DIGITAL SCHOOLHOUSE together with NINTENDO SWITCH

01 Sep 2019

Starlink.

Battle for Atlas

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The challenge.

This tutorial will teach you how to create your own version of Starlink!

You will learn how to:

- ✓ Add sprites
- ✓ Program your ship
- ✓ Make it interact with other sprites

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Now you know about the programming constructs, lets use them to program a star ship!

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Starlink.

Accessing Construct 3, saving and loading work

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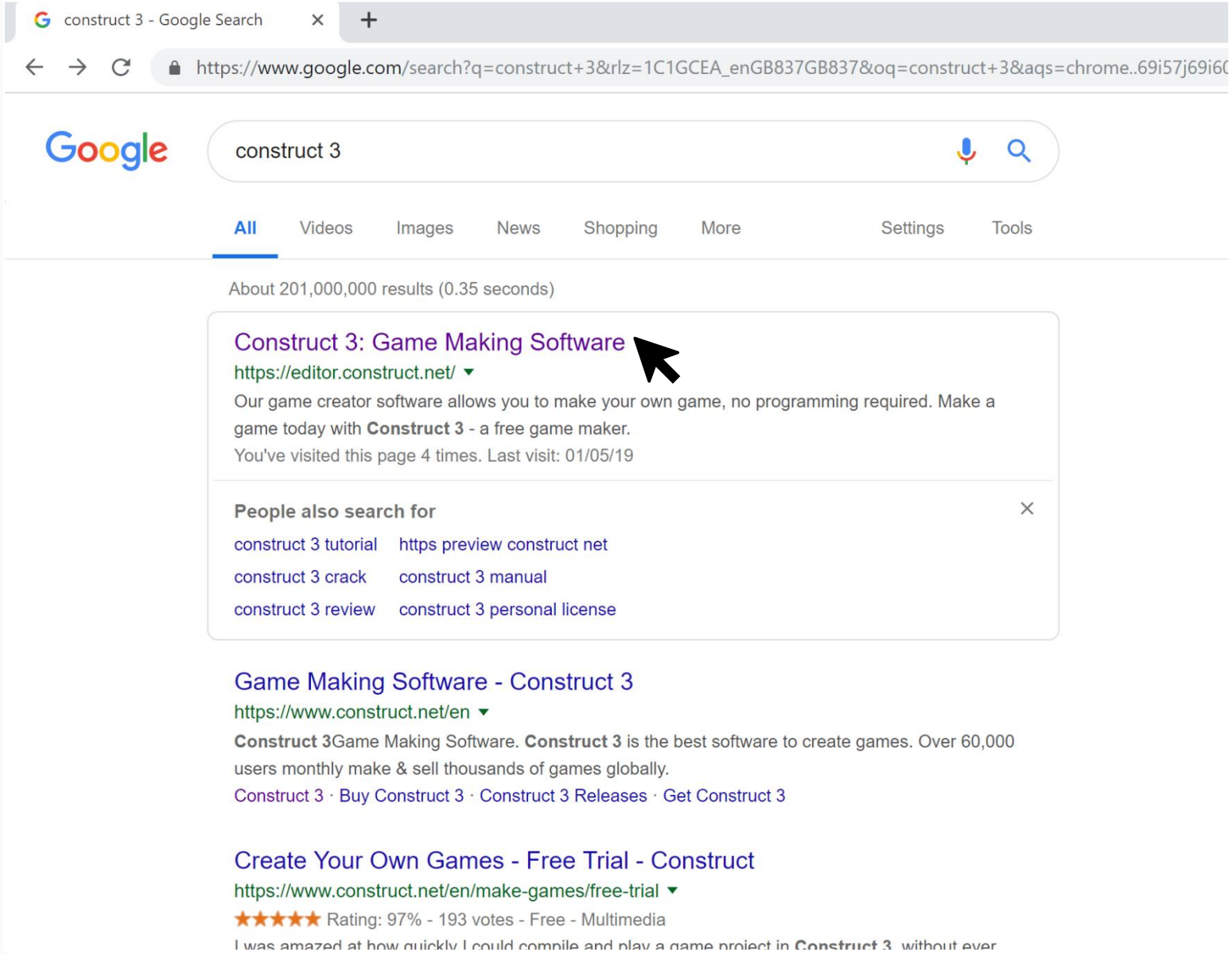
Construct 3



Using Google Chrome

Go to the Construct 3 website:

https://editor.construct.net/

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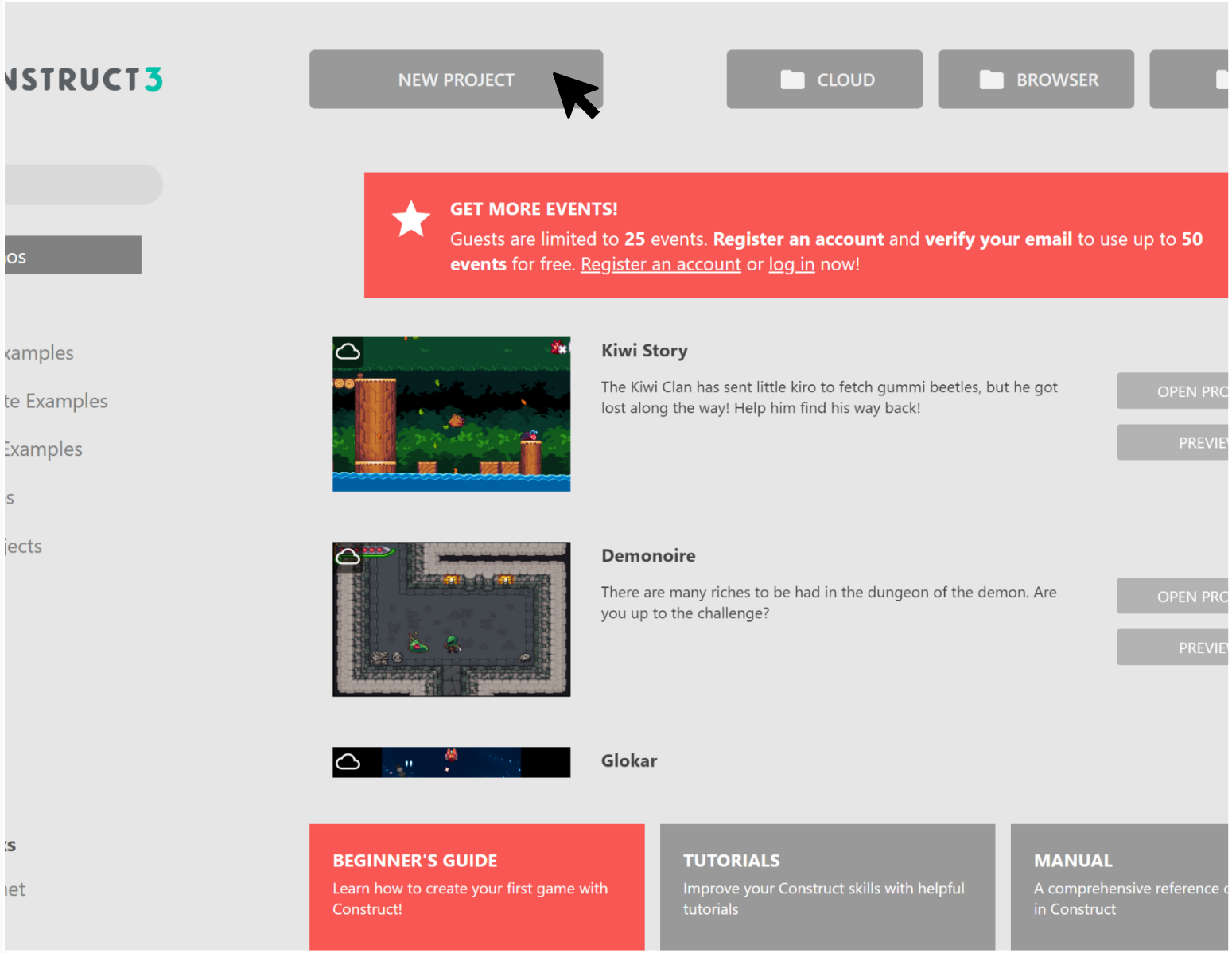
Construct 3



Click the New project button.

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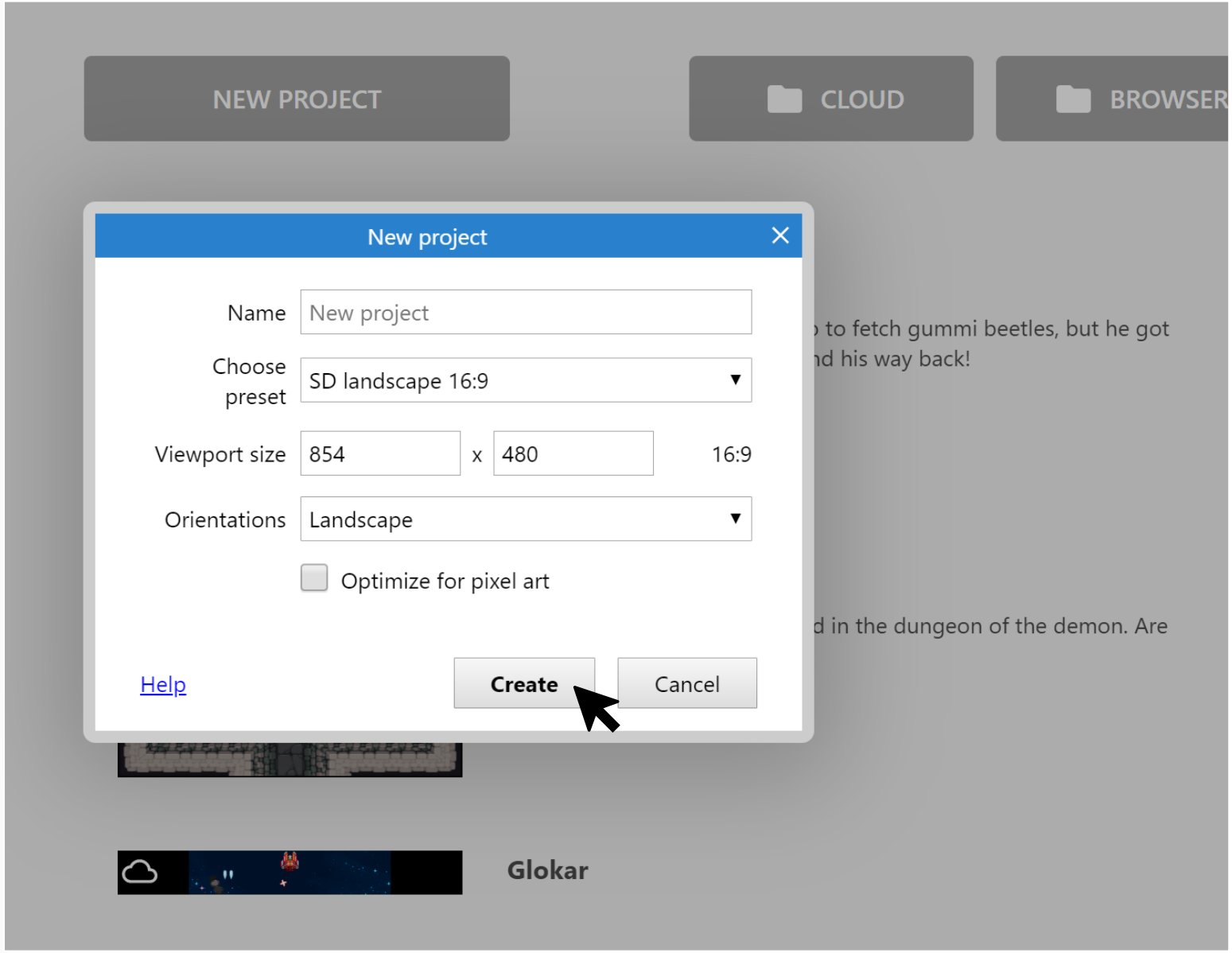
Construct 3



A dialog will appear asking for some details

You don't have to change anything, but you can type in a name for your project if you like (how about Starlink?)

Click Create

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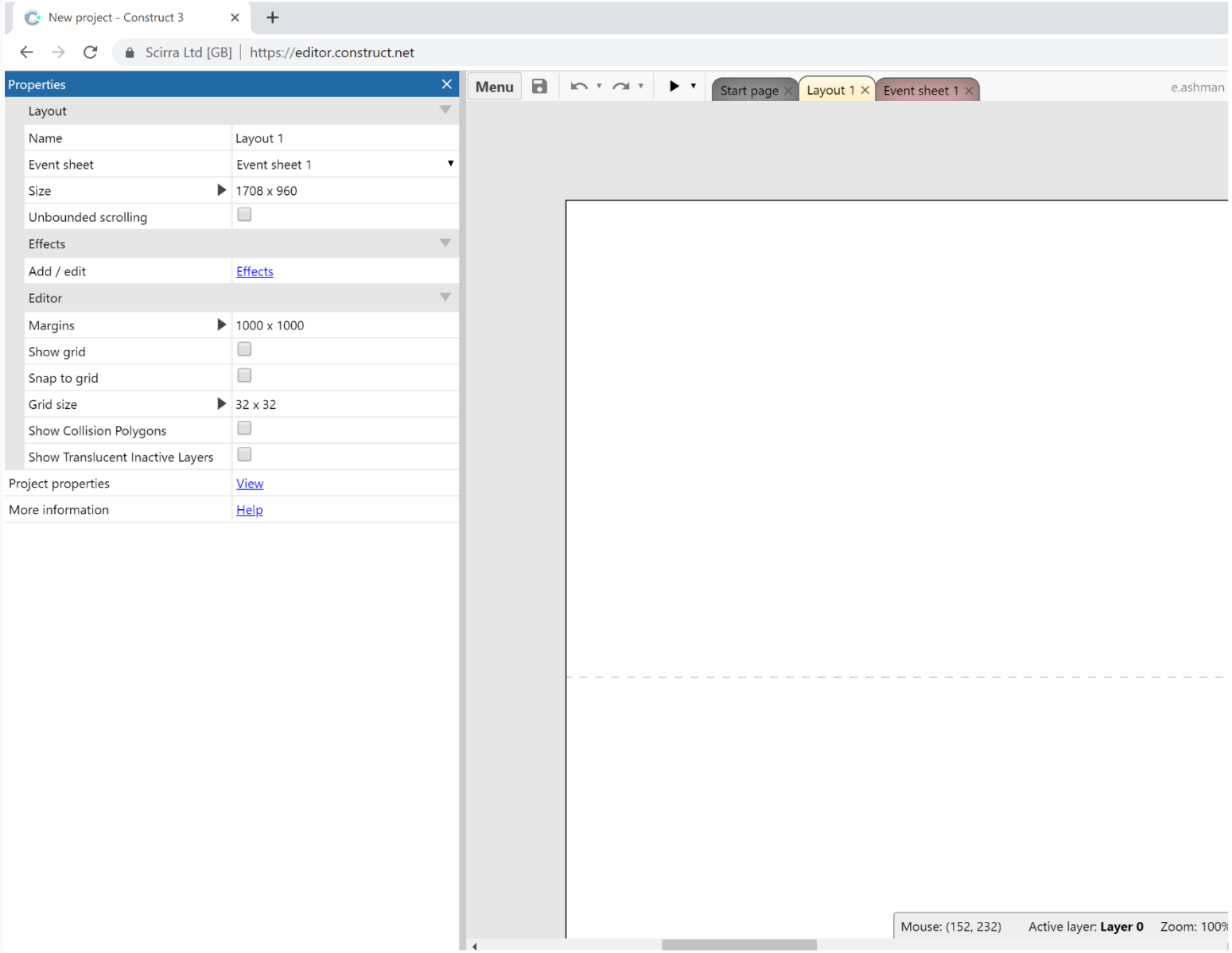

Create a new project

A blank project window will open like this

The main view in the middle of the screen is the layout view.

This is the design view where you create and position objects.

Think of a layout like a game level or menu screen. In other tools, this might have been called a room, scene or frame

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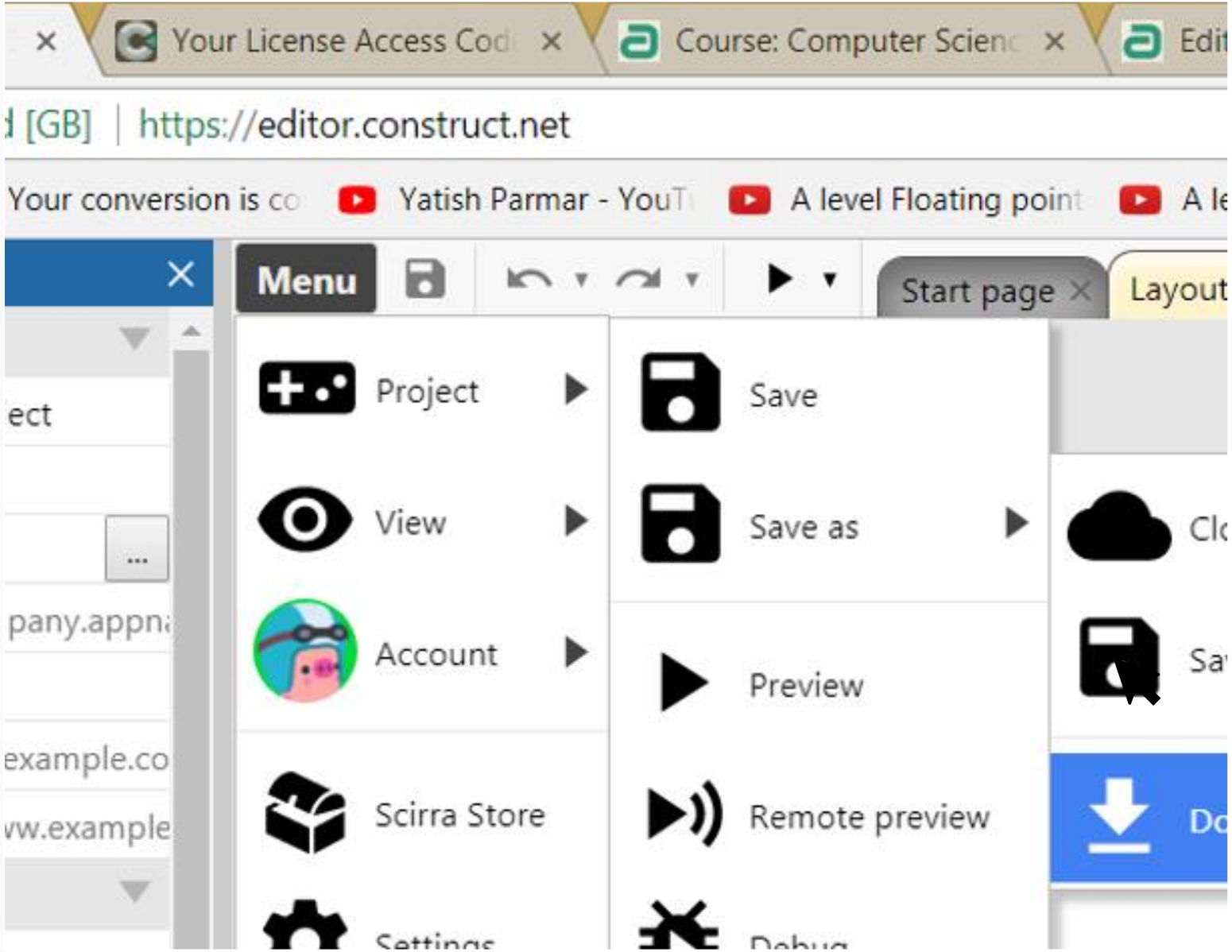

Save your work

Before you start making your game its important to know how to save your work

Click on Menu > Project > Save As > Download a Copy

Download a copy will save into your Downloads folder

This is may be cleared out each evening - to save permanently you must move your work into your Starlink Folder

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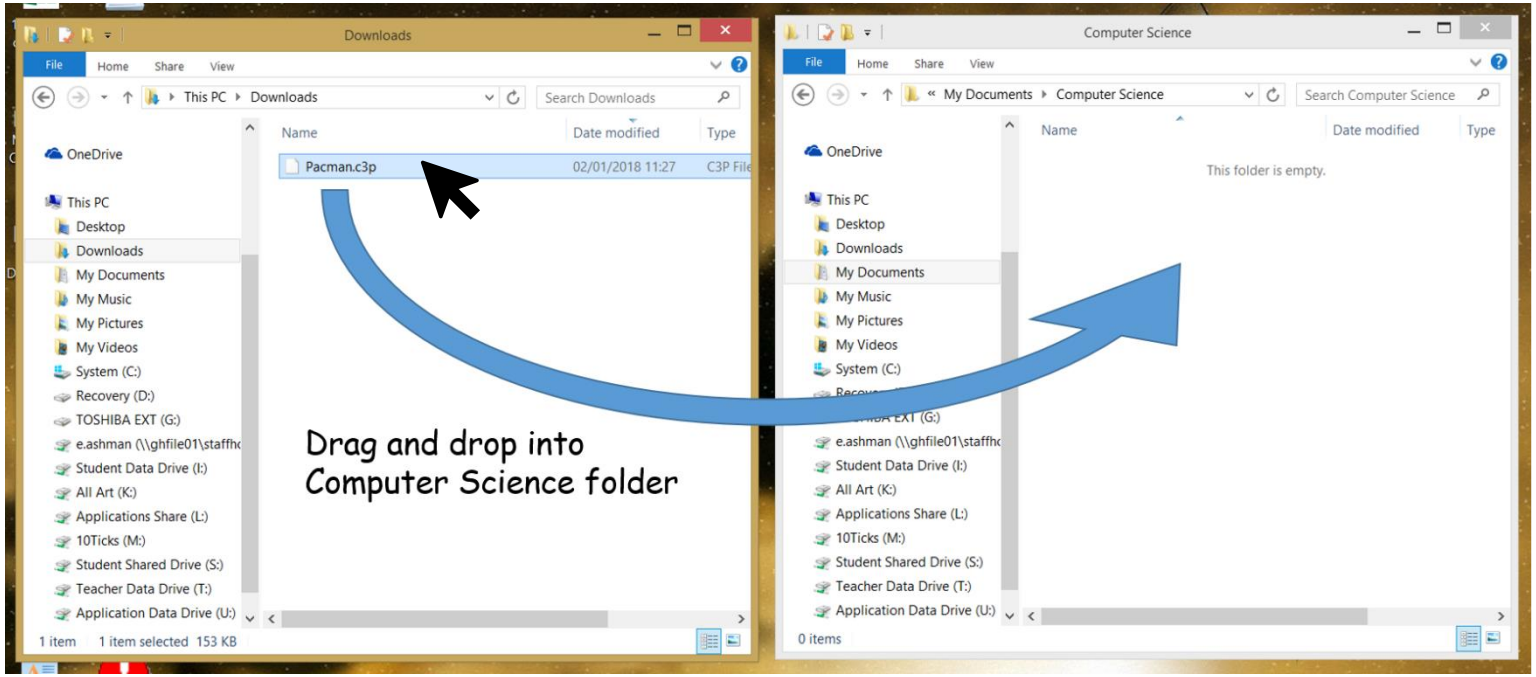
Save your work



To do this minimise your browser window by pressing the minus (-) sign on the top right of the page

Open My Documents and go to your Starlink folder

Open another My Documents window and go to your Downloads folder

Drag and drop your game file into your Starlink folder

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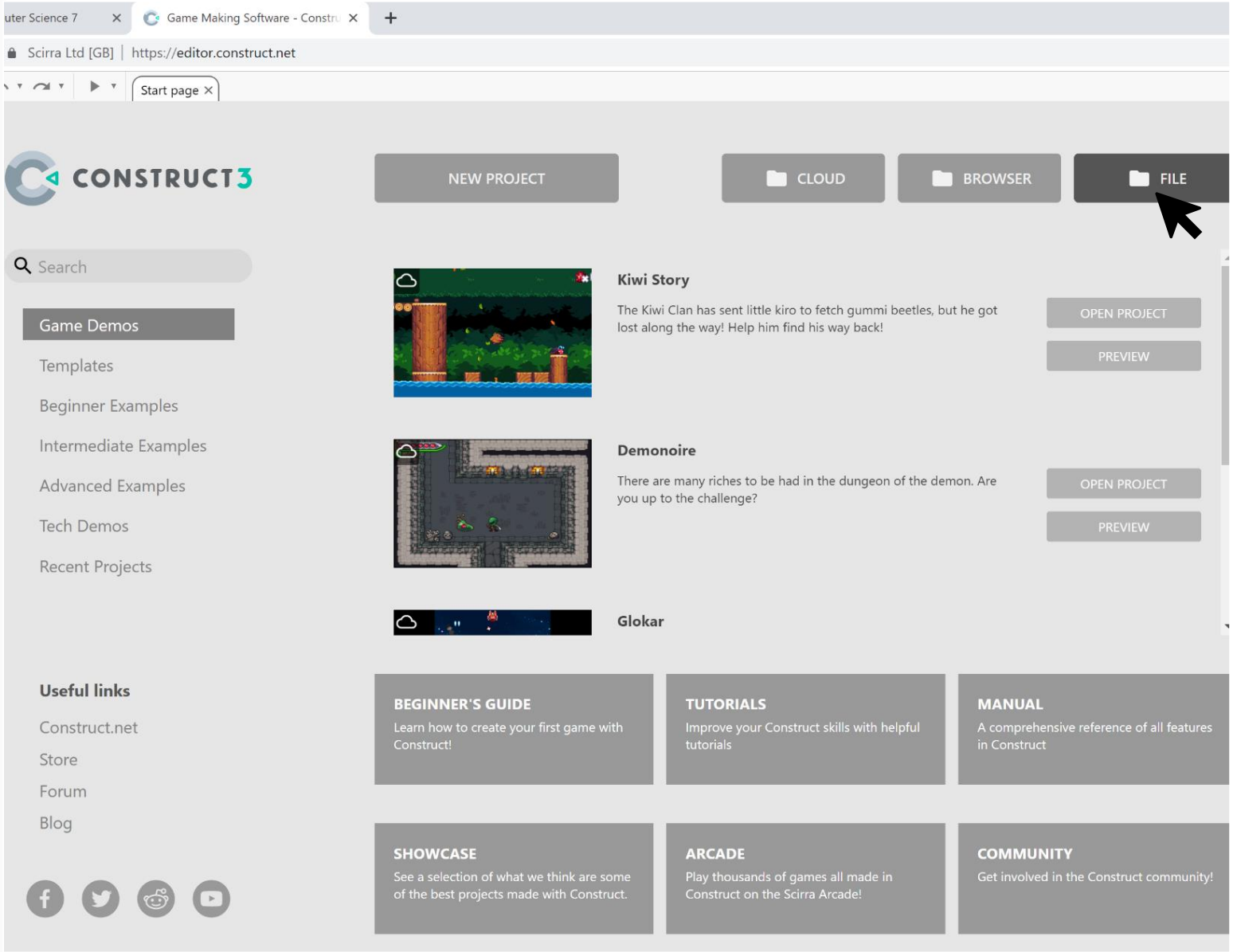

Open your work

You will also need to know how to open your wok

Click on File

A browse to file window will pop up - go to your Starlink folder and open the most recent version of your game file (look at the date modified)

Remember to save your work regularly and don't forget to move your work from downloads into your Starlink folder at the end of the session

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Starlink.

