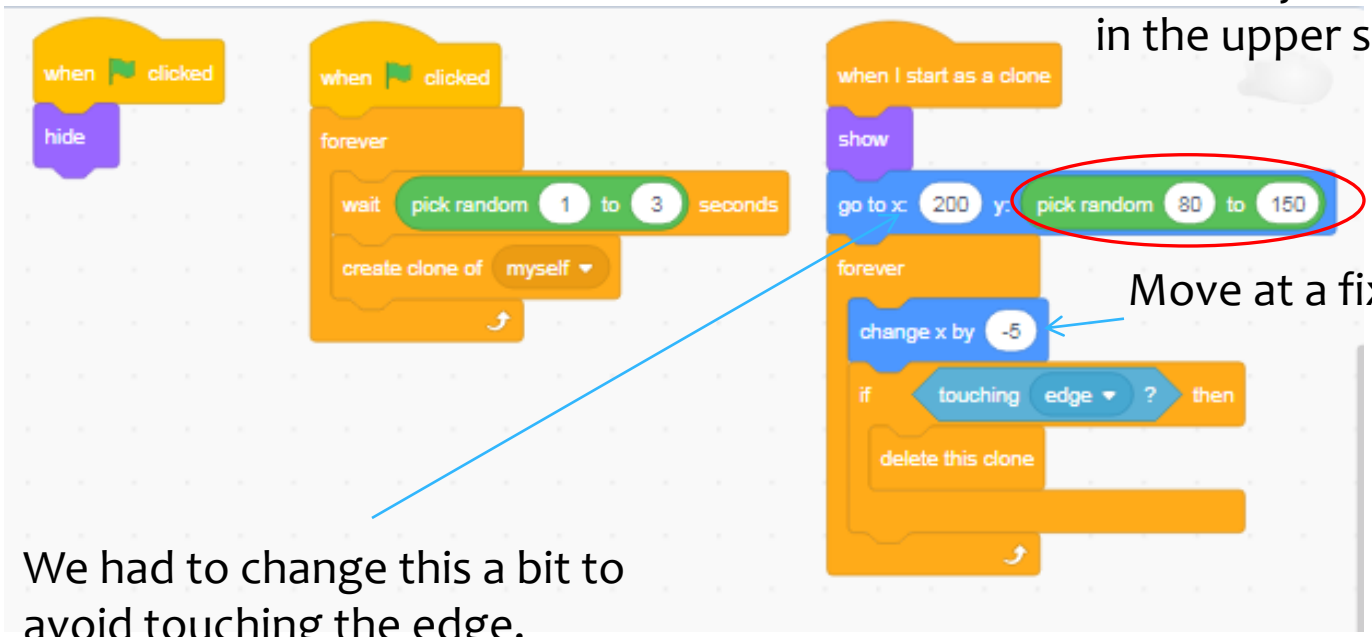
When Cat touches the butterfly

* Just Modify the code from the TREE sprite

Notice, if the butterfly touches the CAT, the CAT Lives is increased by 1.

Let's Make our garden beautiful – Add Clouds

* Duplicate the Butterfly Sprite, change the costume and modify the code



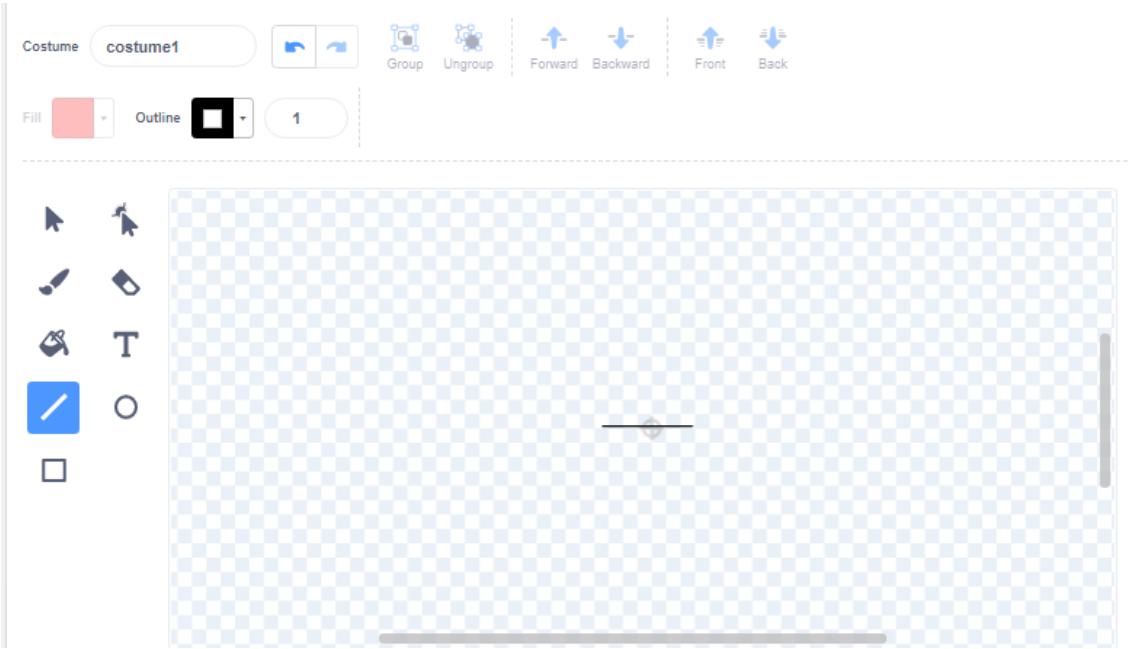
Randomly set the y position in the upper side.