Adding sprites and changing the background

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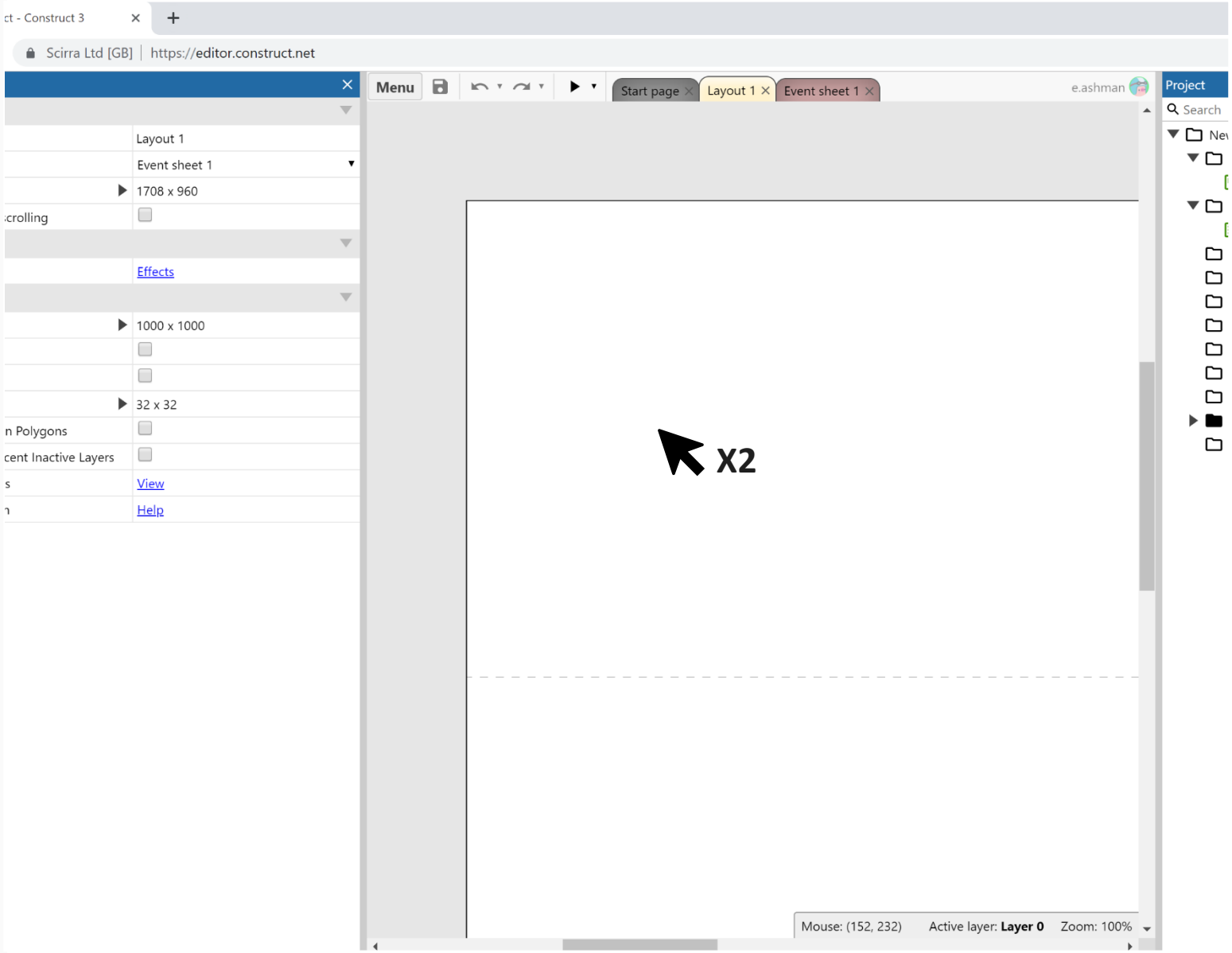
Change background



Now we are going to add a background to our game

Double click a space in the layout to create a new object.

(Later, if it's full, you can also right-click and select *Insert new object*.)

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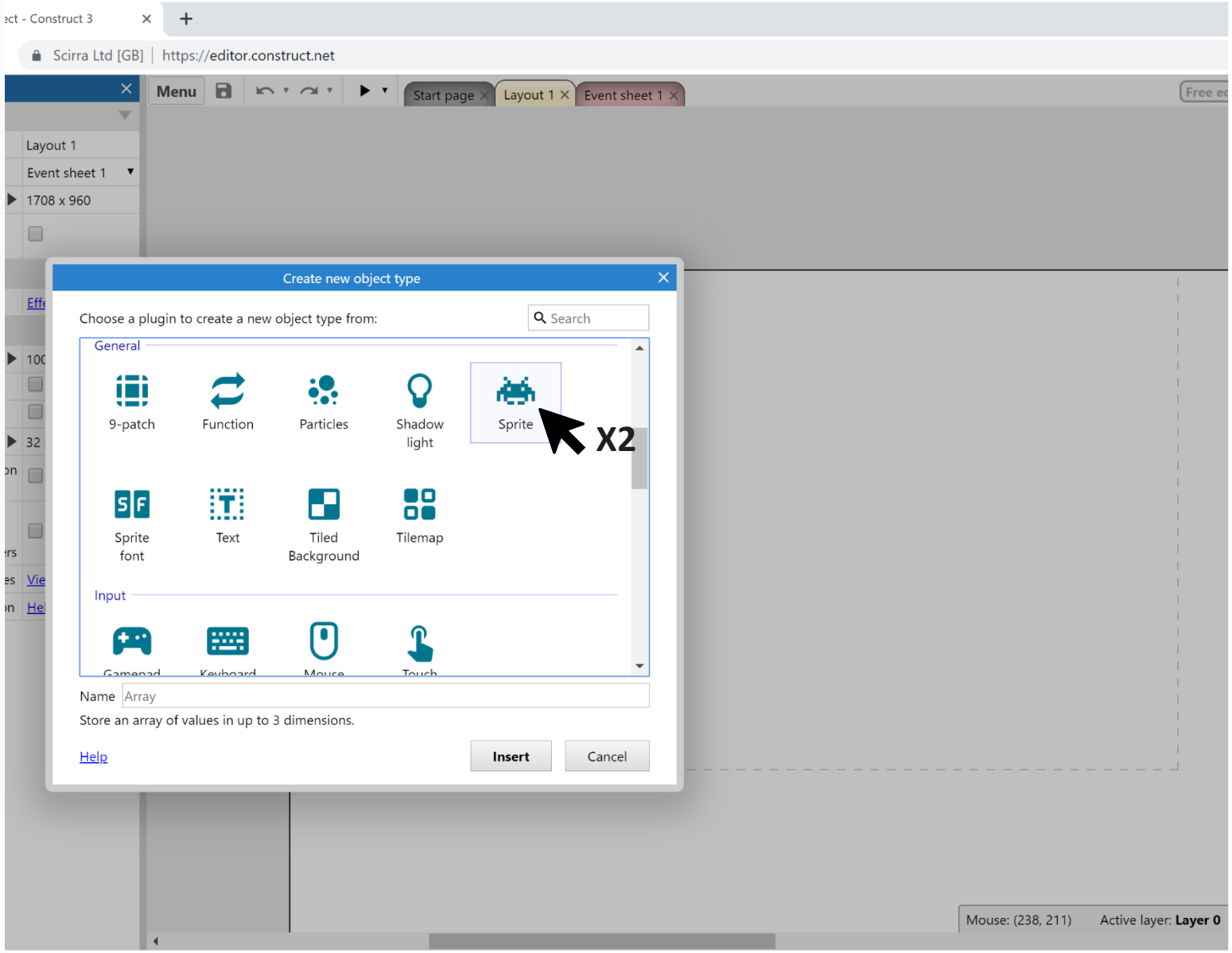
Change background



Once the *Create new object* dialog appears

Double click the Sprite object

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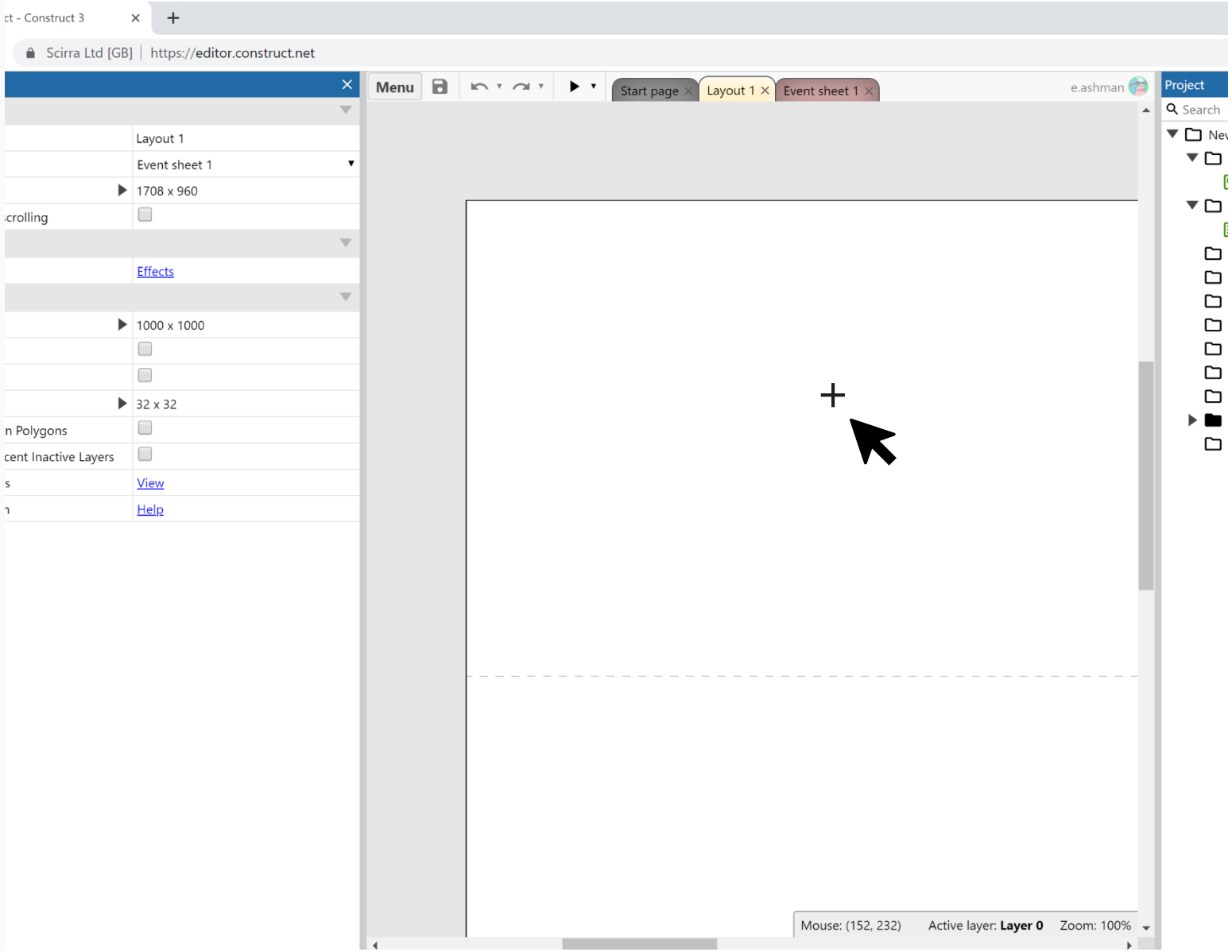
Change background



The mouse will turn in to a crosshair for you to indicate where to place the object

Click somewhere near the middle of the layout

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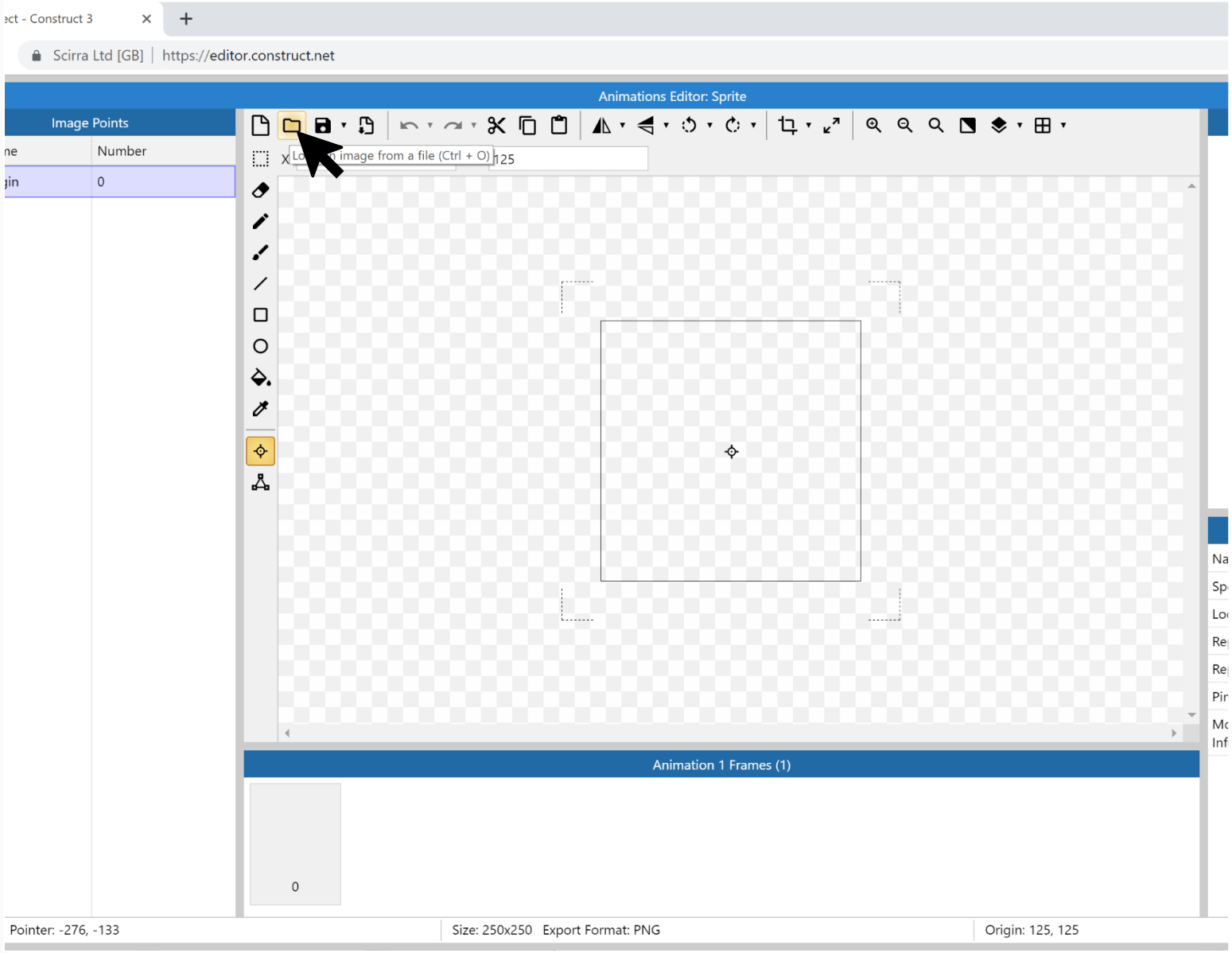
Change background



The image editor now opens for you to draw or import the image

Let's import the background image you saved from the Resources folder

Click the folder icon to load an image from your computer

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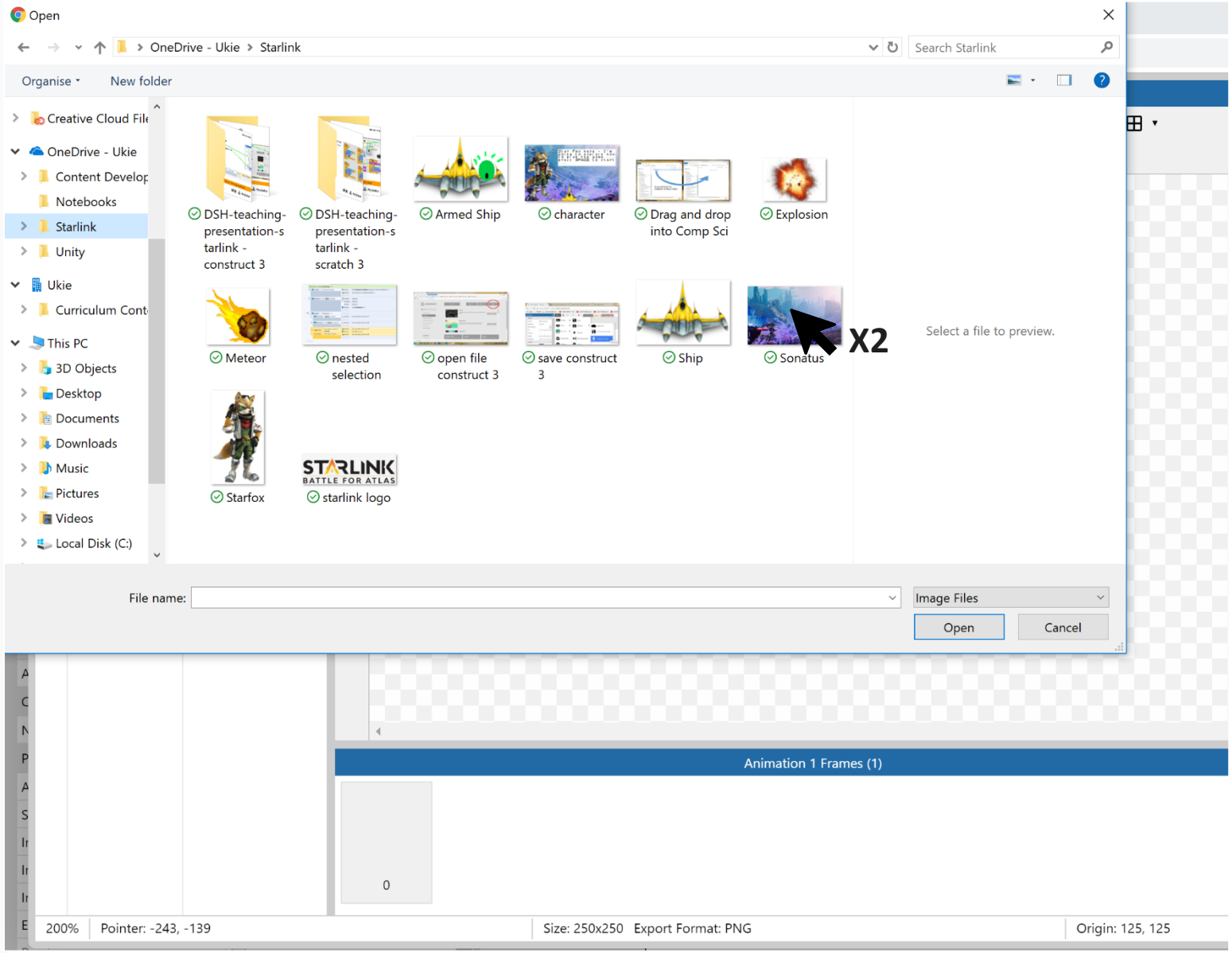
Change background



Go to your Starlink folder

Double click on Sonatus

(or single click, then click open)

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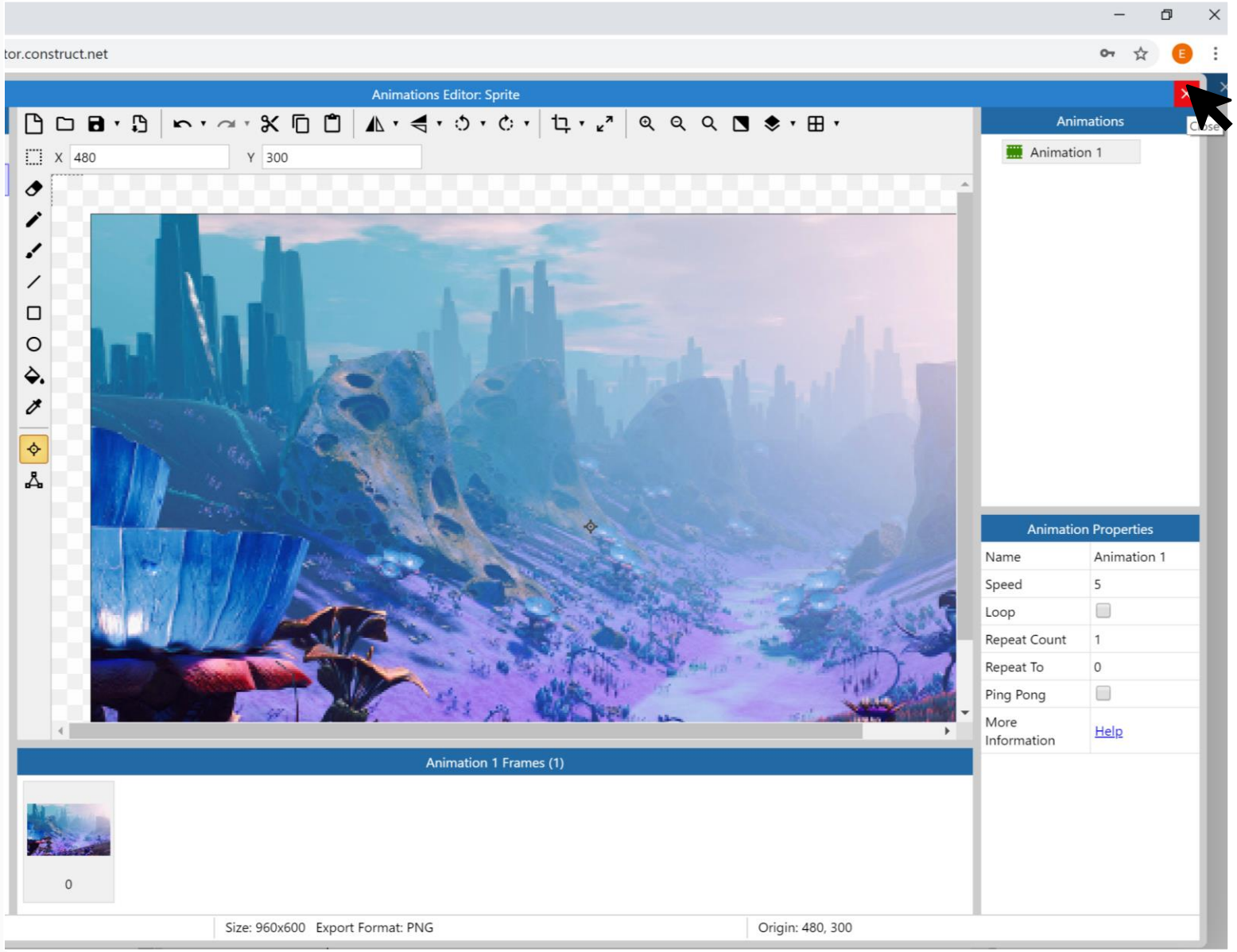
Change background



Click on the X in the top right corner

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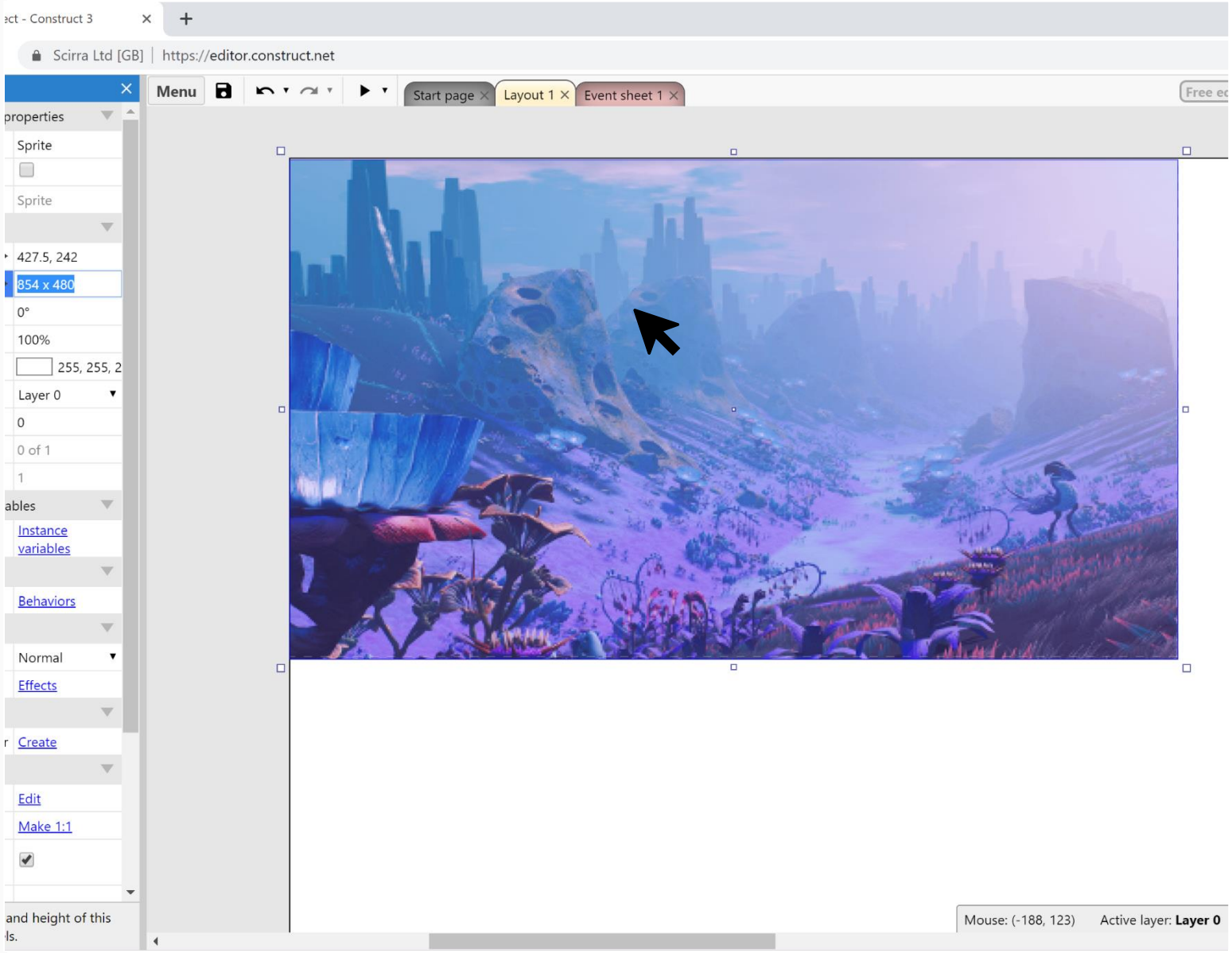
Change background



Now you should see your background object in the layout

Click and drag it so it lines up with the top left side of the layout

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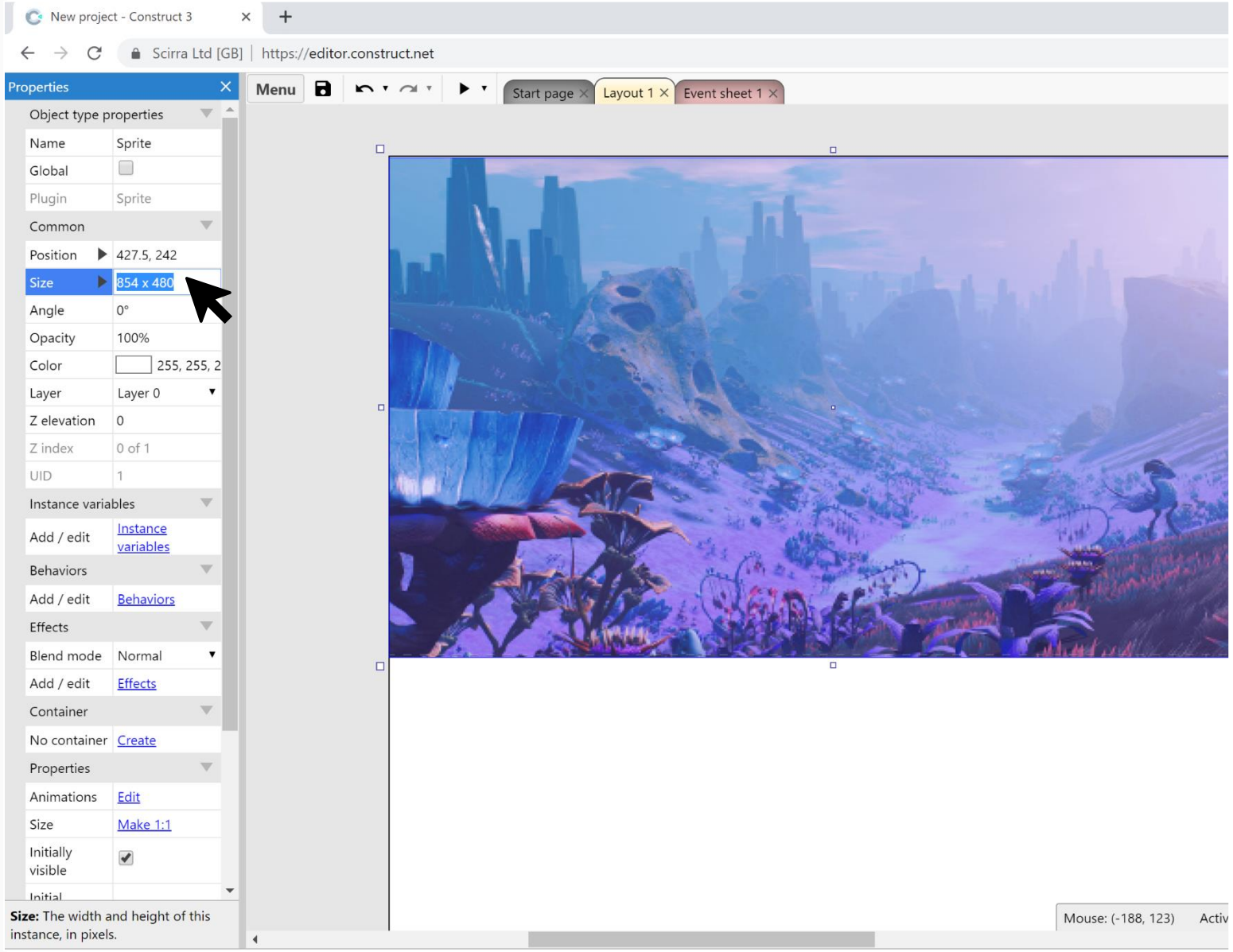

Change background

Let's resize it to fit the viewport

Click on the background to select it

The *Properties Bar* on the left shows all the settings for the object, including its size and position

Set its size to 854 x 480 (the size of the viewport)

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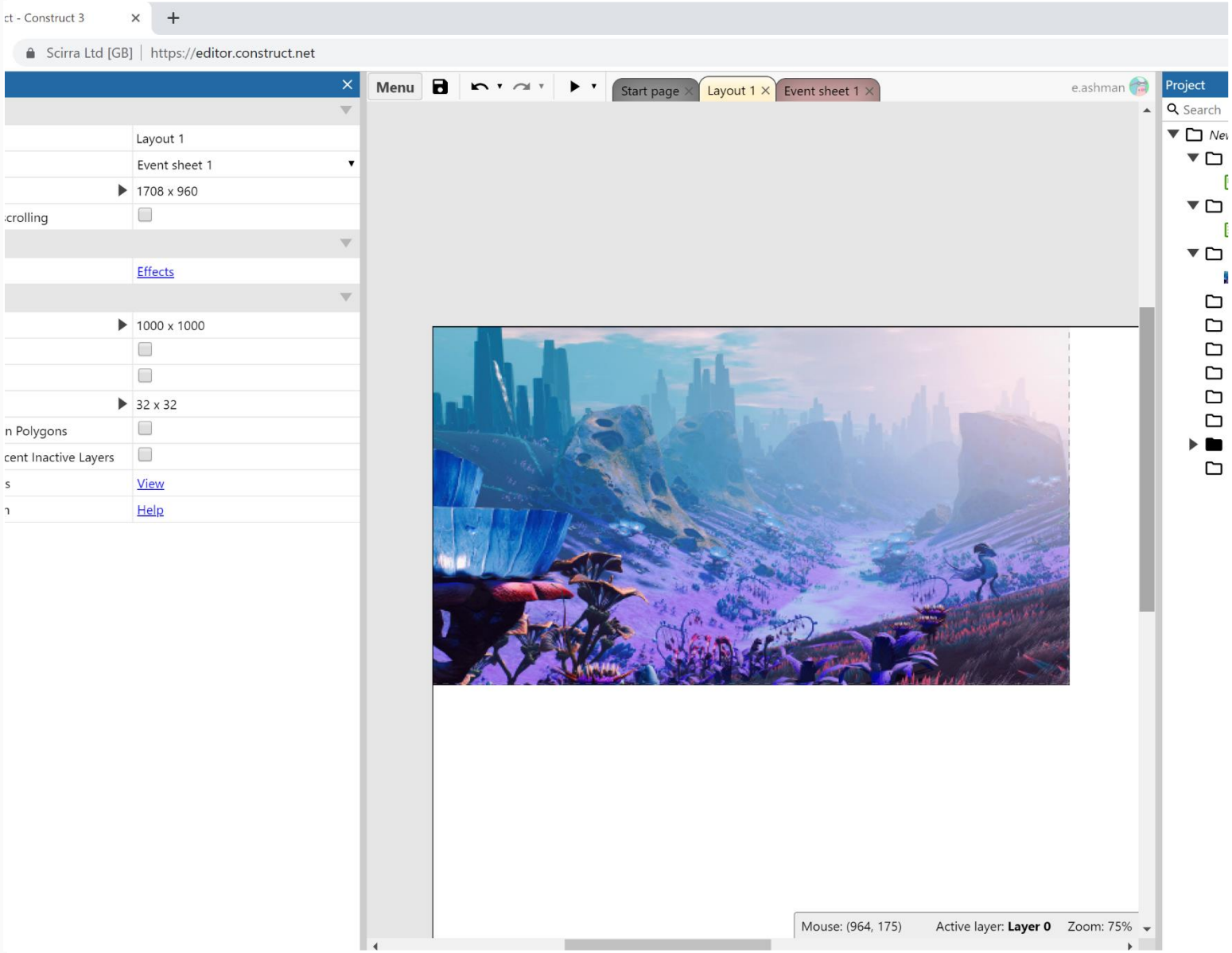

Change background

Let's survey our work

Hold Control and scroll the mouse wheel down to zoom out

Alternatively, right-click and select View▶Zoom out a couple of times

You can also hold Space bar, or the middle mouse button, to pan around

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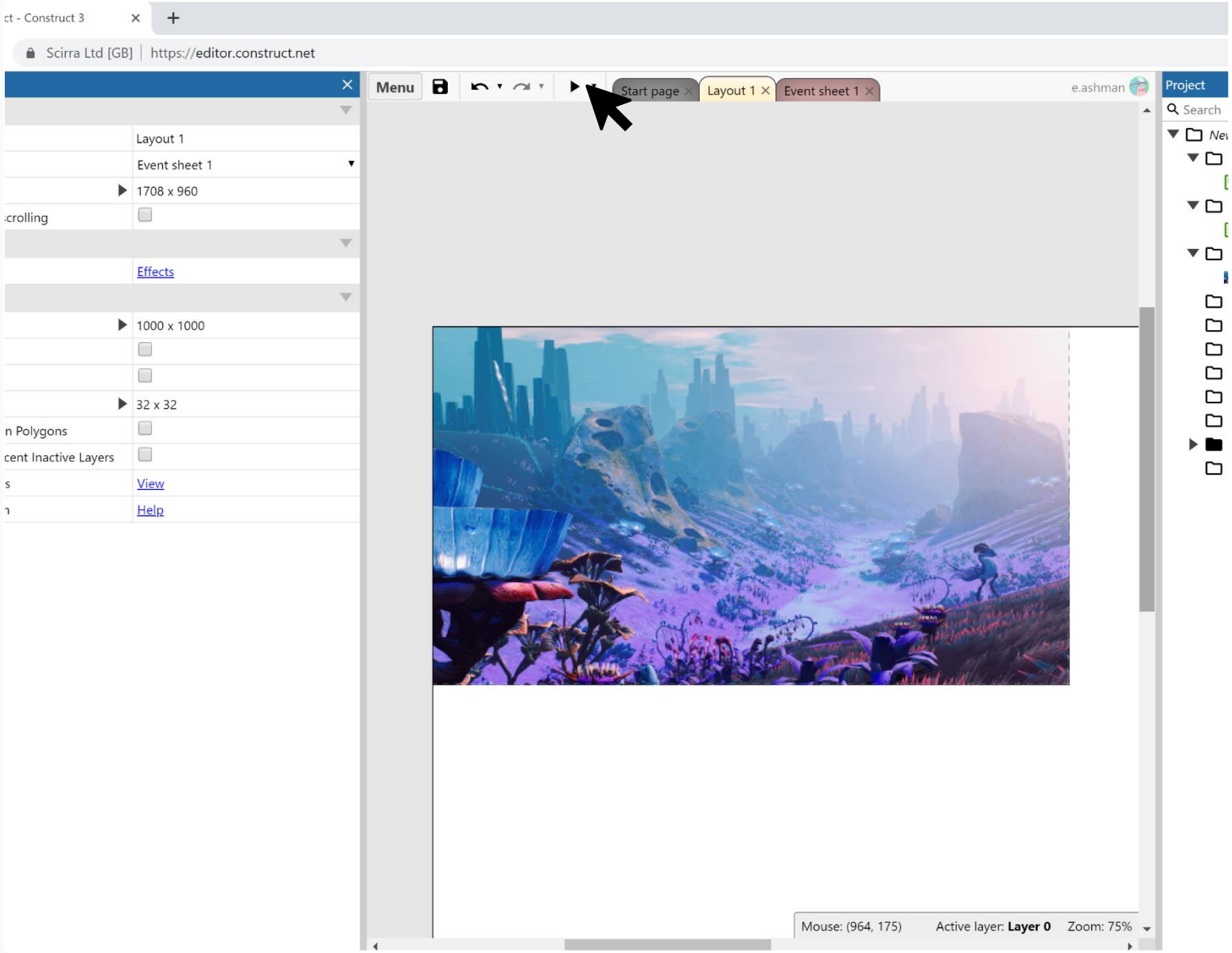
Preview your game



If you're impatient like me, click the ▶ Preview button in the main toolbar

The preview window should pop up showing your background

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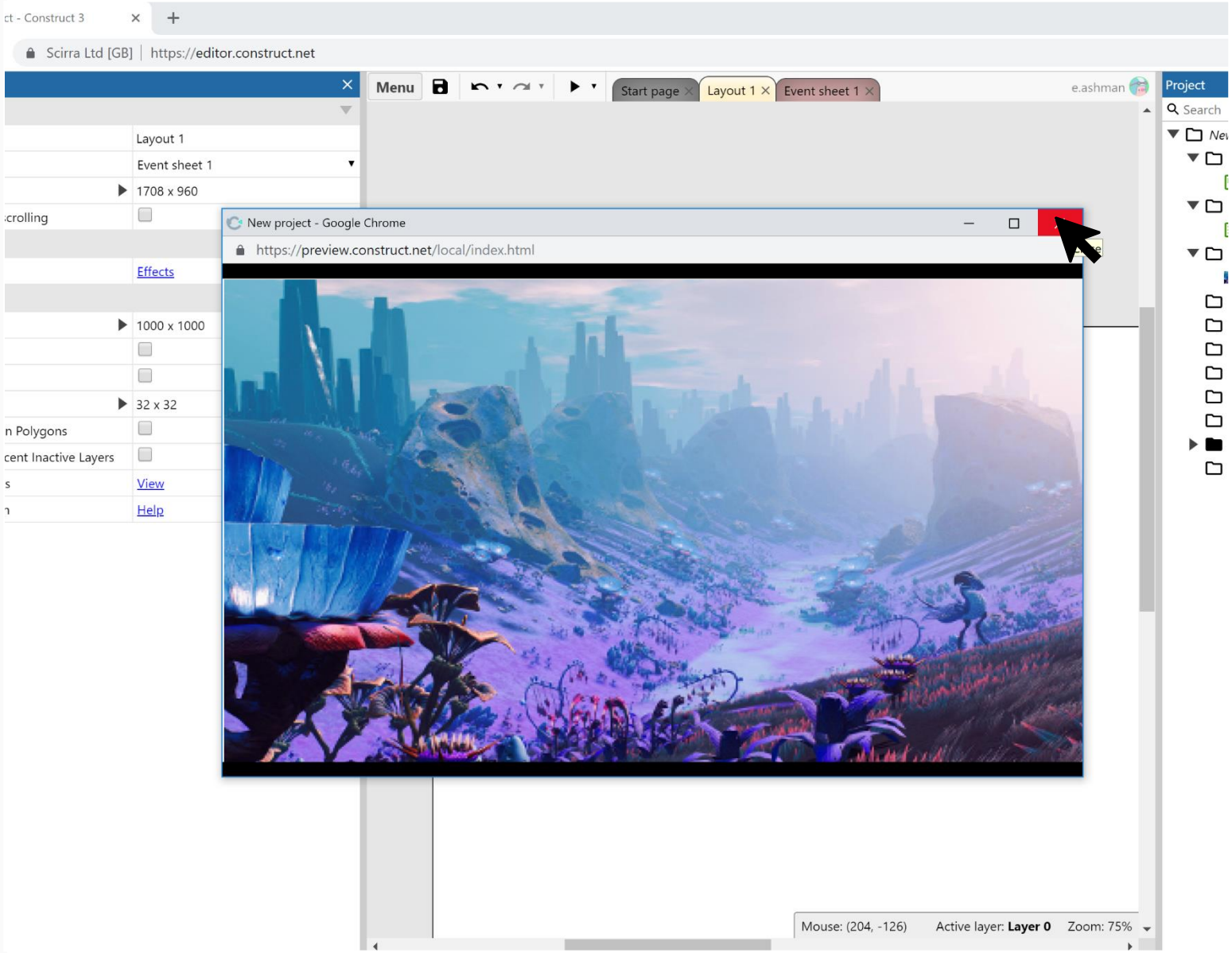
Preview your game



Close the preview by clicking on the X

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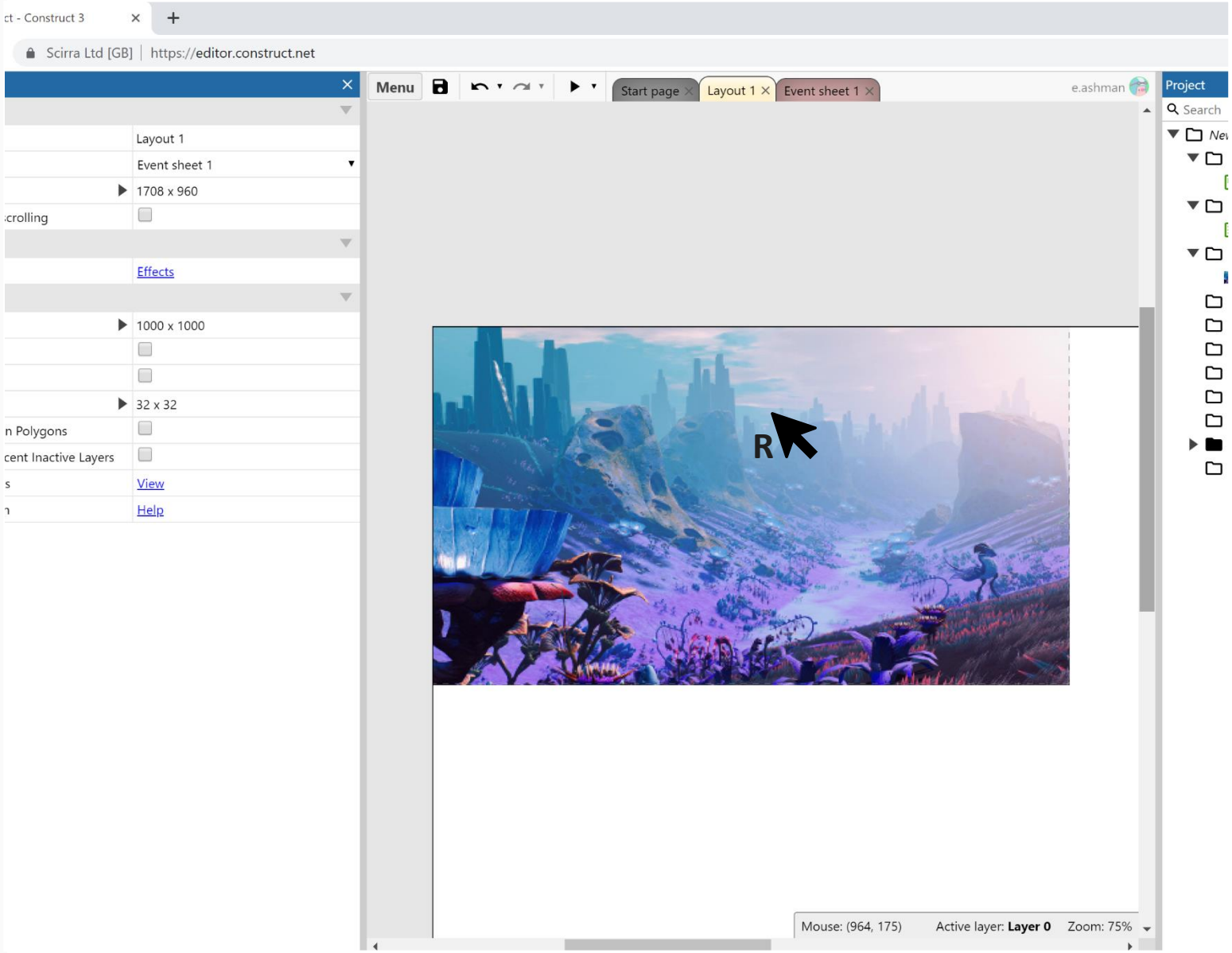

Change background

Before we continue, the background should be locked

As we create and move around objects on top of it, it's easy to accidentally select or modify the background

Since we don't need to change the background any more, locking it makes it unselectable, so it won't get in the way

To lock it, right-click on the background

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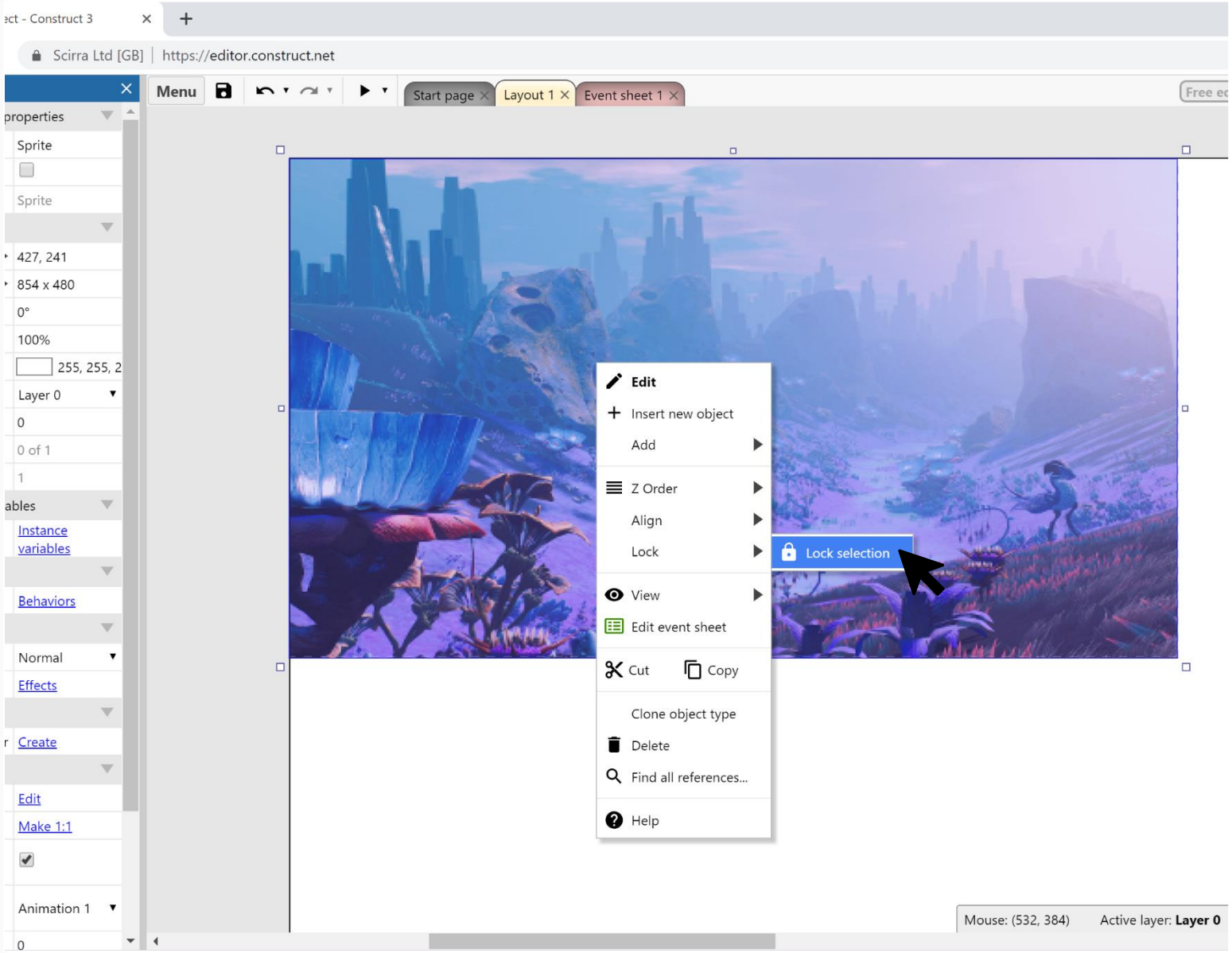
Change background



Click on Lock

►Lock selection

(If you do want to change it later on, simply right-click and select Lock►Unlock all)

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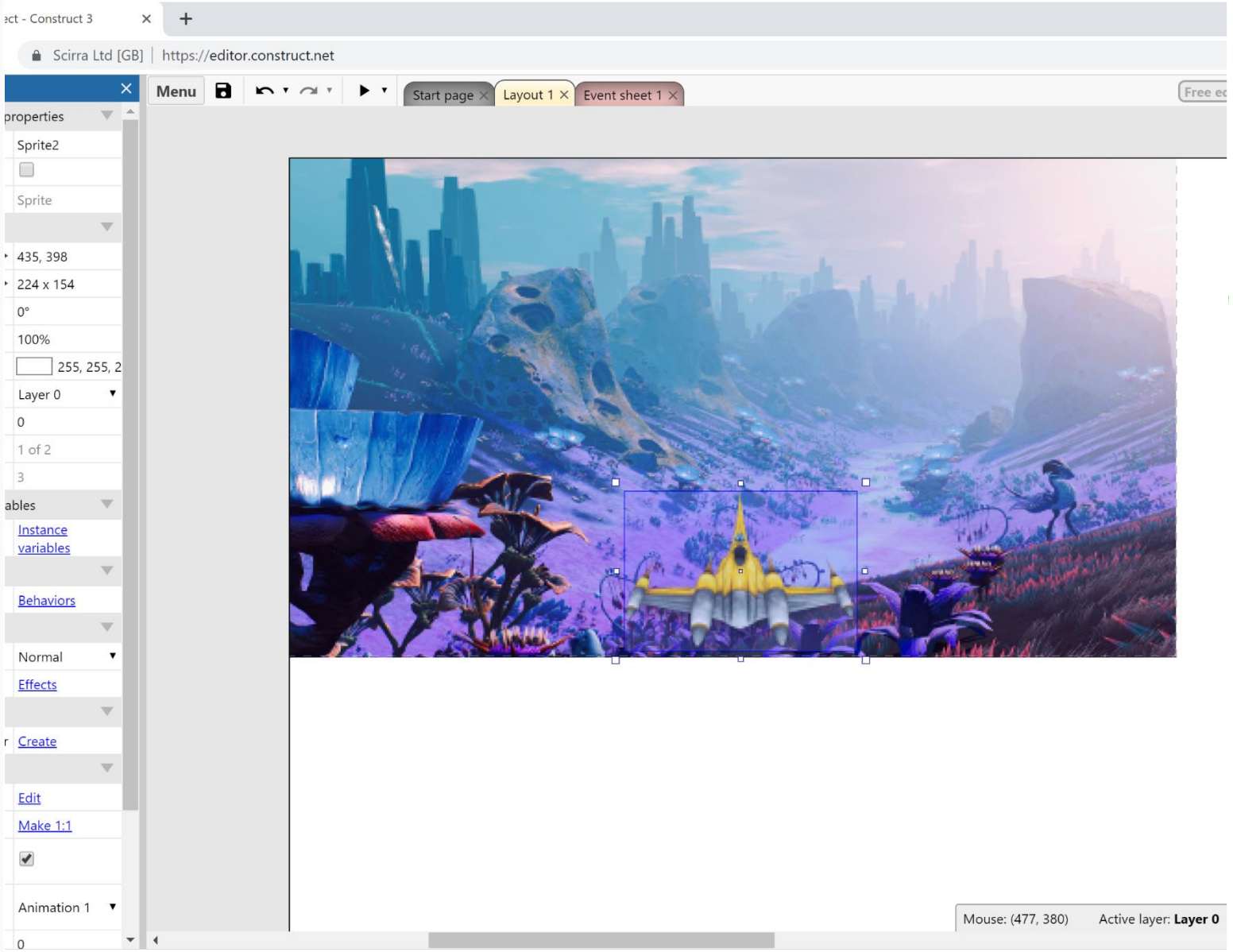
Add sprite