Move at a fixed speed

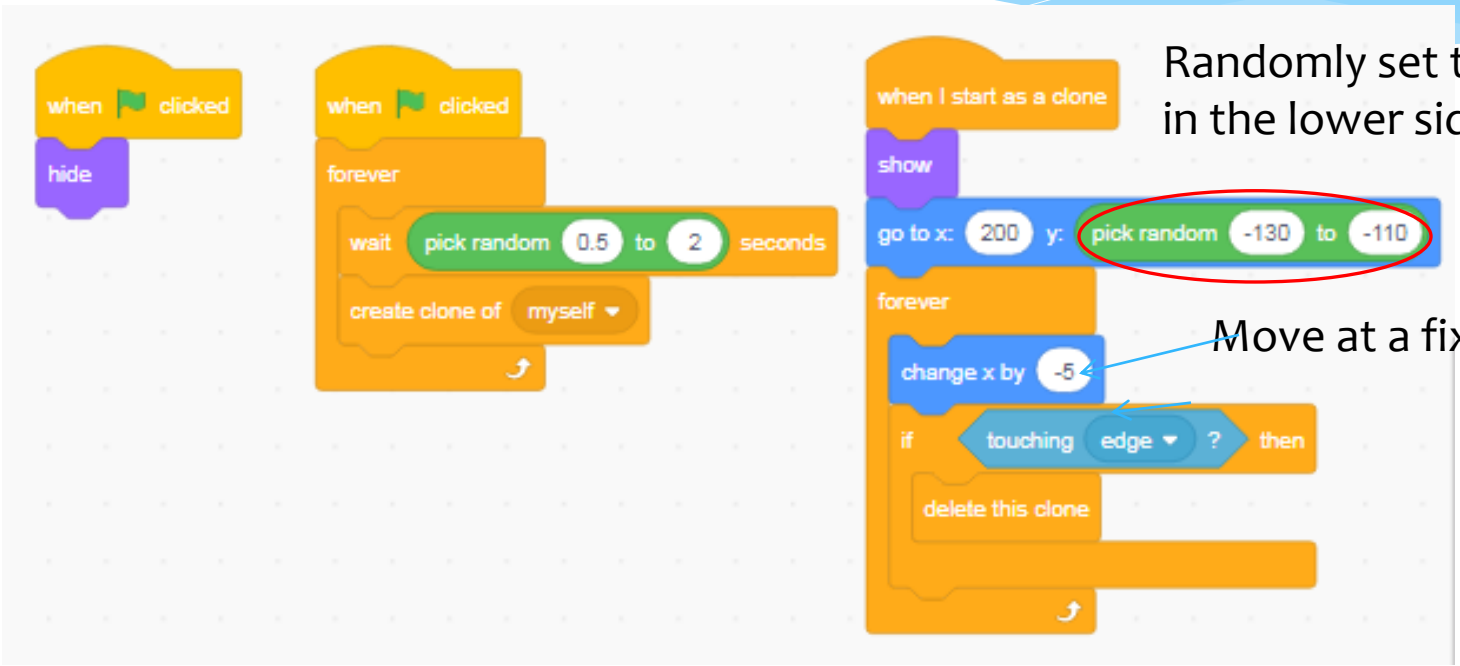
We had to change this a bit to avoid touching the edge.

Add a RoadMark

* Duplicate the Cloud and Change costume … create a simple line as a costume



Code for Roadmarks



Randomly set the y position in the lower side.

Move at a fixed speed

Some Ideas for Variations

* Make the ButterFly sprite stationary
  * The CAT has to USE say LEFT and RIGHT ARROWS to move and catch it.
* Make the ButterFly sprite move in the opposite direction as the other sprites.
* Create a SURPRISE entry that takes the game to another playing arena – e.g. underwater, with somewhat different movements, etc!

But for now you are all set!

* Chrome DINO is a sort of ‘first step’ towards building more involved MARIO type (platformer) games.
* There are many variations you can add, as we pointed out briefly in the last slide.
* Try these and more in your independent activity.