We will now add a ship as a Sprite object

Sprites simply display an image, which you can move about, rotate, resize and optionally animate

Games are generally composed mostly out of sprite objects

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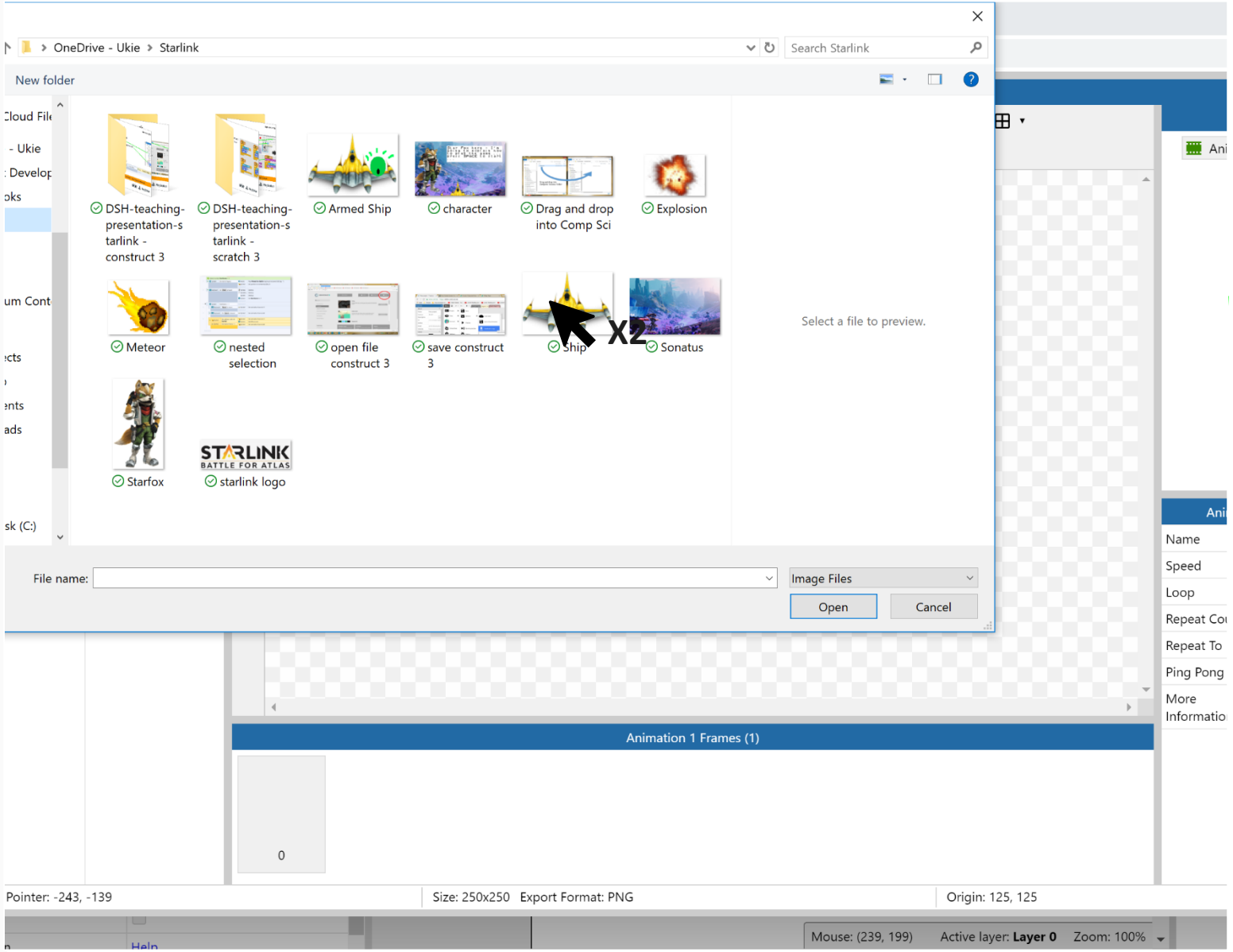
Add sprite



The process is the same as adding a background:

Double click to insert a new object

Double click the Sprite object

When the mouse turns to a crosshair, click on the layout to place it

The image editor pops up. Click the Load image button, and double click to add the ship

Close the image editor

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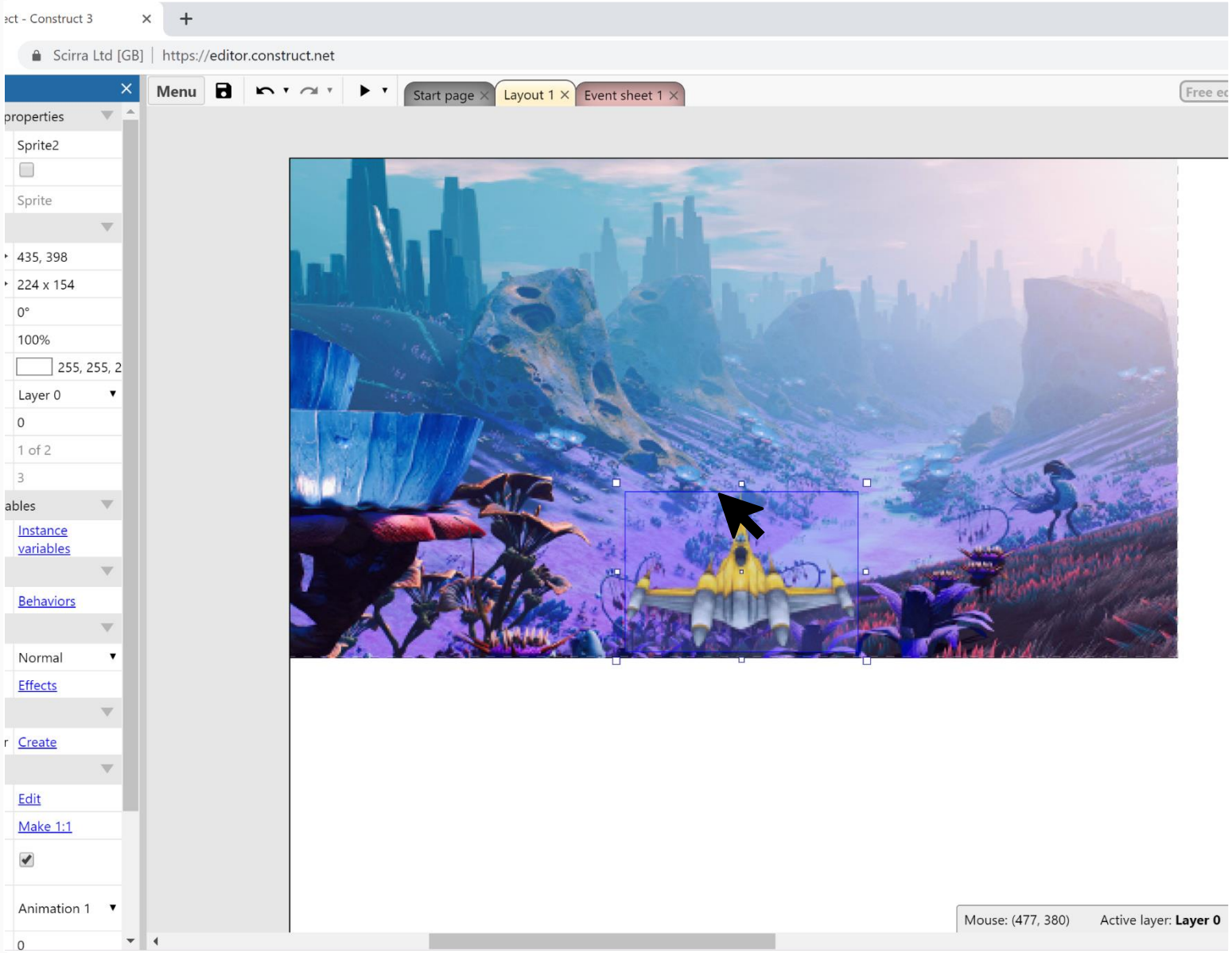
Move sprite



To move your sprite click and drag it down to the bottom centre of the screen

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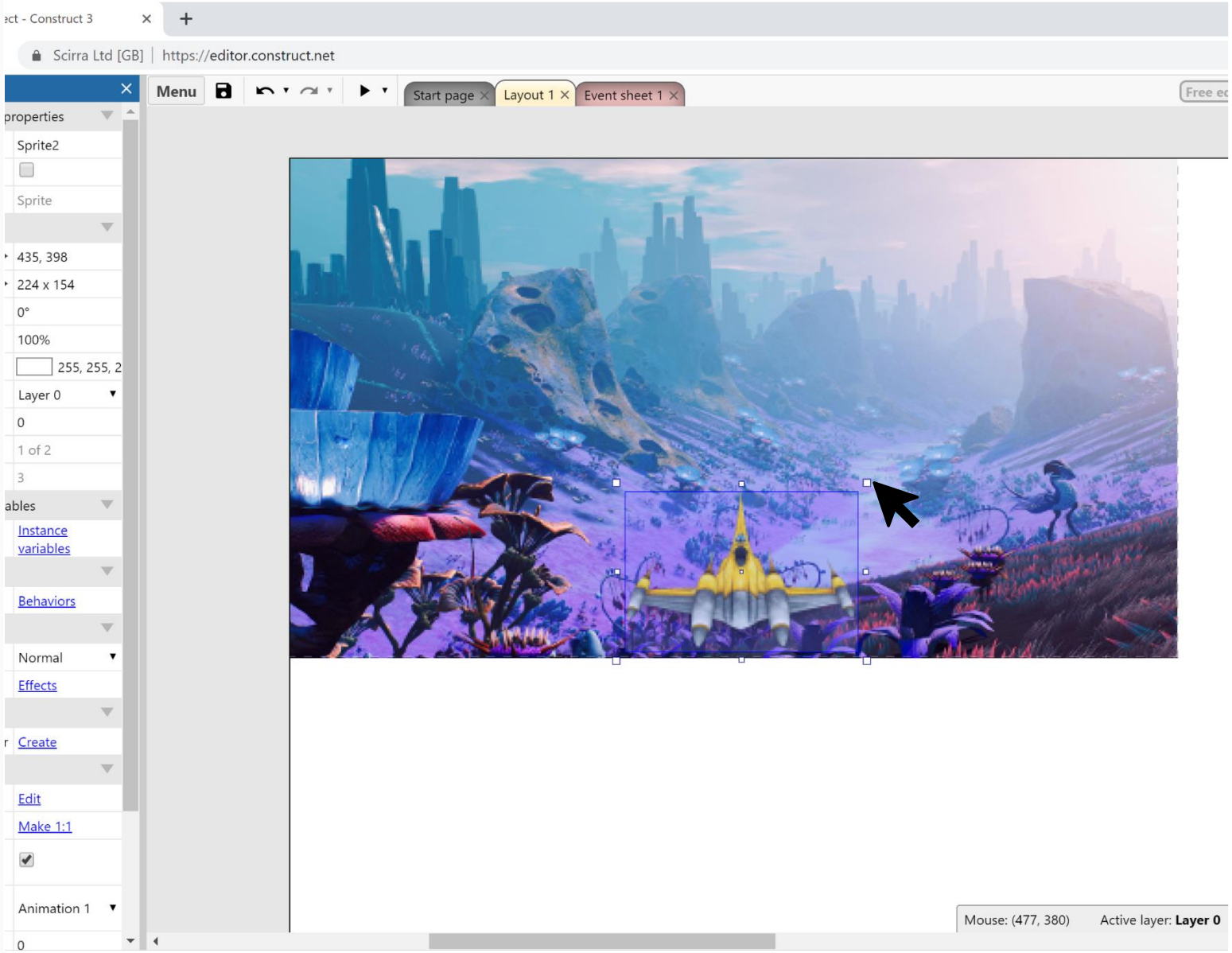
Resize sprite



To resize a sprite click and drag on one of the ■ at the edge of the sprite

Drag the ■ towards the middle of the ship sprite until the ship is the right size

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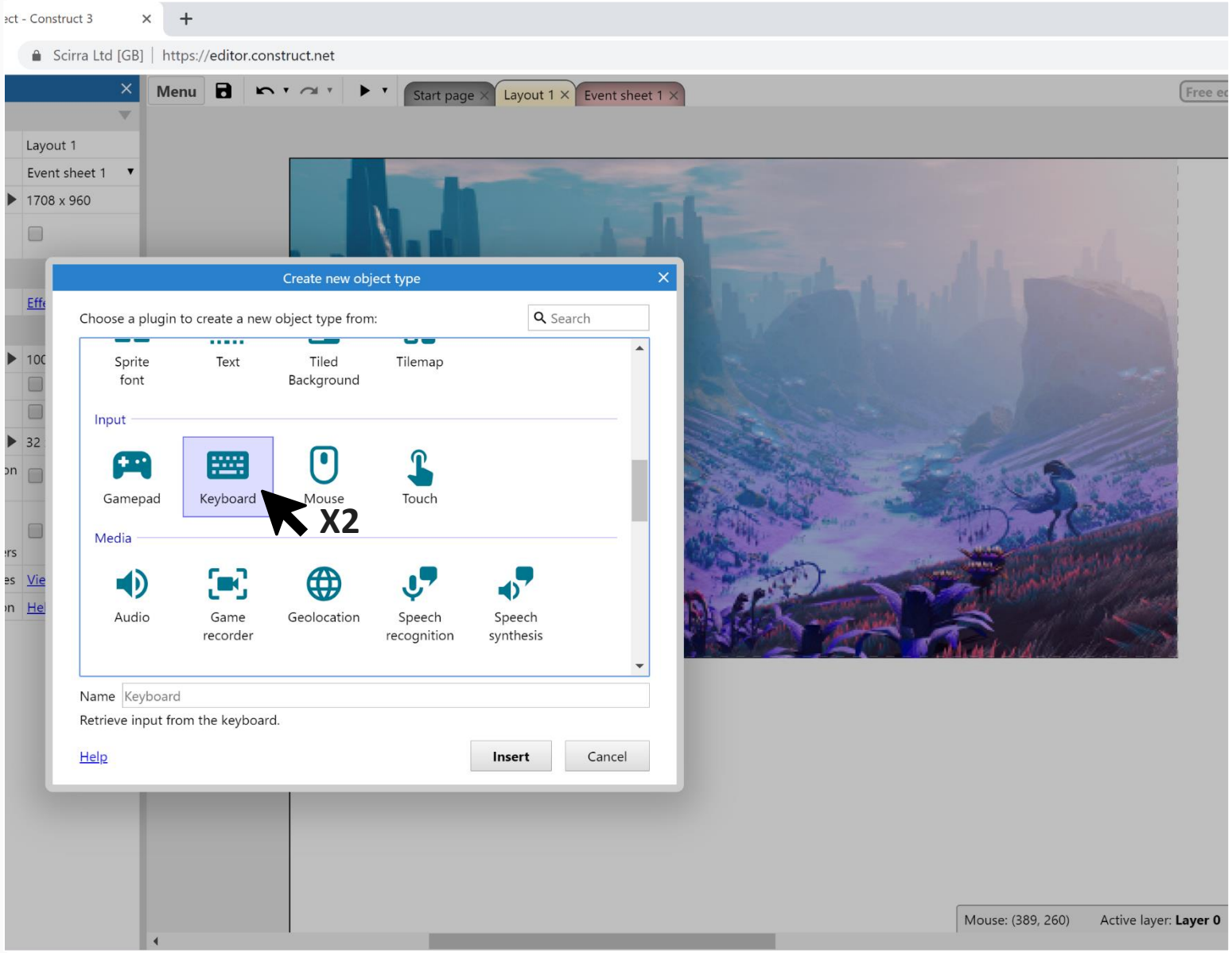
Program sprite



Our ship is going to move by pressing the arrow keys

To make your game able to take keyboard input you need to add the keyboard object

Double-click in a space (this can be anywhere since the background is locked) this time, select
the Keyboard object

Now all layouts in our project can accept keyboard input

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Programming your ship

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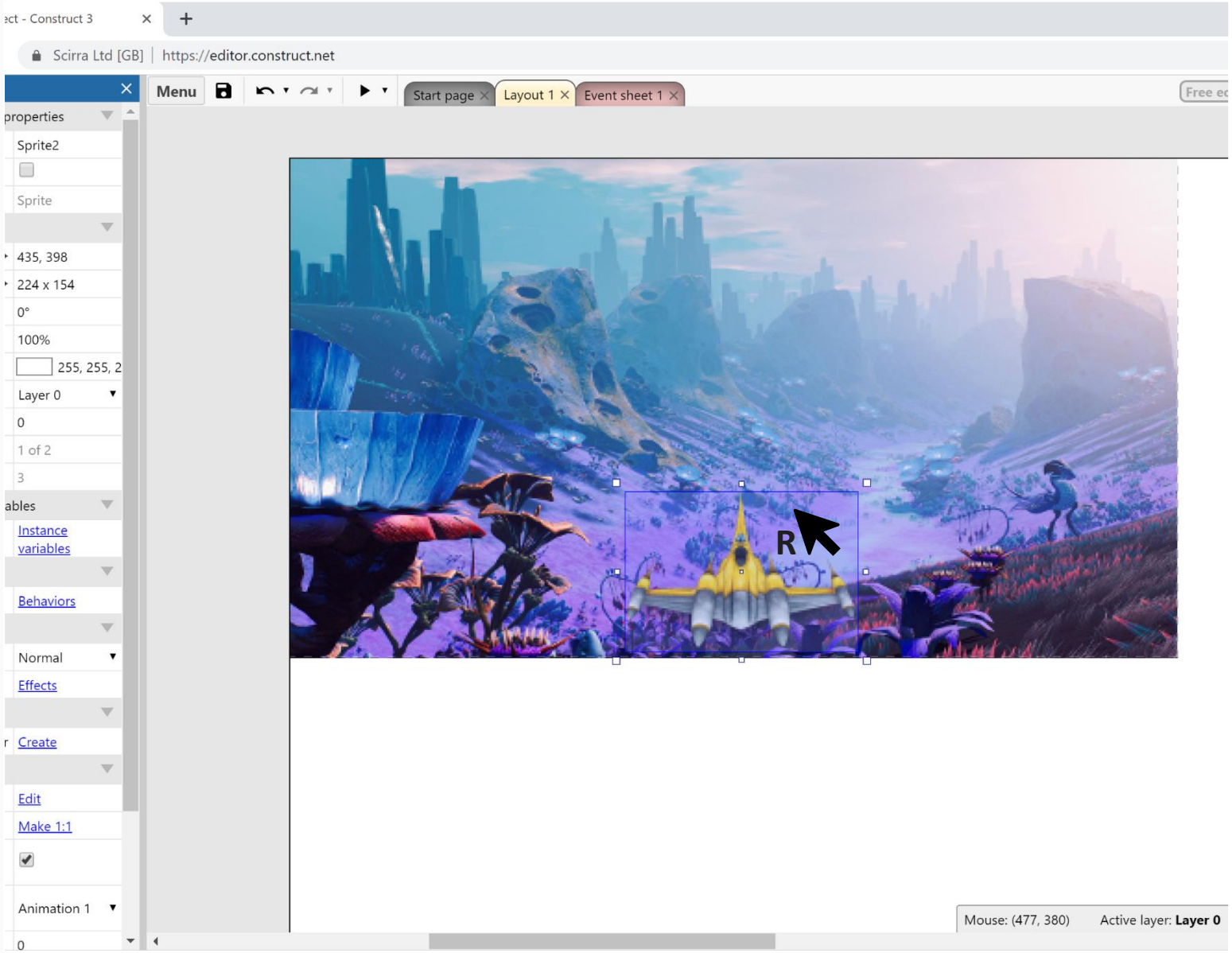
Program sprite



Now we are going to add the behaviours that will make your ship move right and left using the arrow keys

Right click on the ship sprite

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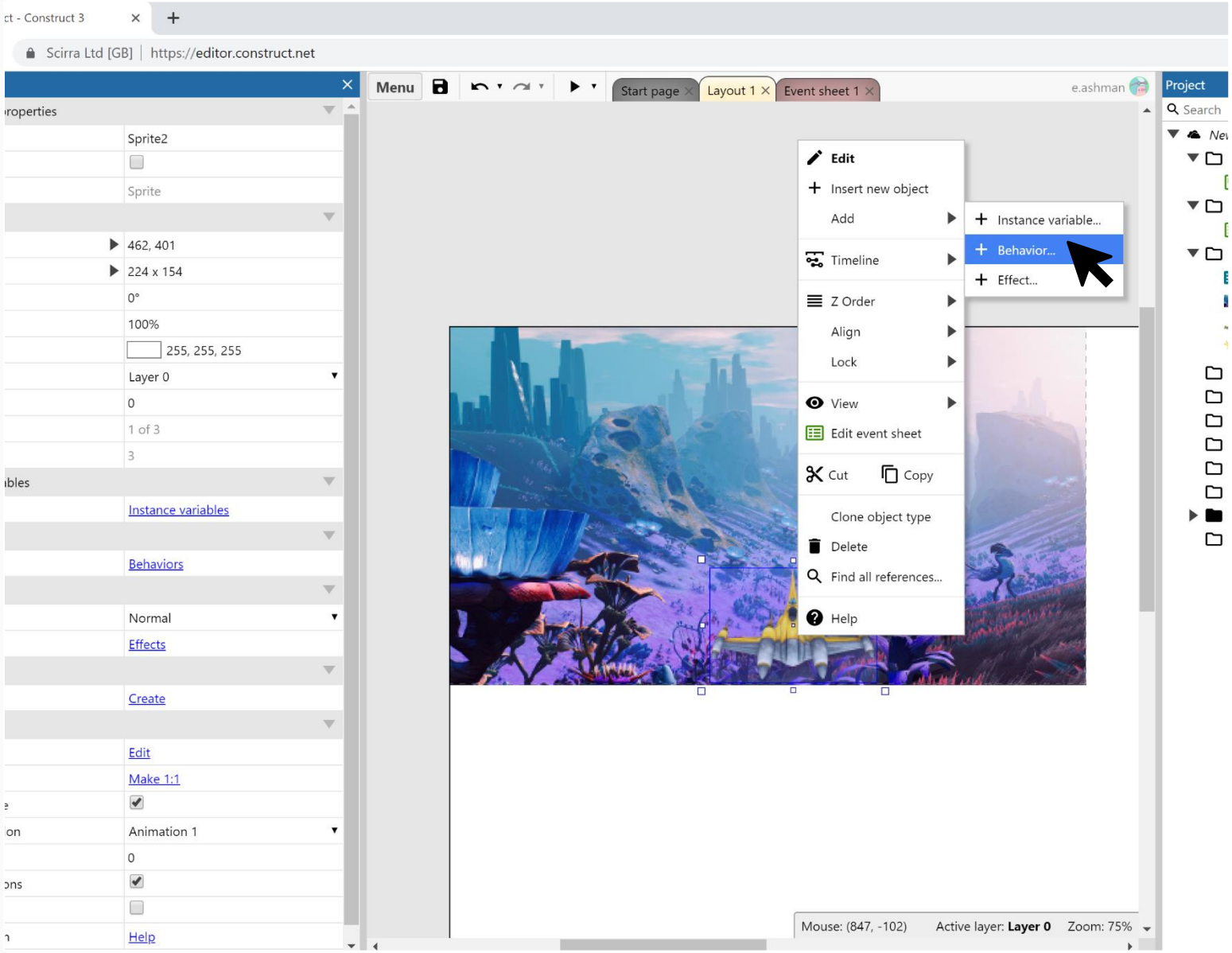
Program sprite



Click on Add

Then click on Behaviour

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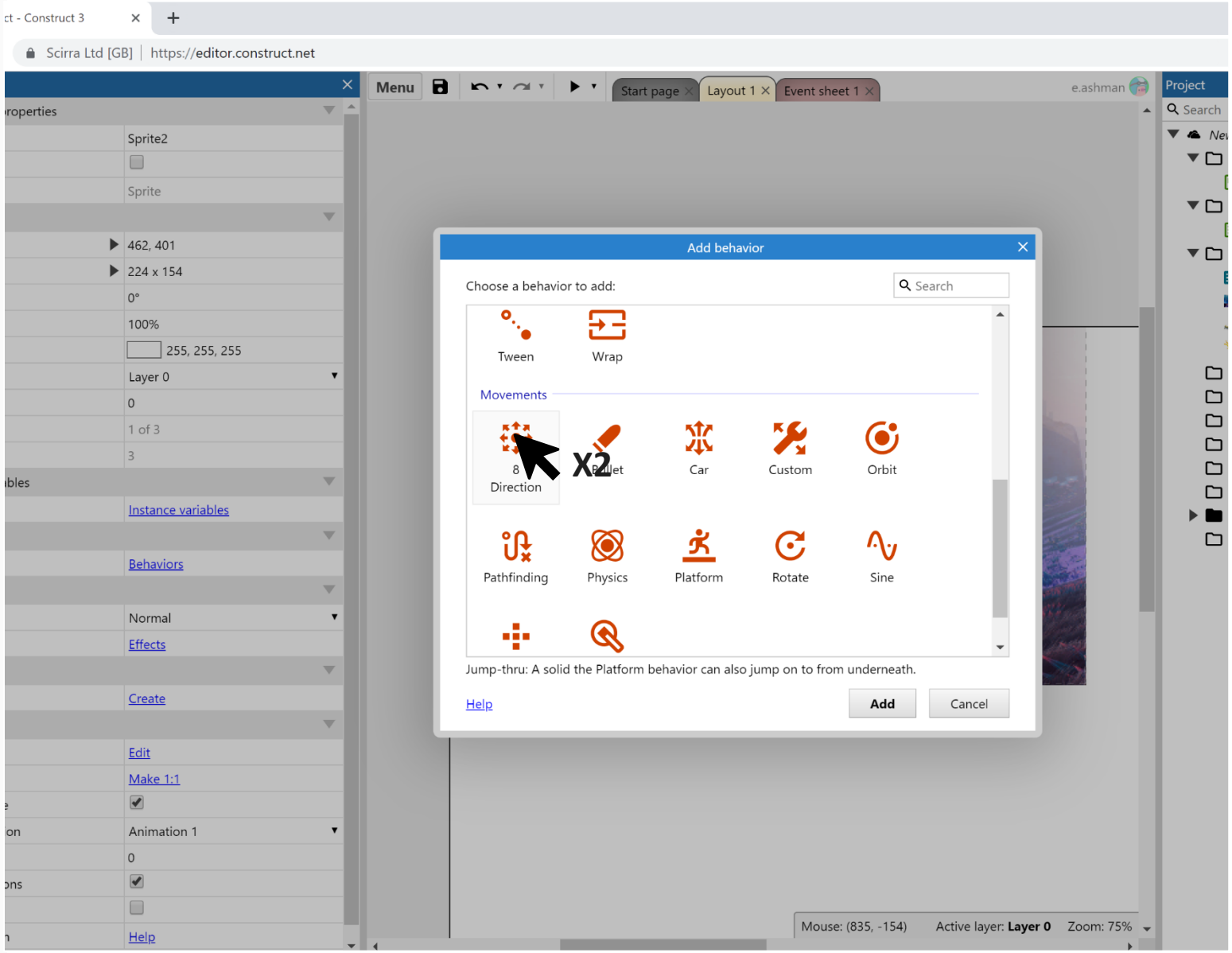
Program sprite



Double click on 8 Direction movement

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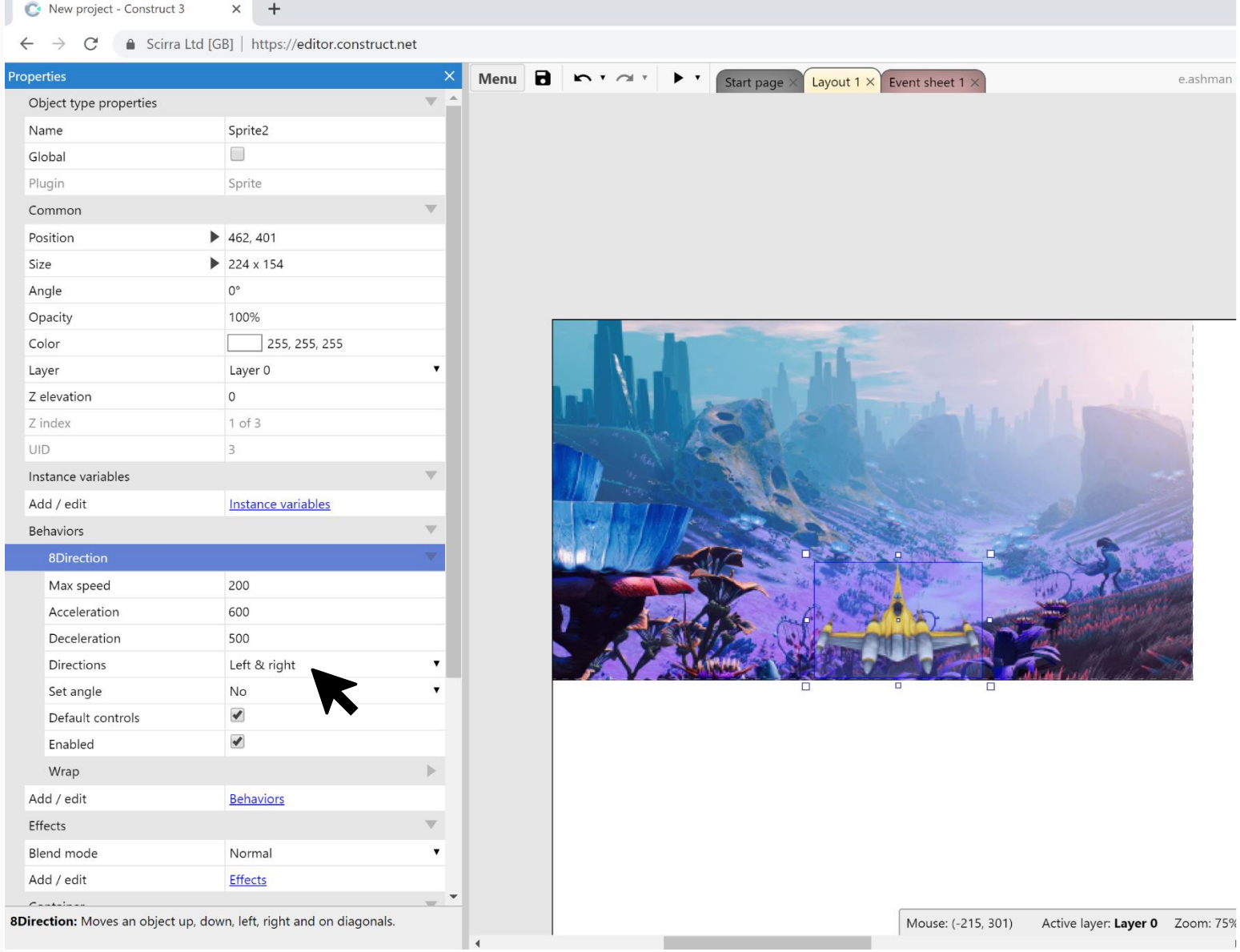
Program sprite



In the properties bar on the left

Set:

Directions to Left & right

Set angle to No

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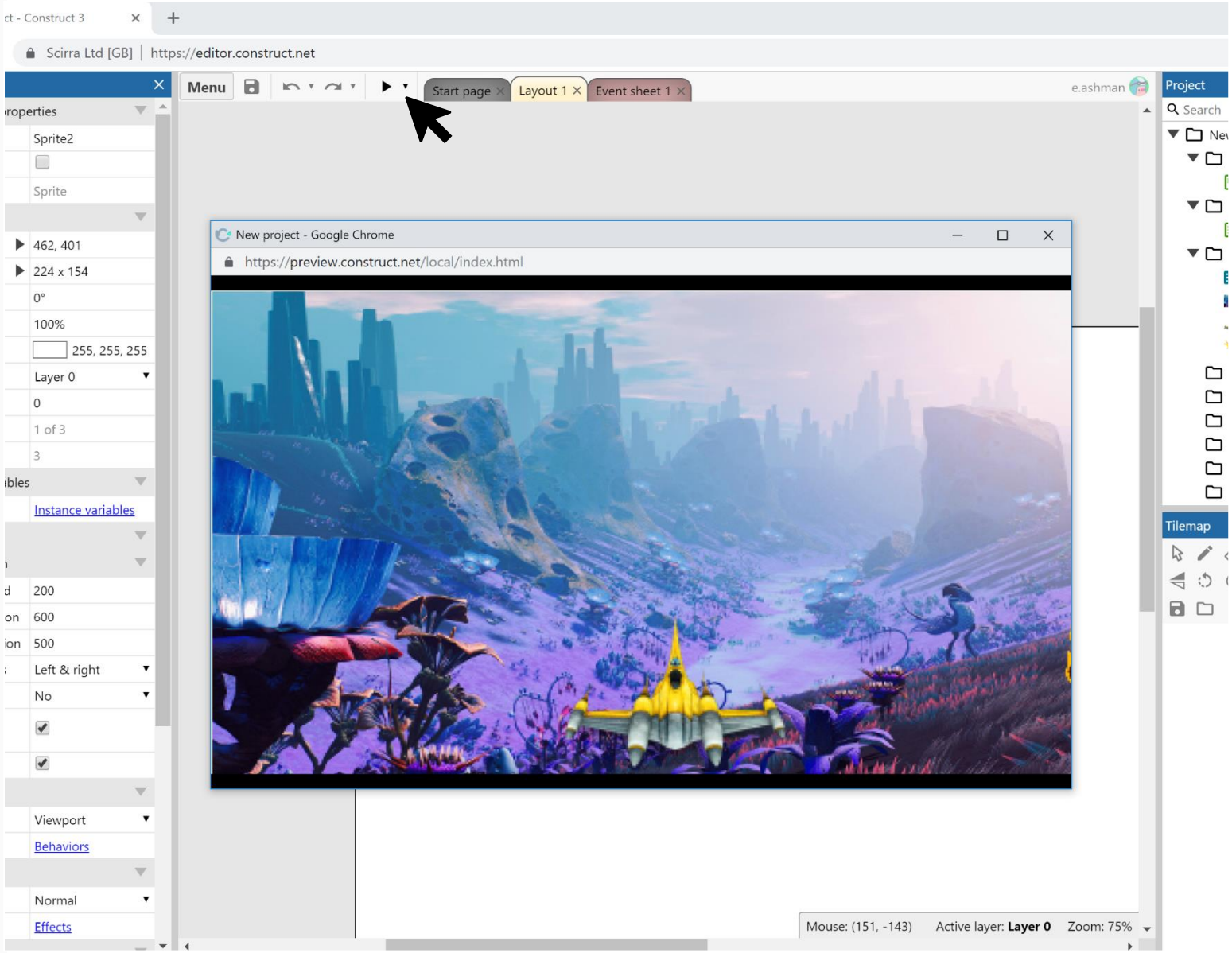
Test your game



Click the ▶ Preview button in the main toolbar

Test your game by pressing the right and left arrows on your keyboard

Your ship should move, if it doesn't go back a few steps and make sure you have completed everything

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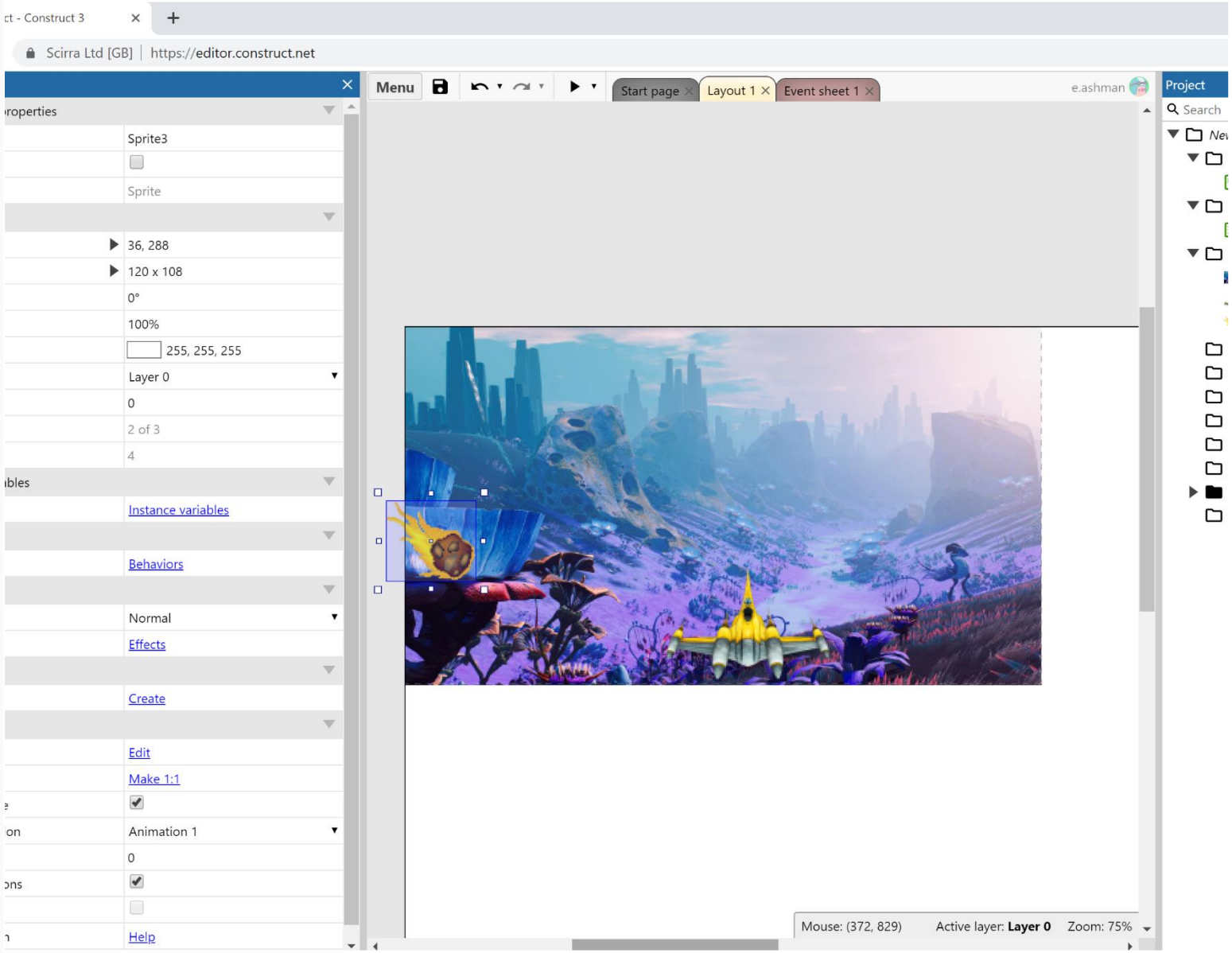
Add sprite



Next we will add the meteor sprite

Double click to insert a new object

Double click the Sprite object

When the mouse turns to a crosshair, click somewhere in the layout

The image editor pops up. Click the Load image button, and add the meteor

Close the image editor

You should now see the meteor in the layout!

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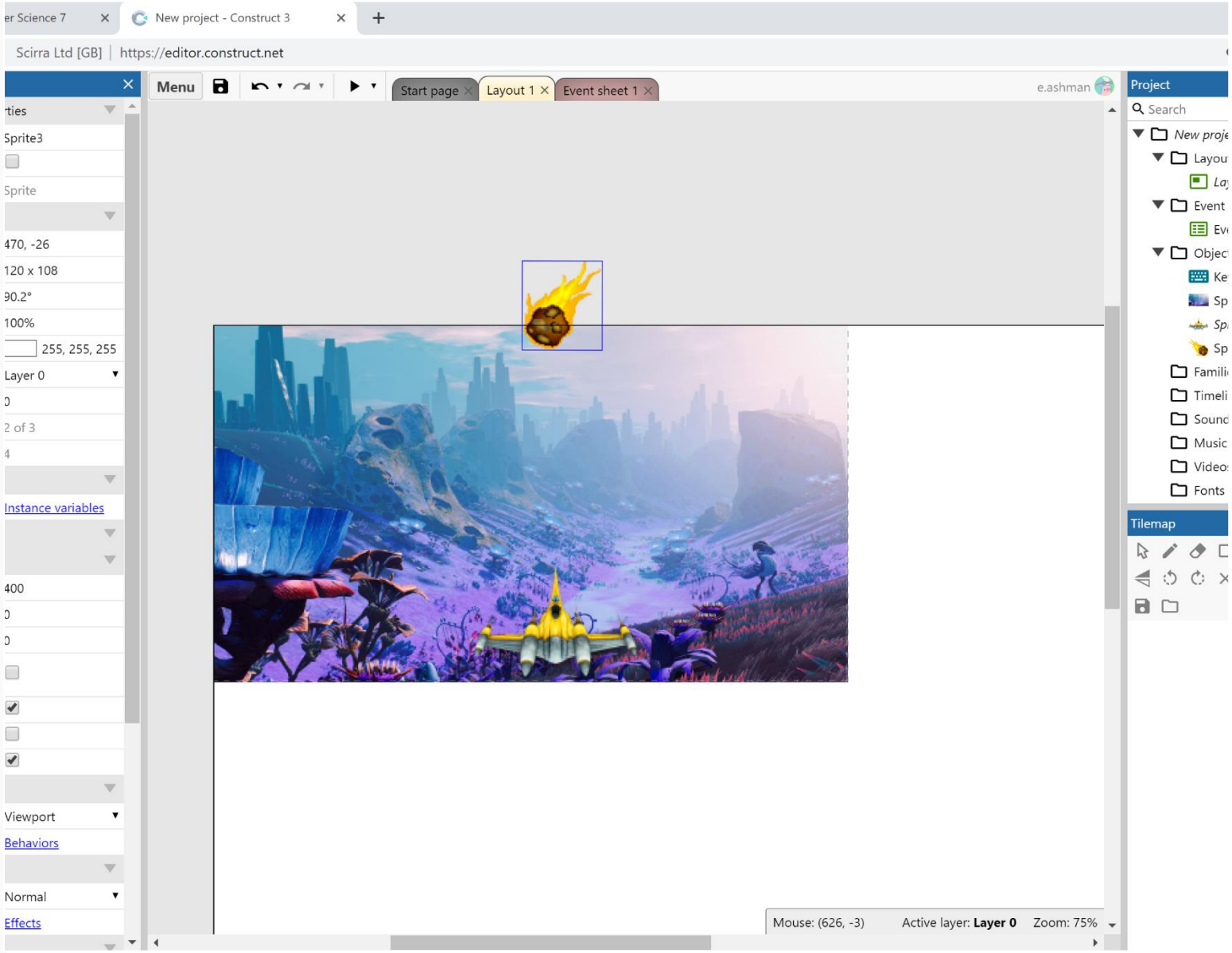

Move and resize sprite

Now we will move and resize the meteor sprite

Click on the Meteor and move it up above the ship sprite

Use the Shrink tool to make it smaller

(if you can't remember how to, ask a friend or go back to move ship and resize)

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Program your meteor

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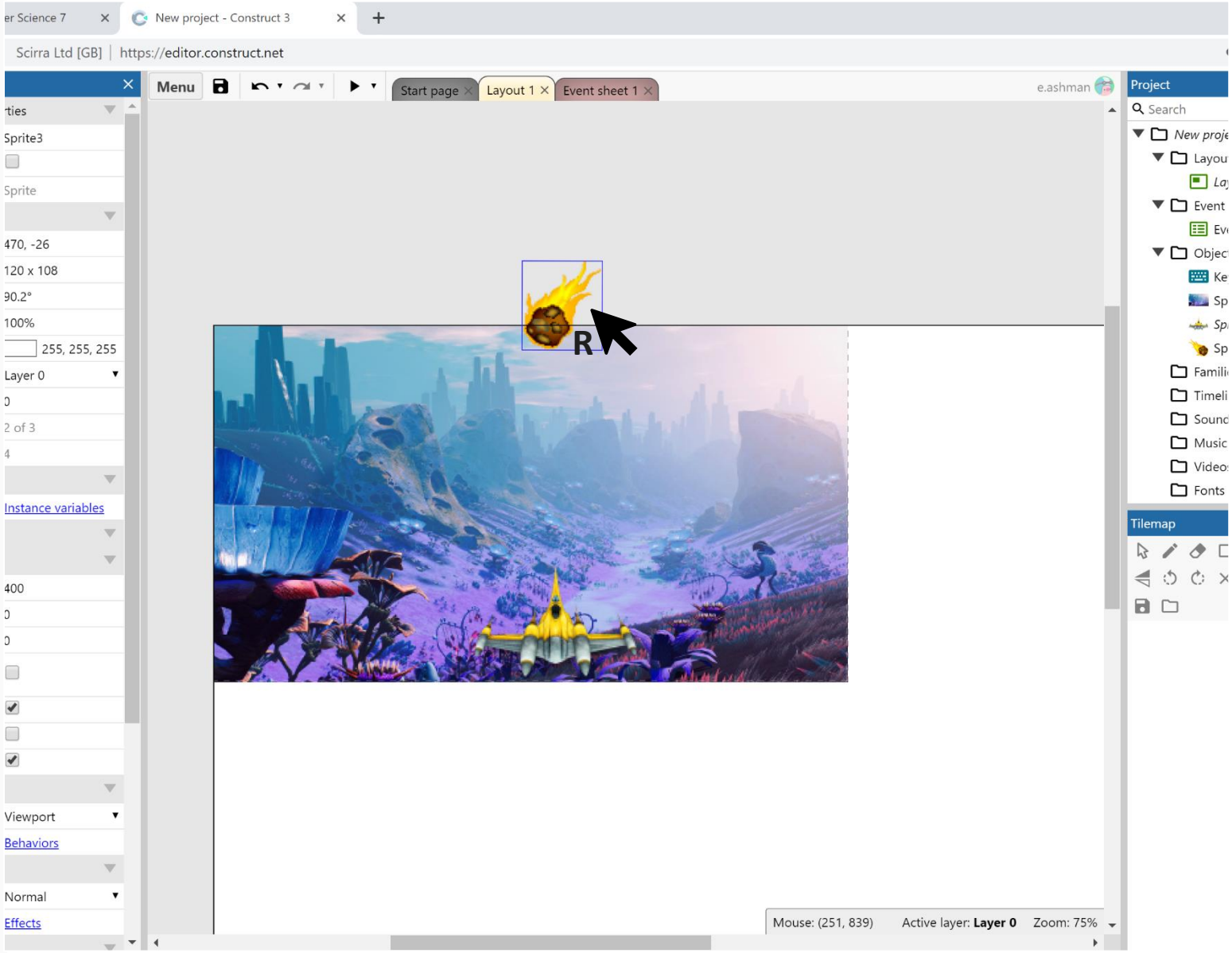
Program sprite



Now we are going to make our meteor move

Right click on the meteor sprite

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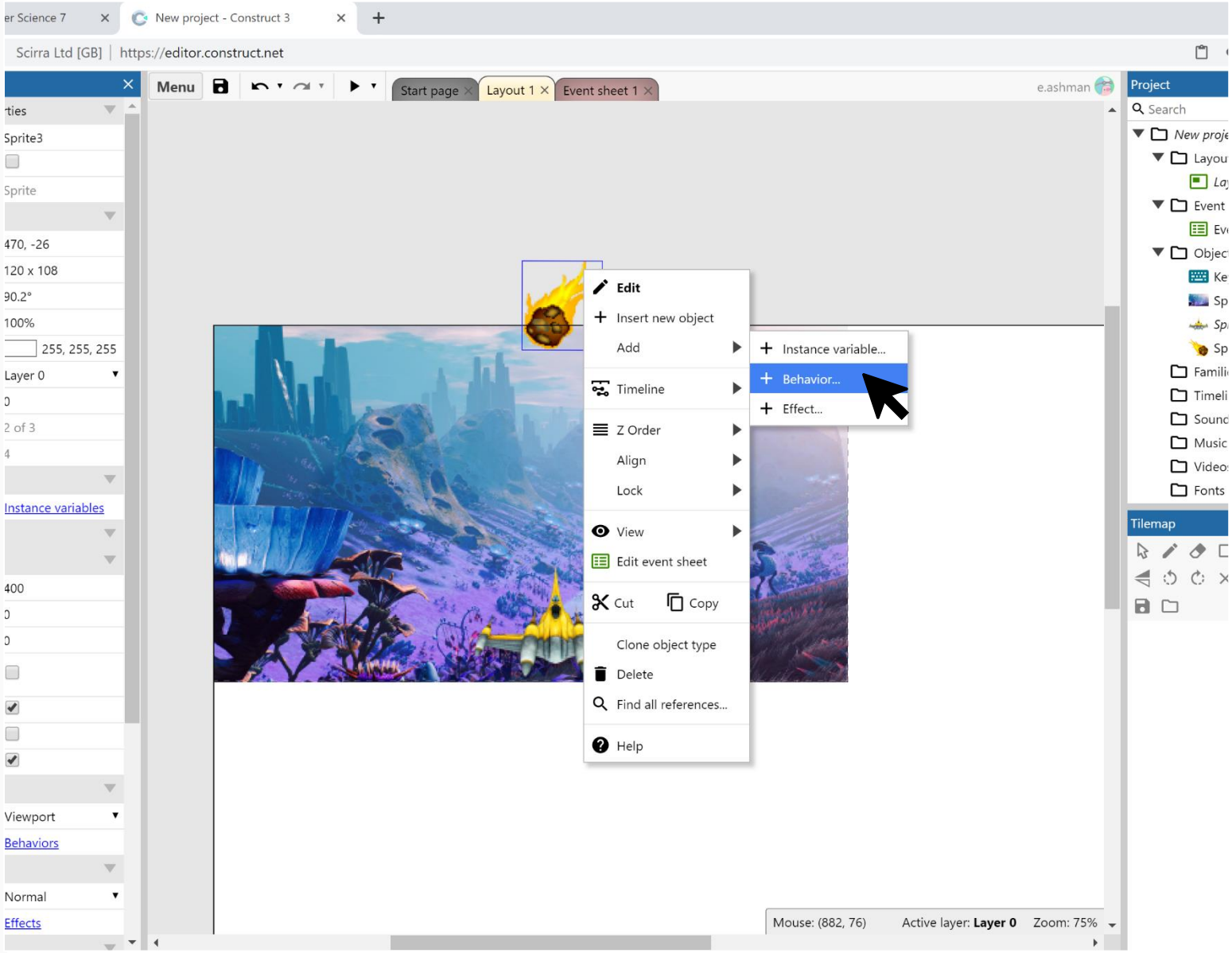
Program sprite



Click on Add

then Behavior…

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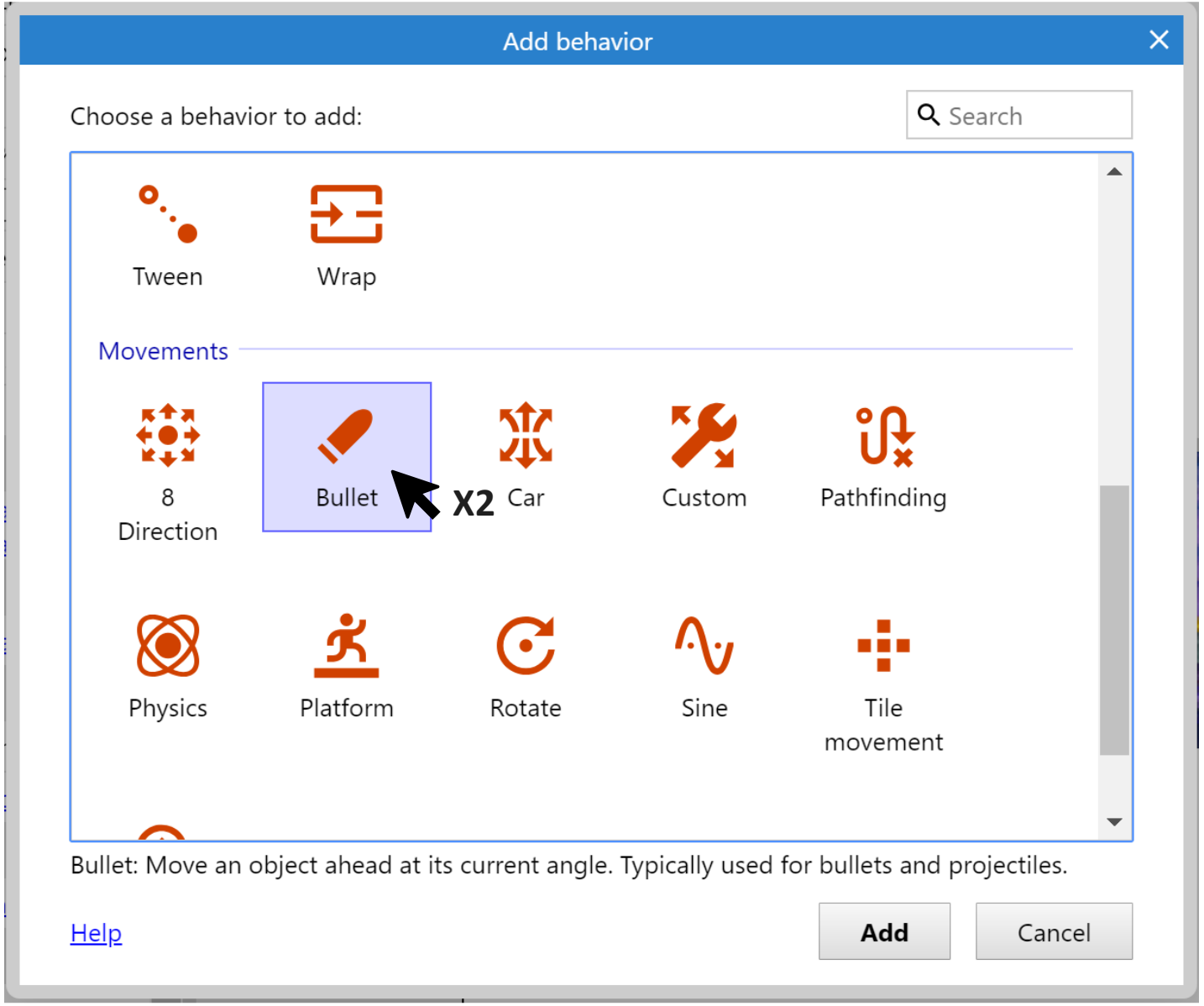
Behavior: Bullet



Double click on the bullet behaviour

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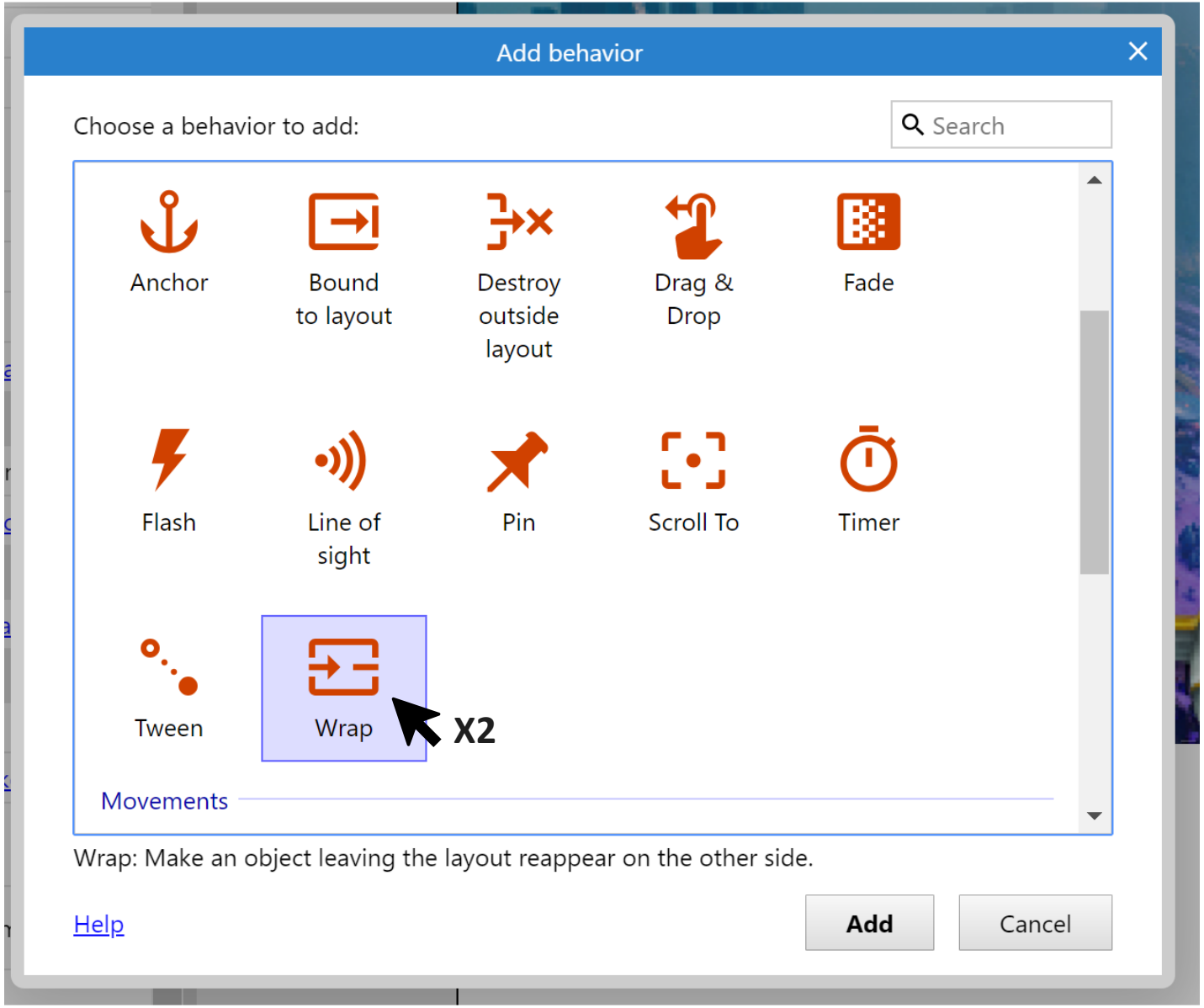

Behavior: Wrap

If you test your game now you will find that the meteor shoots across your screen never to be seen again

To prevent this you need to add the wrap behaviour which makes the meteor re-appear on the other side of the screen

Add a second behaviour

Wrap

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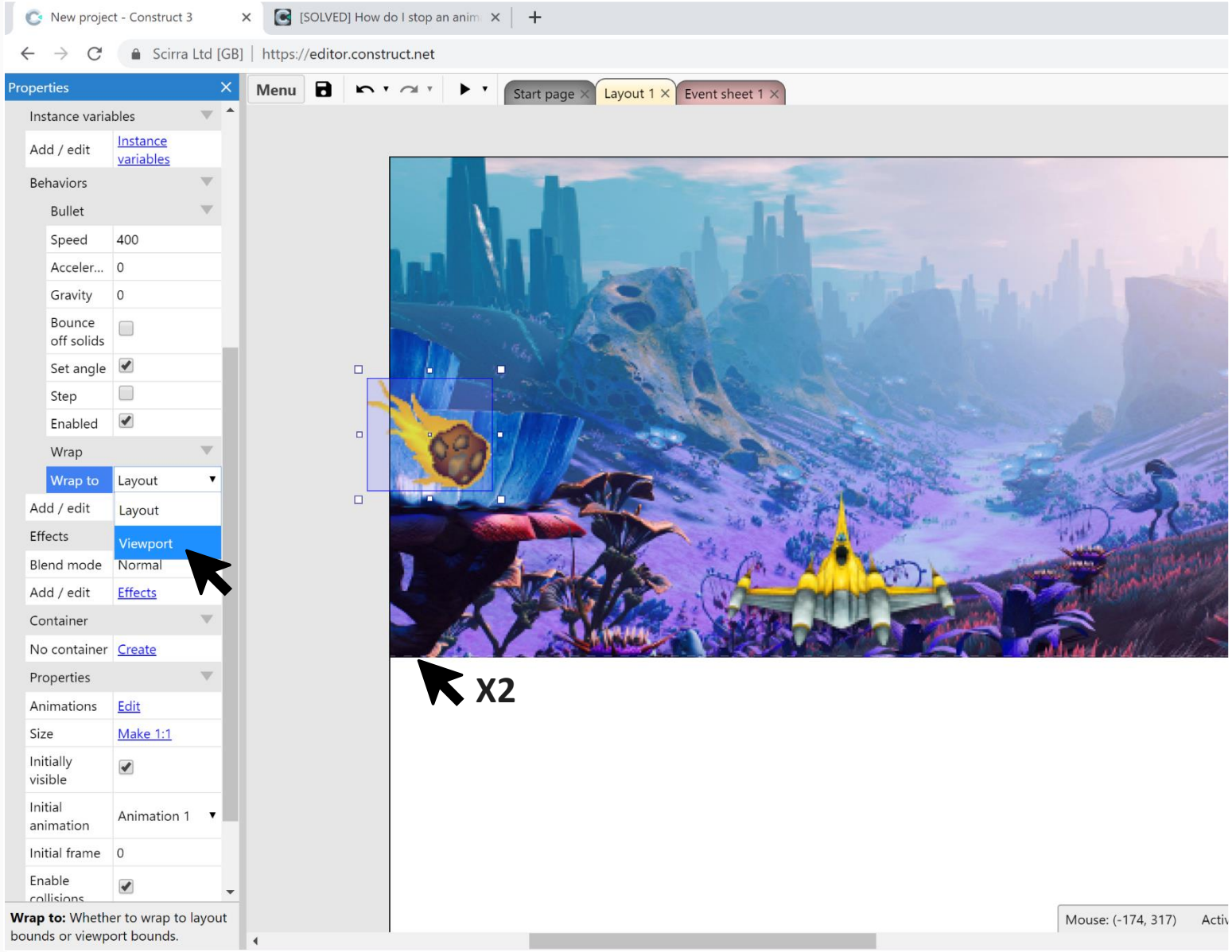
Behavior: Wrap



The meteor now wraps but it takes a long time to re-appear on the other side

This is because the meteor is wrapped to the whole layout and not just the viewport where you can see your game

In the properties bar

Select wrap to viewport

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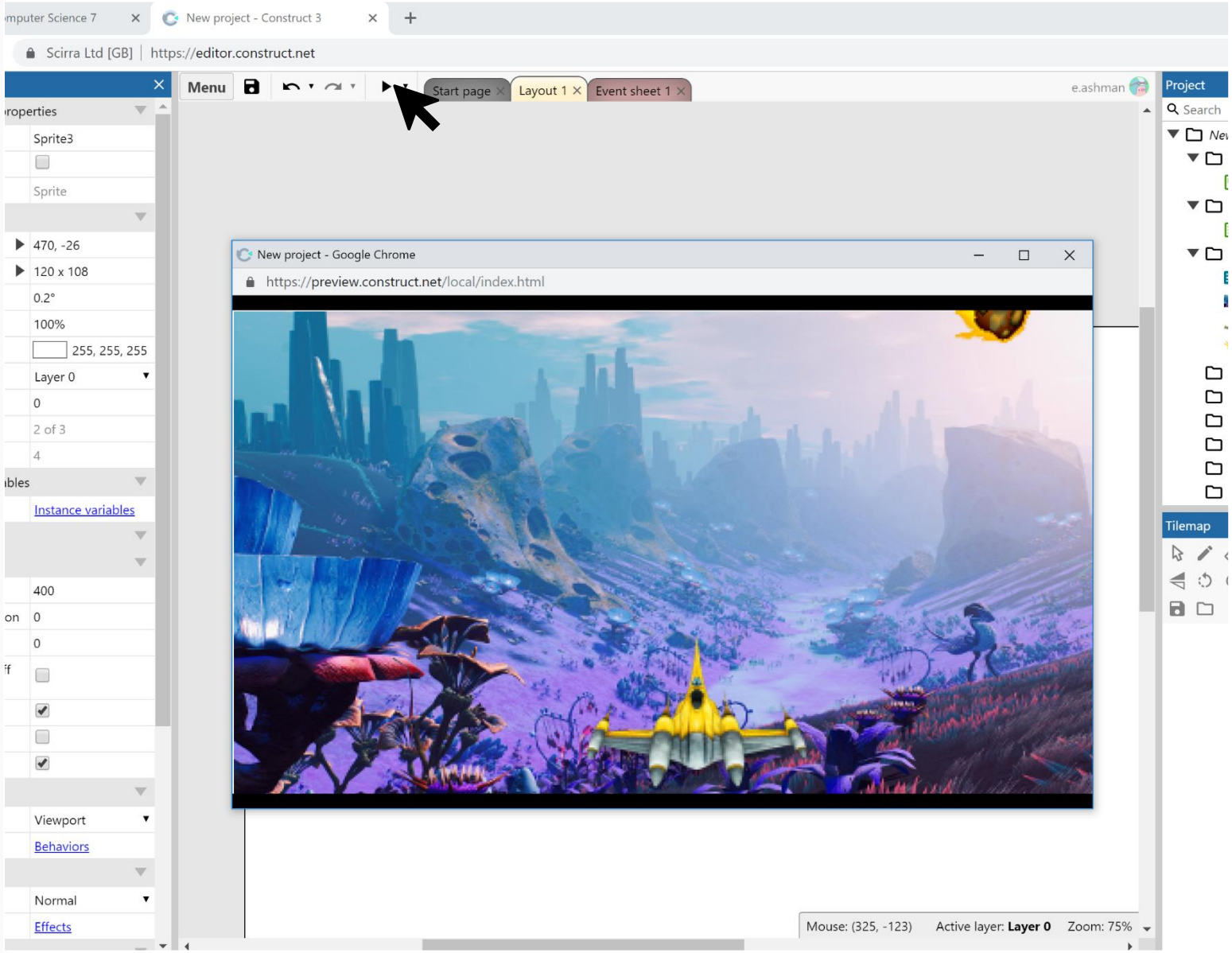
Test your game



Test your program again

Click on the ►, your meteor should fly across the screen

But we need it to fall down …

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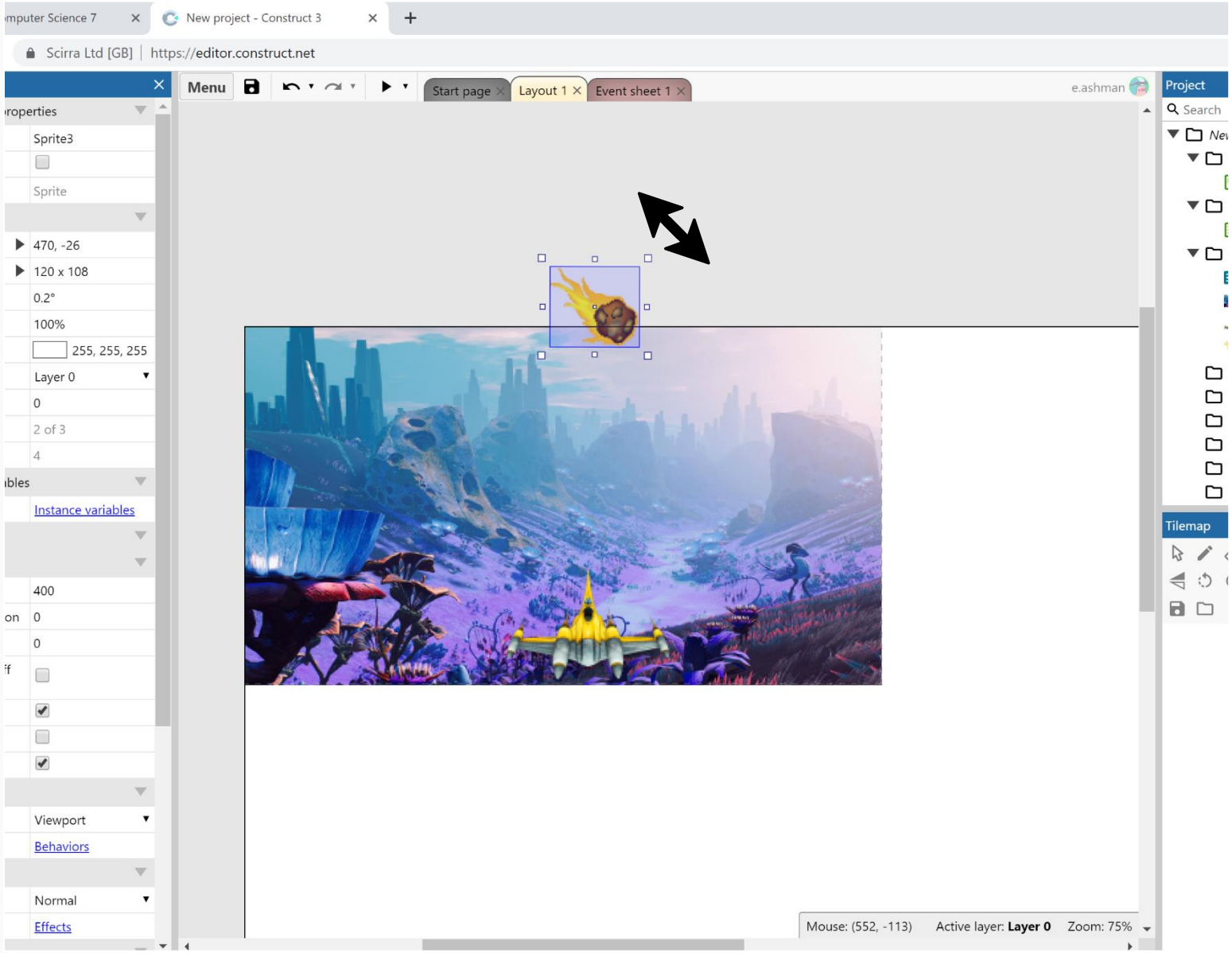
Rotate sprite



To make your meteor fall down from the sky you need to rotate your sprite

To do this move your mouse cursor to just outside of the resize tool, it will turn into a two ended arrow

Click and drag your sprite to spin it around 90°

You can also set this angle in the properties bar

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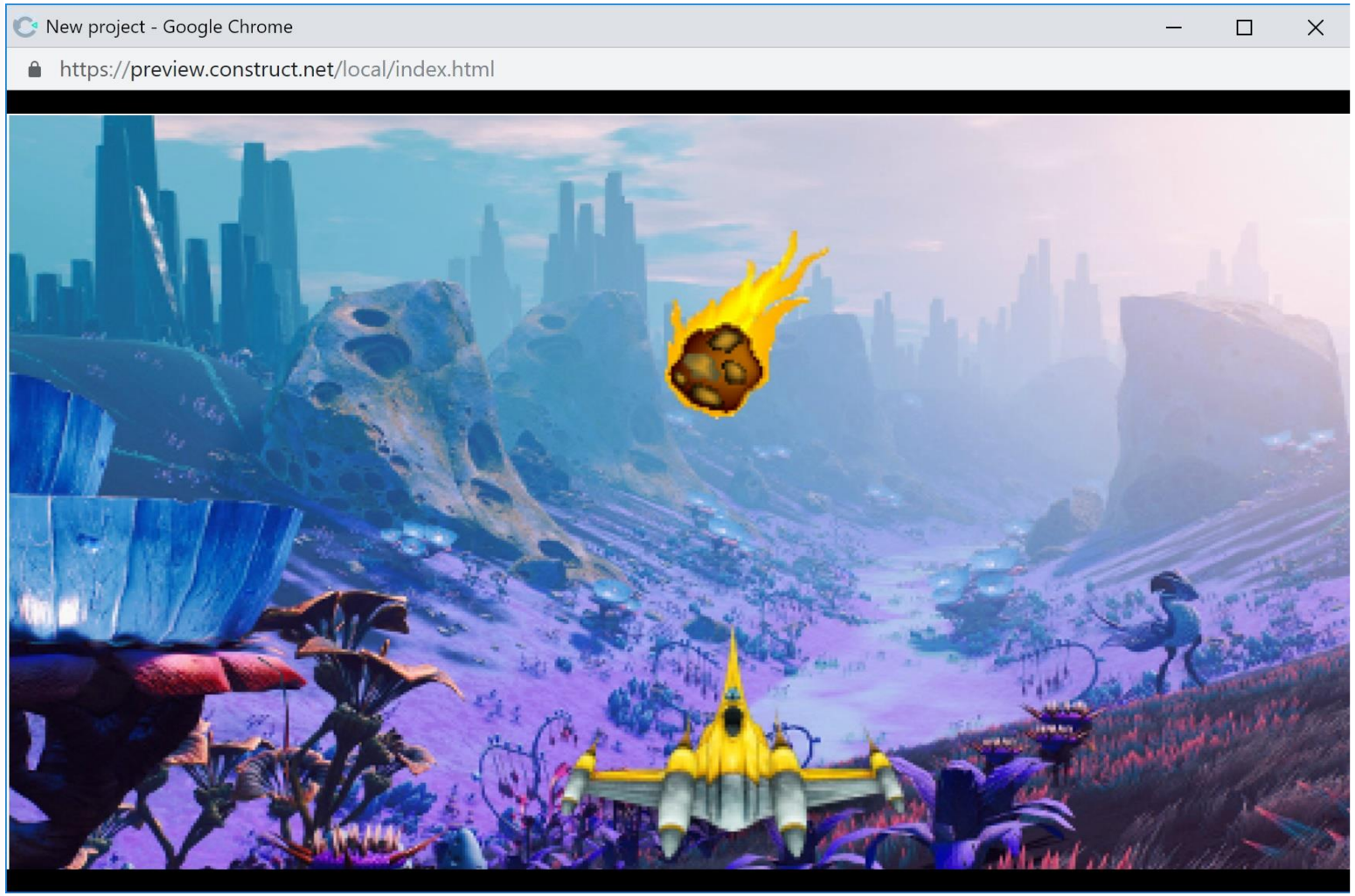
Test your game



Test your program again

Click on the ►, your meteor now falls down the screen

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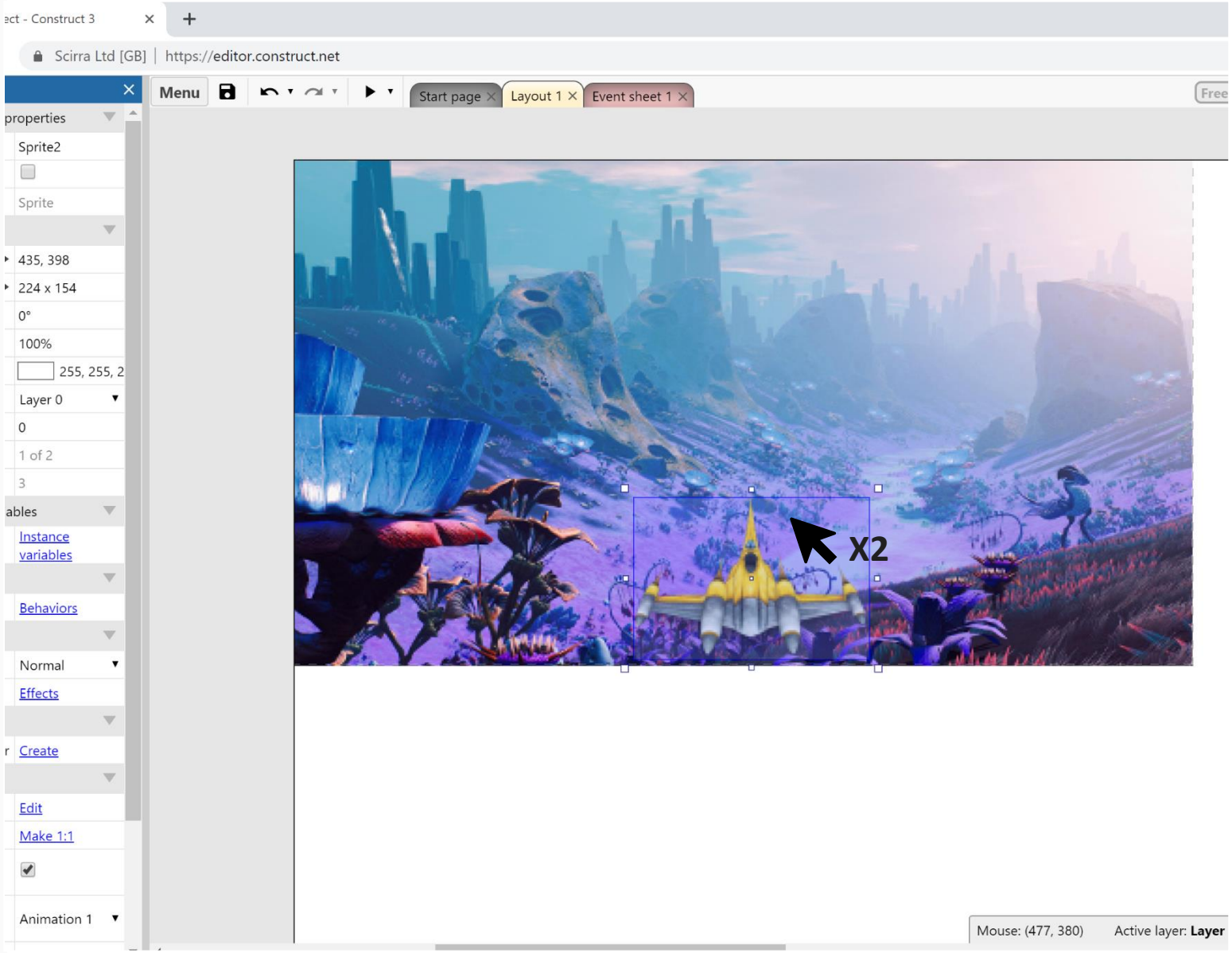
Animate sprite



Now we are going to make our ship fire by adding a second version of the ship sprite which we can switch to by pressing space bar

Double click on the ship to open the image editor

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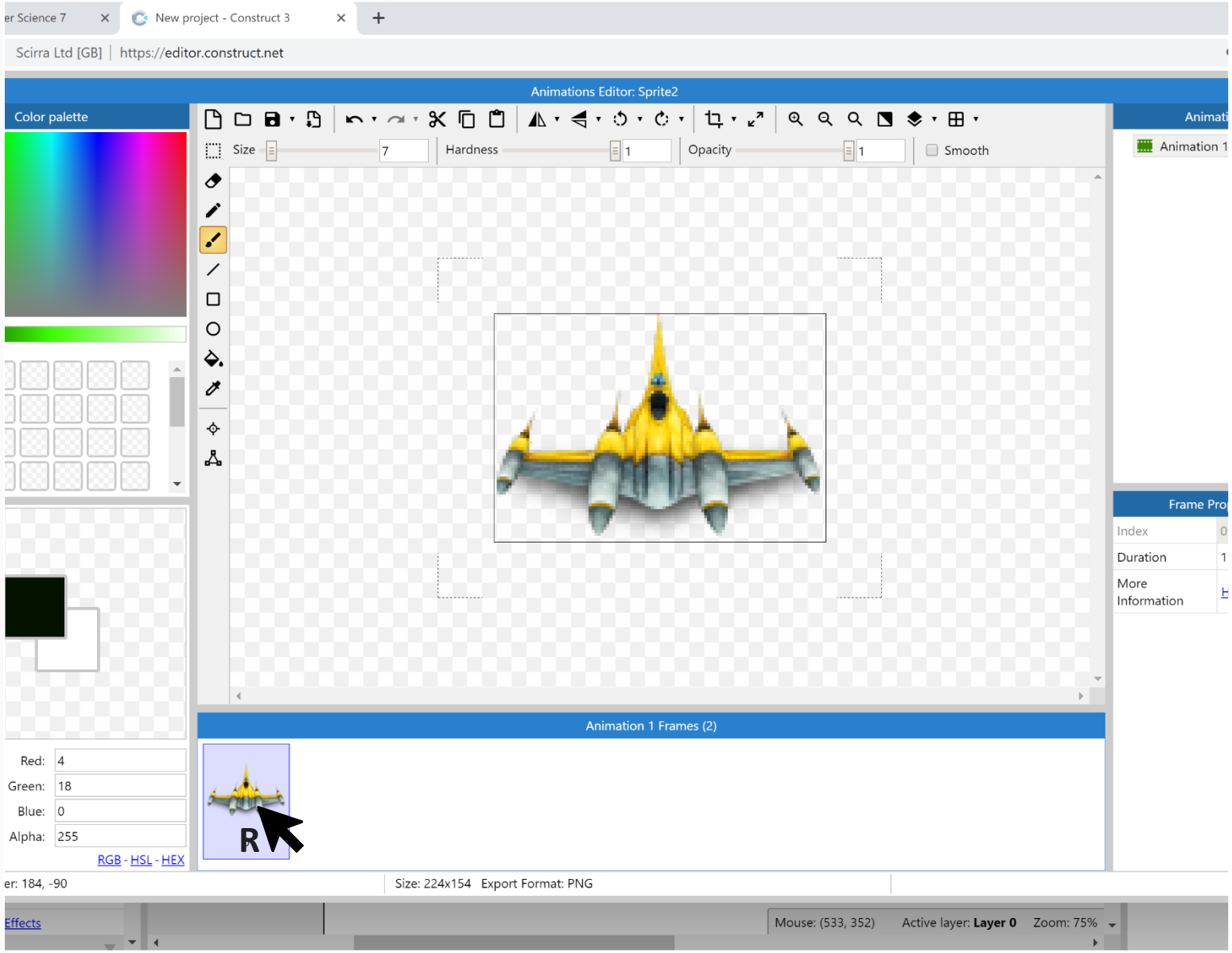
Animate sprite



Right click on the ship's frame 0

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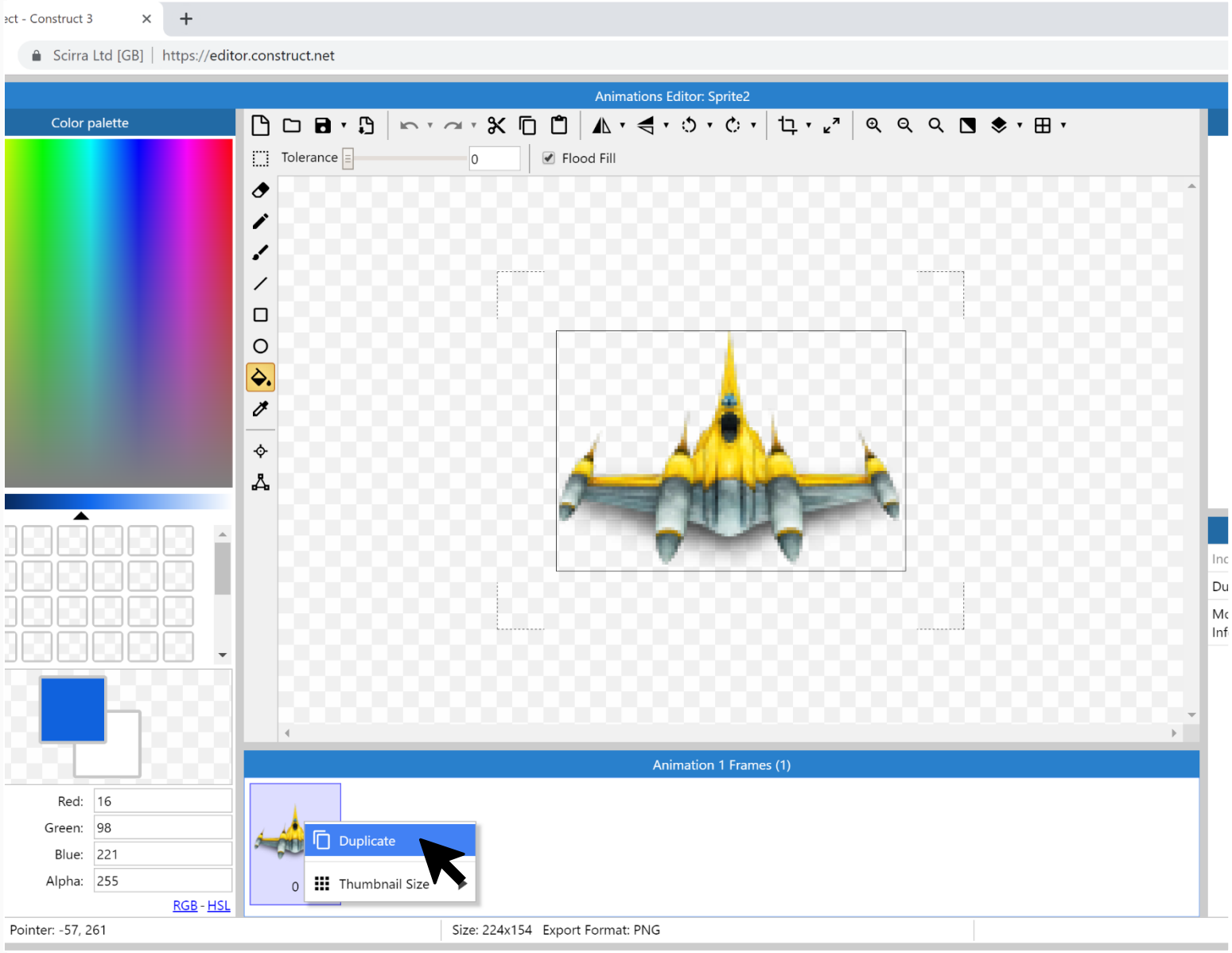
Animate sprite



Click on duplicate

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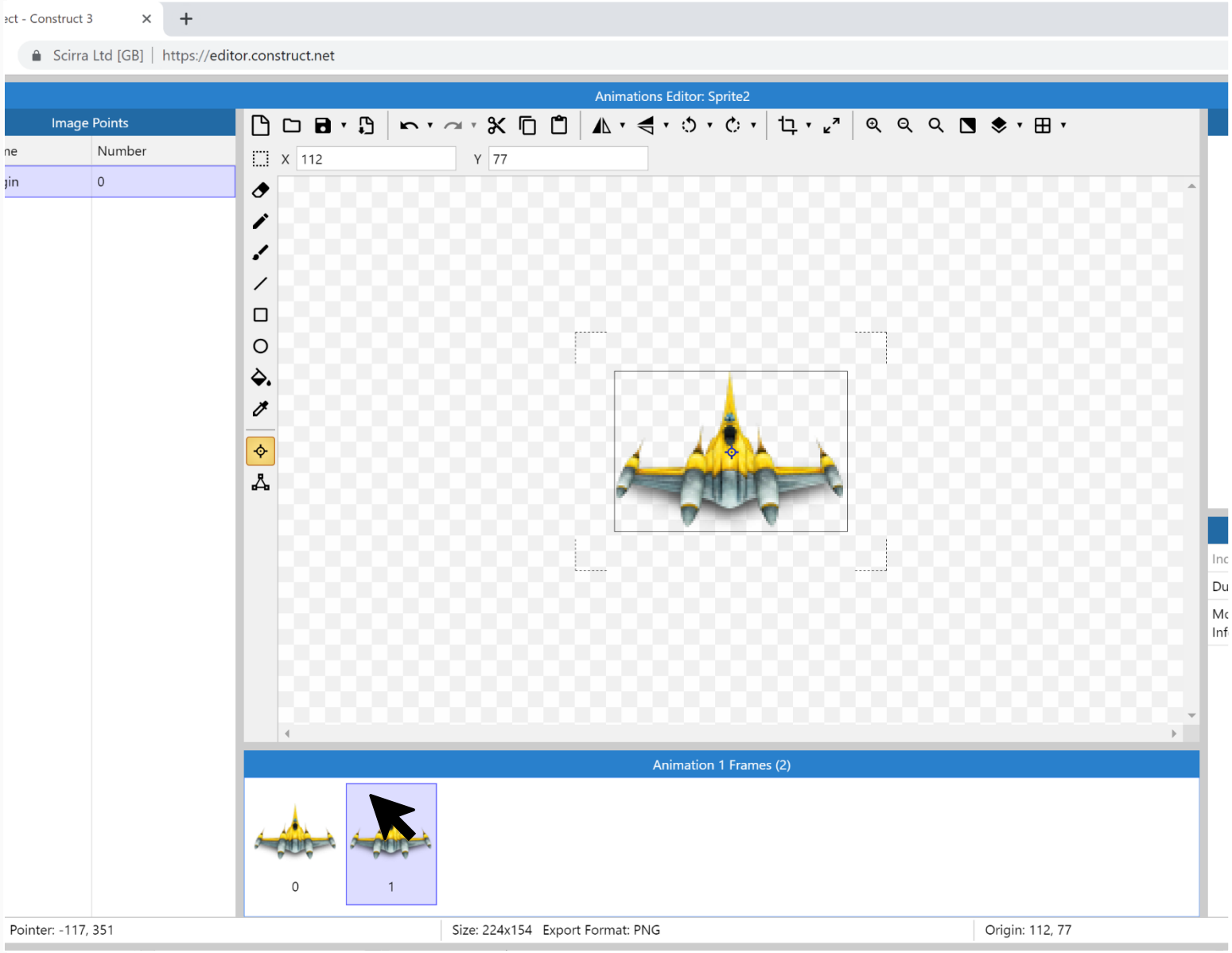
Animate sprite



Click on frame 1

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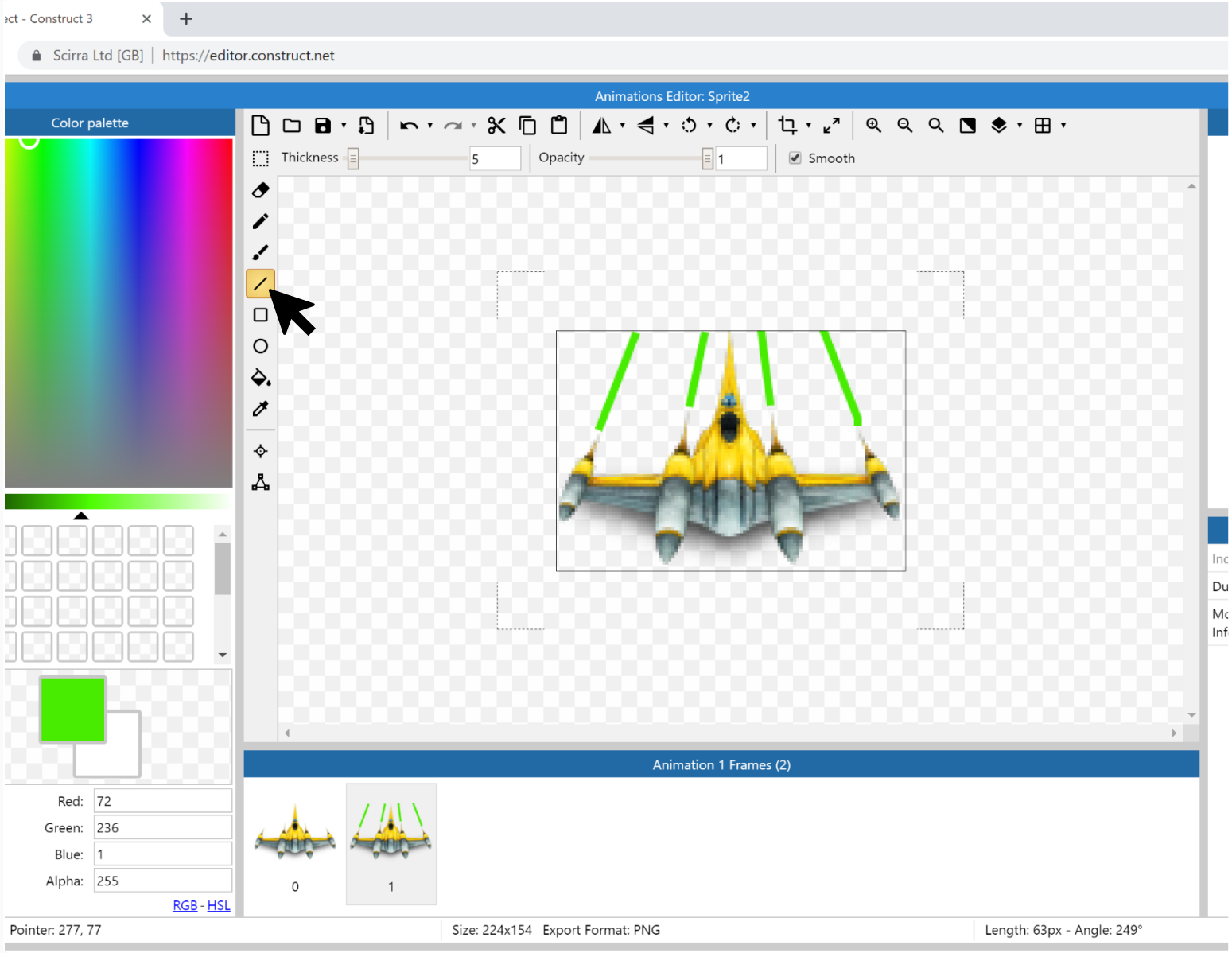
Animate sprite



Click on the line tool and select a suitable colour for your lasers

Draw lines to make the ship look like it is firing its weapons

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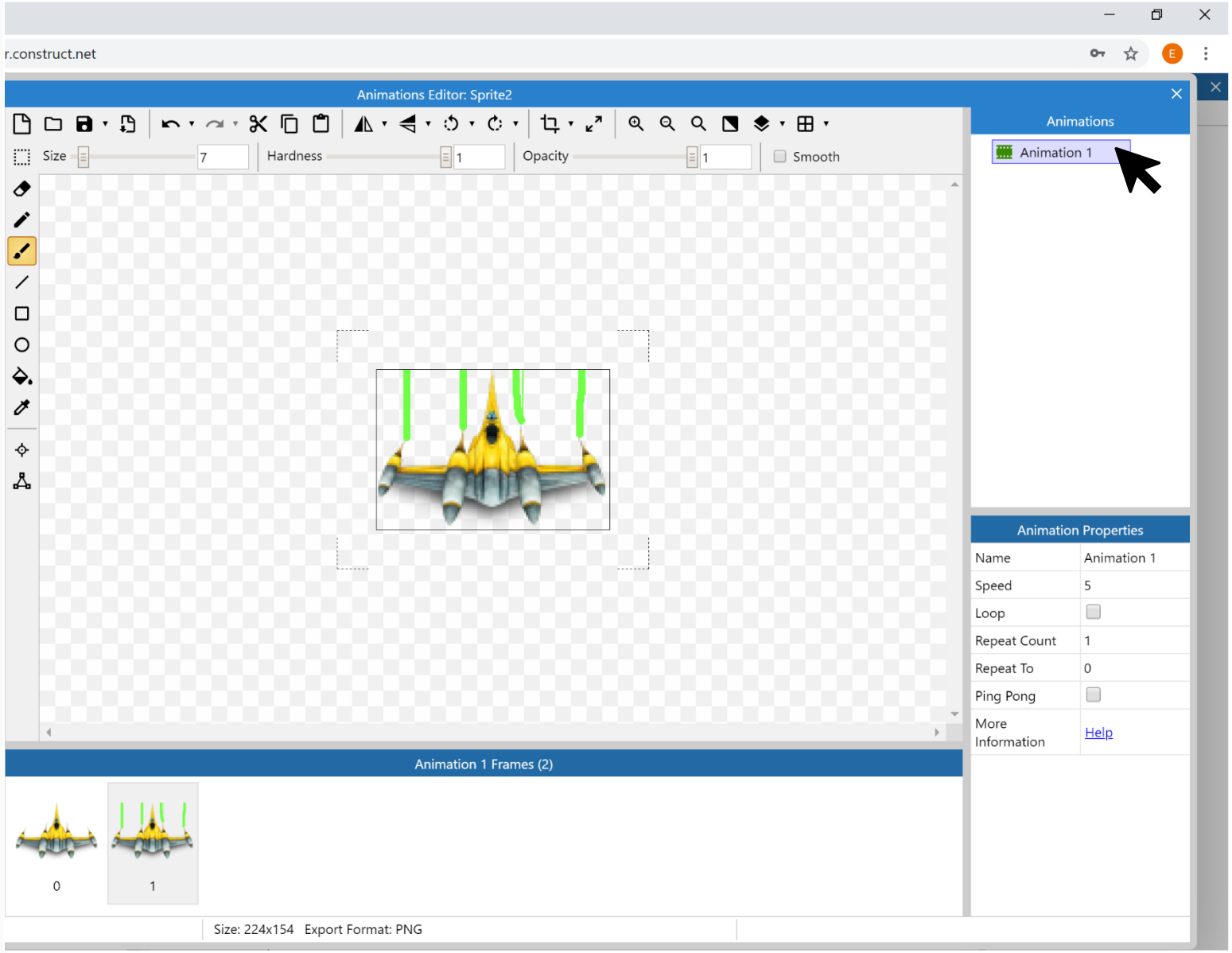
Animate sprite



To stop the animation from automatically playing

Click on Animation

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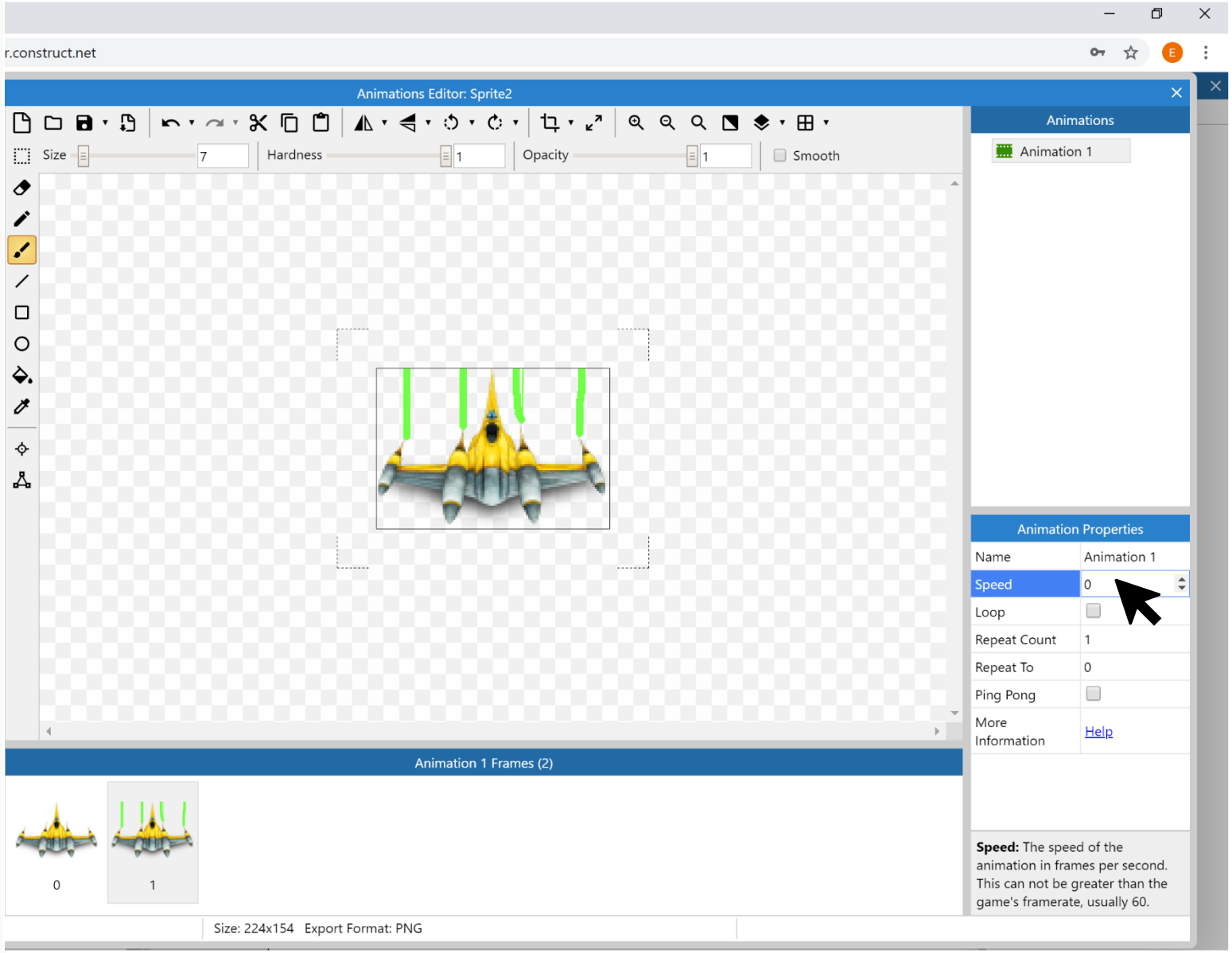
Animate sprite



Set the Speed to 0

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DIGITAL SCHOOLHOUSE together with NINTENDO SWITCH

Starlink.

Programming the lasers

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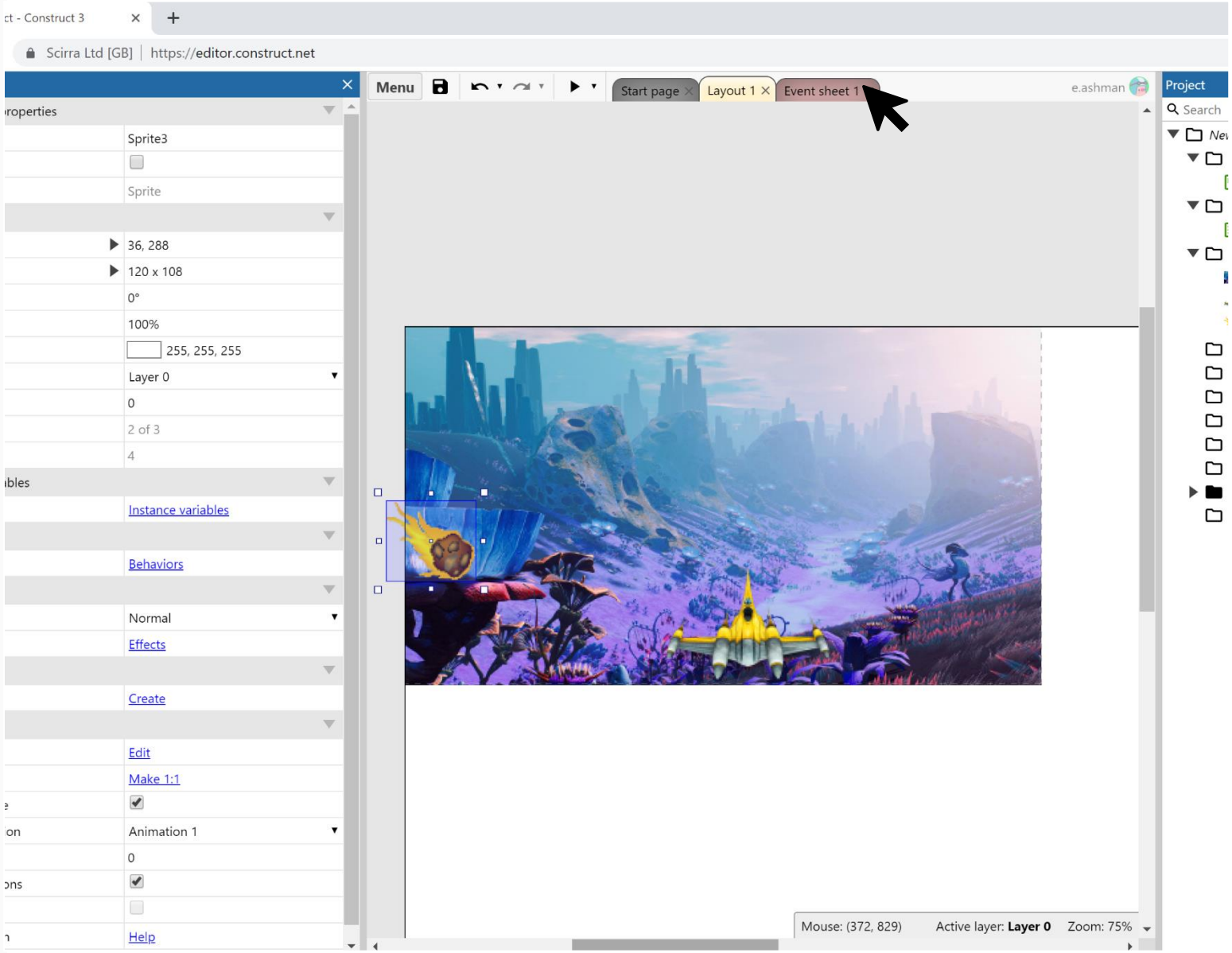
Program sprite



Now we are going to program our ship so the game switches to the firing version of our ship sprite when the space key is pressed

In Construct 3 we use events to program our sprites

Click on Event sheet 1

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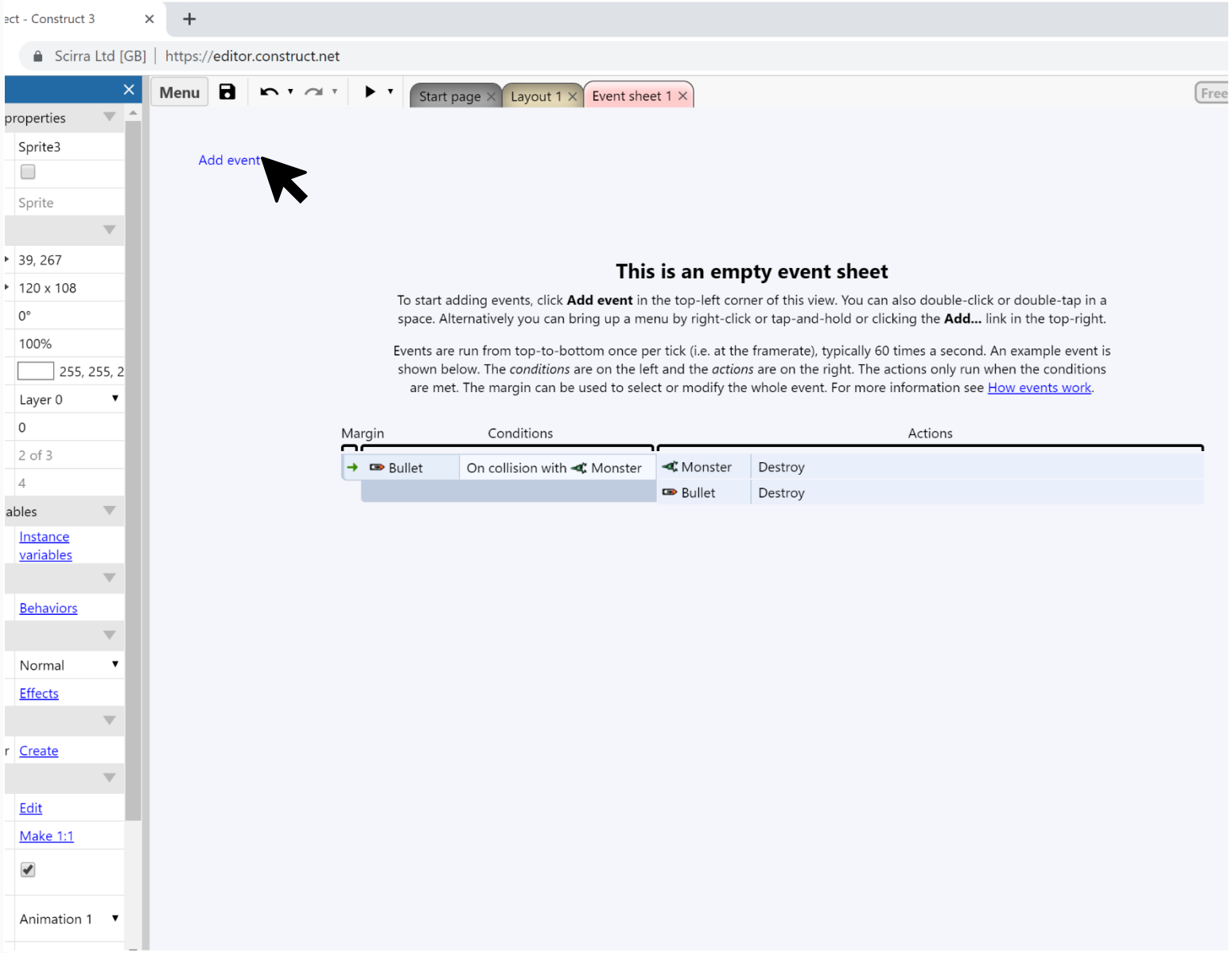
Program sprite



Click on Add event

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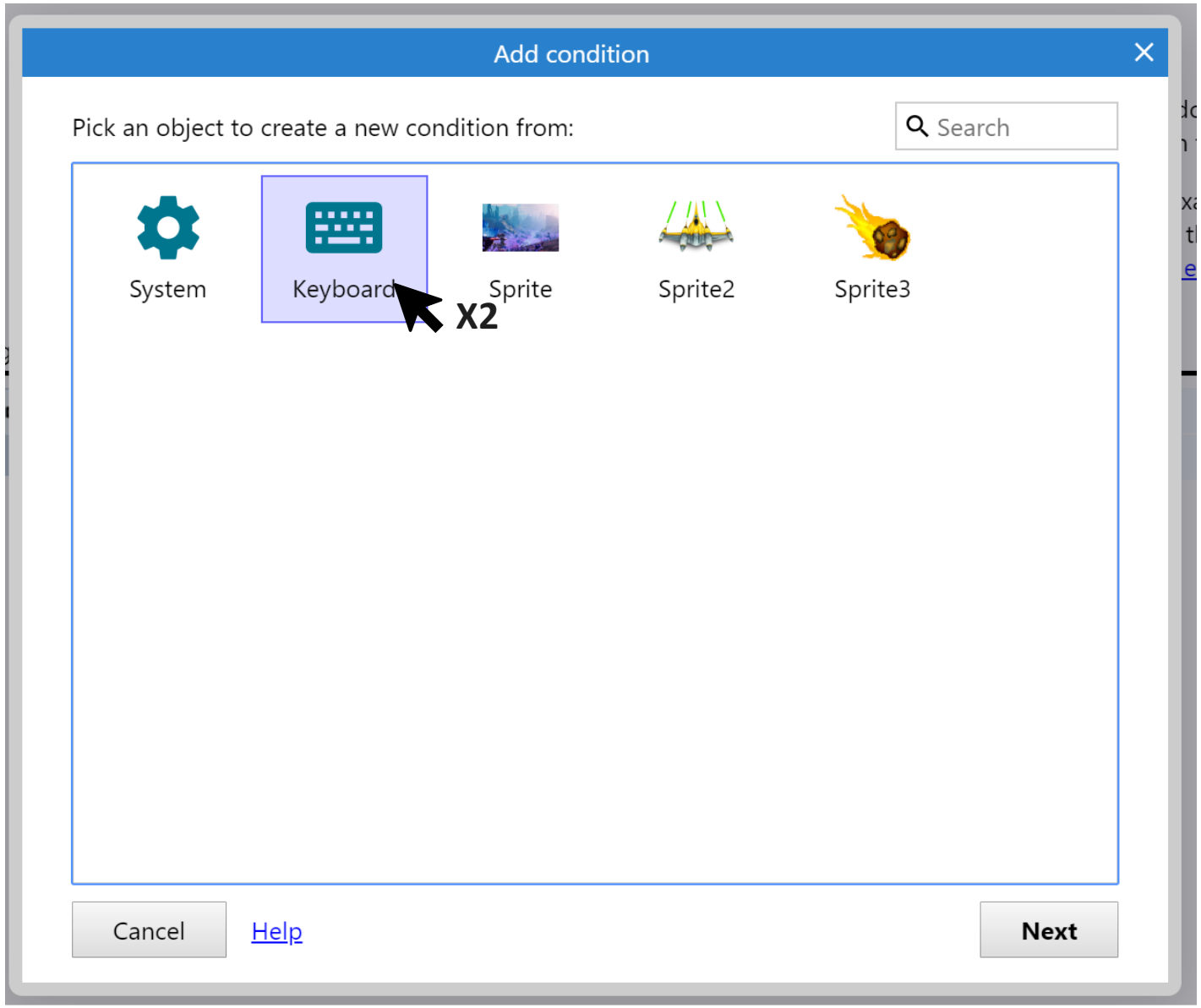
Program sprite



Double click on Keyboard

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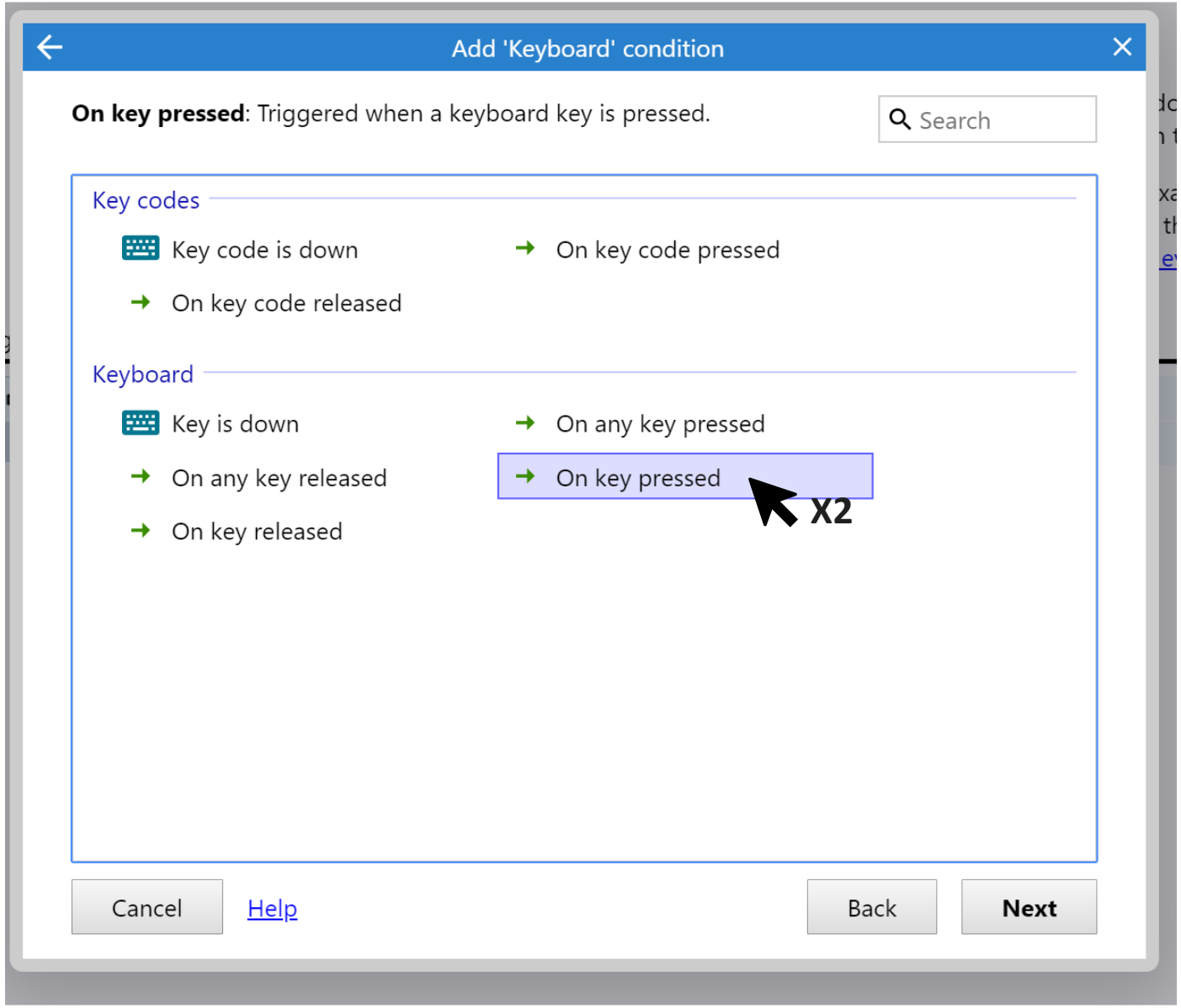
Program sprite



Double click on On key pressed

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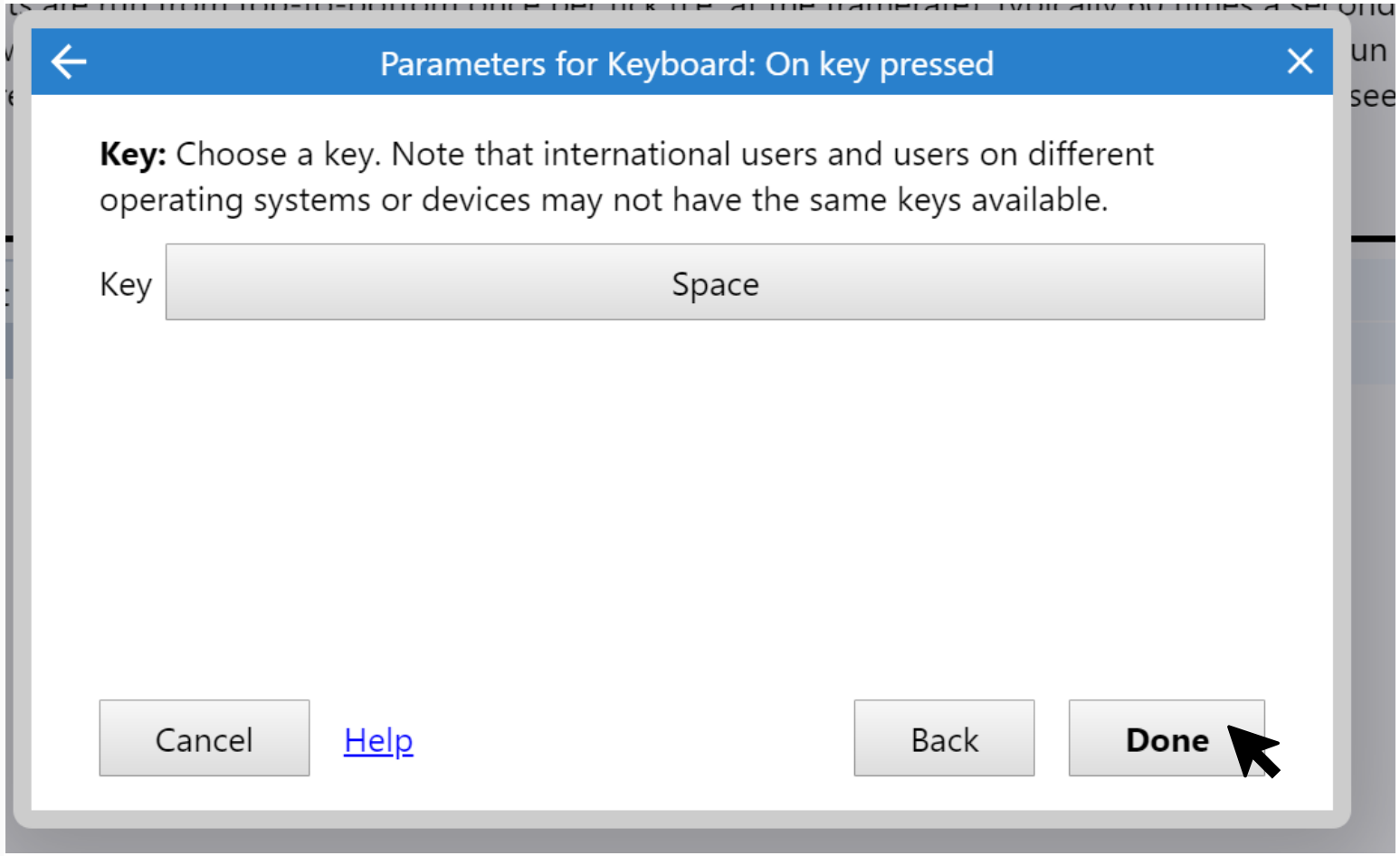
Program sprite



Add Space key and click Done

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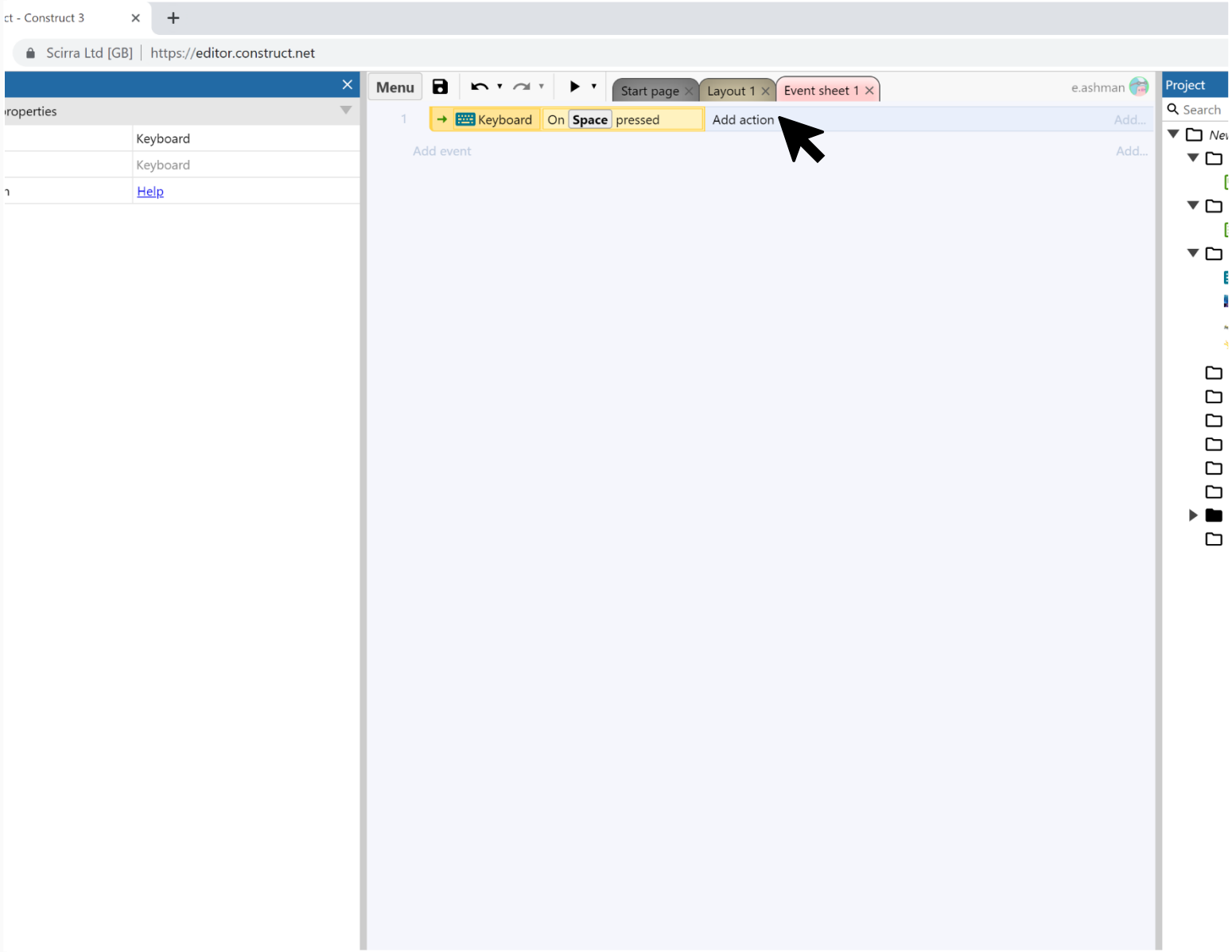
Program sprite



The parameters window will close to take you back to the events tab

Click on Add action

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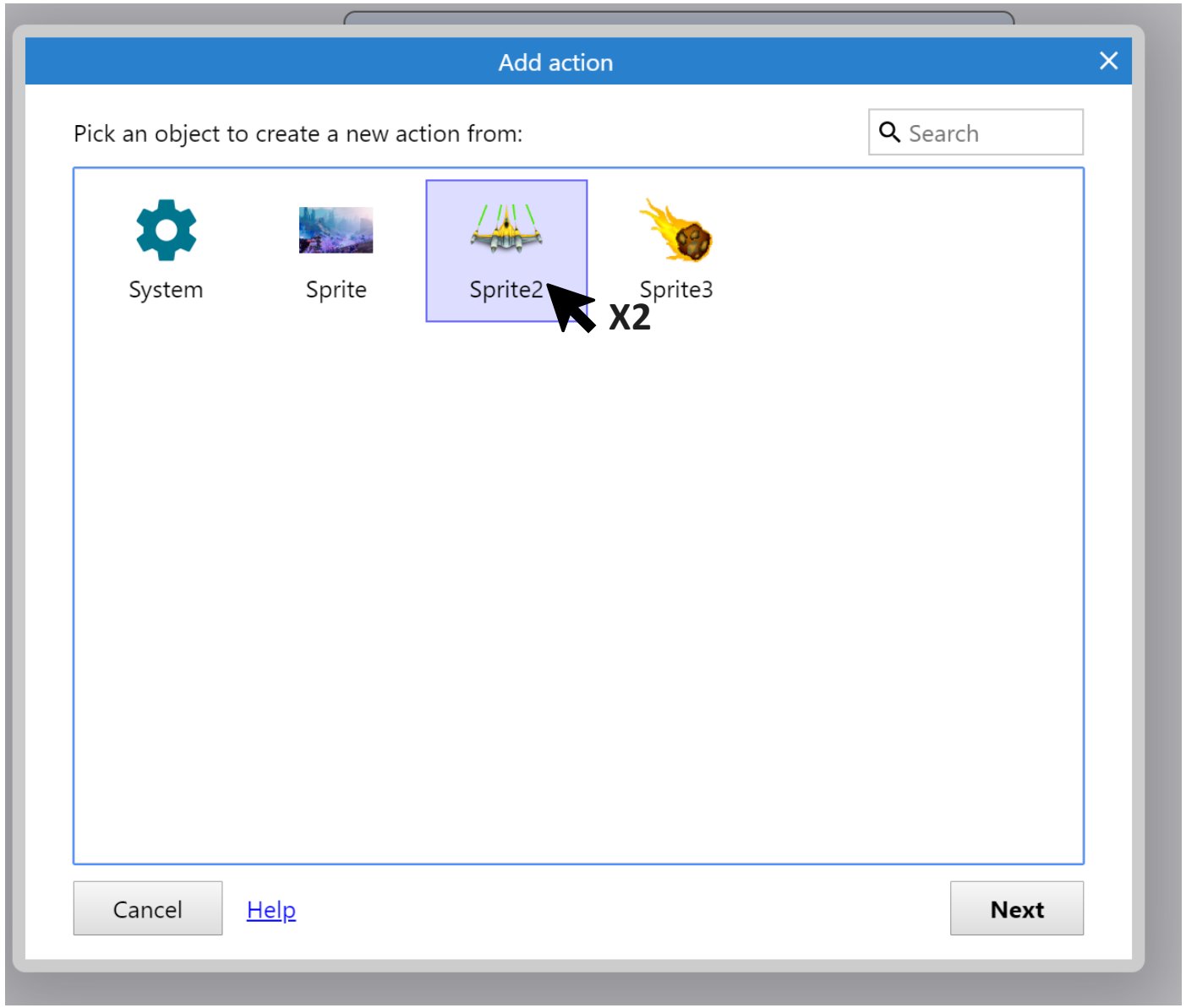

Program sprite

Double click on your ship

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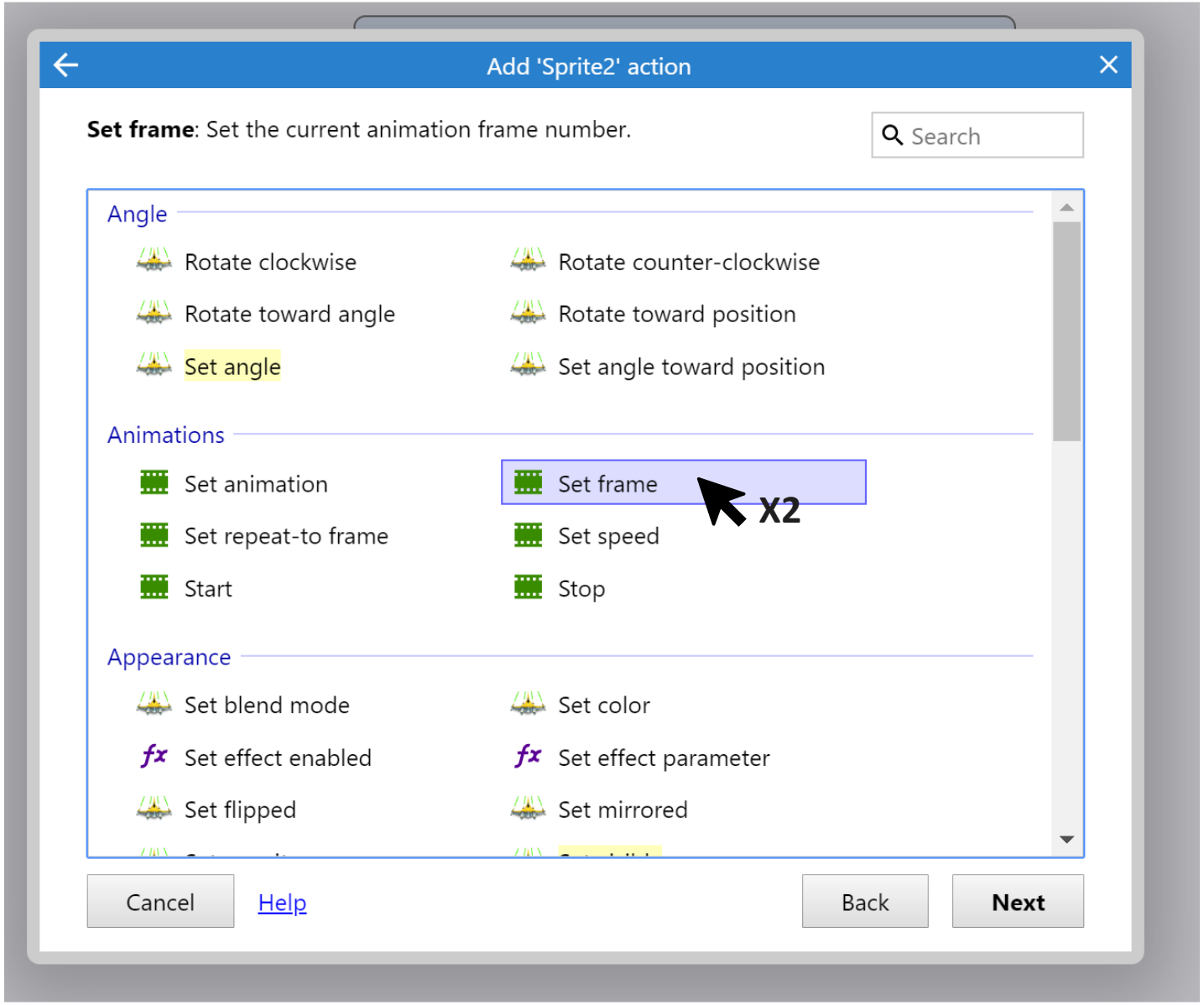
Program sprite



Double click on Set frame

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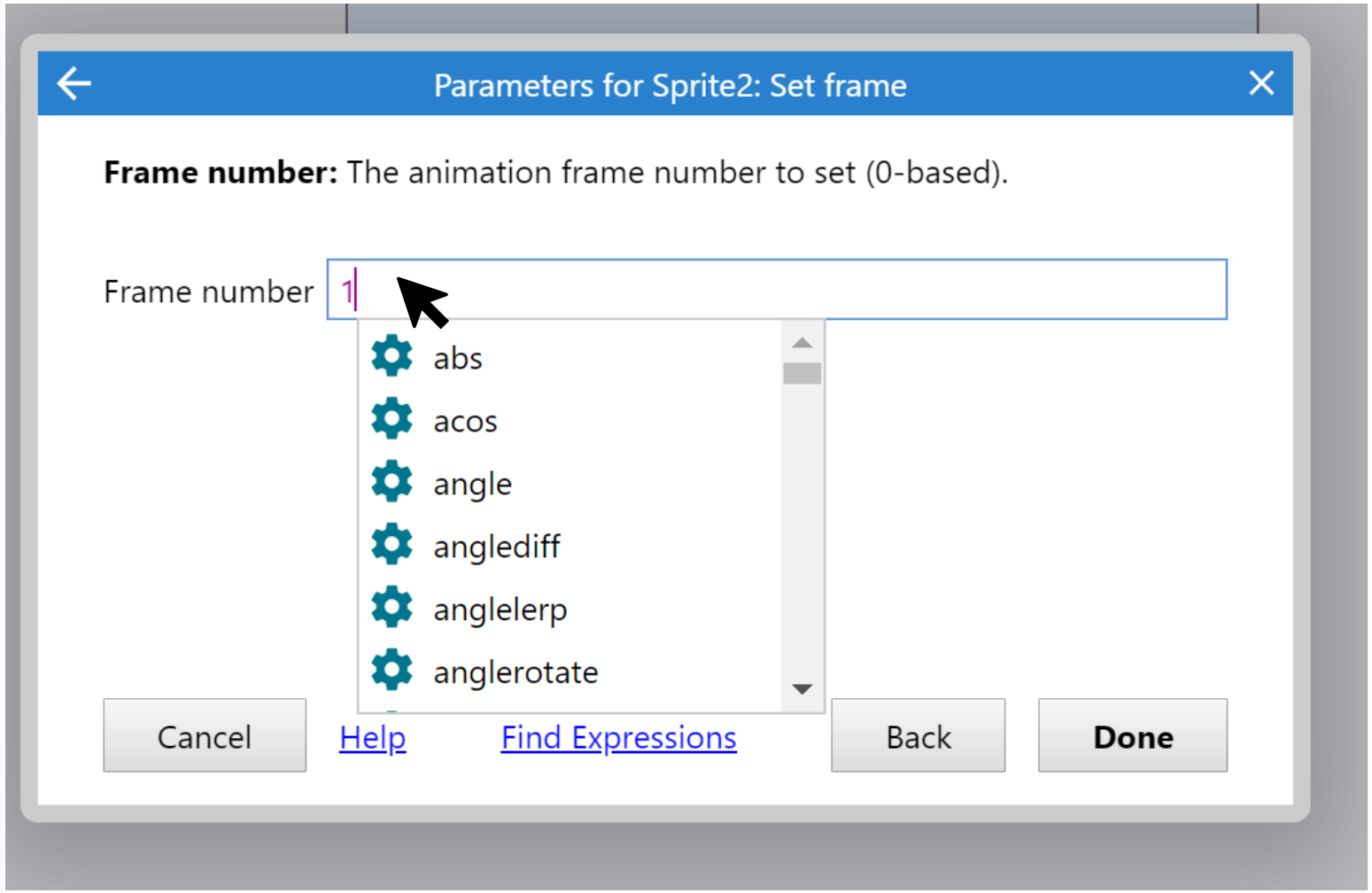
Program sprite



Set to frame 1

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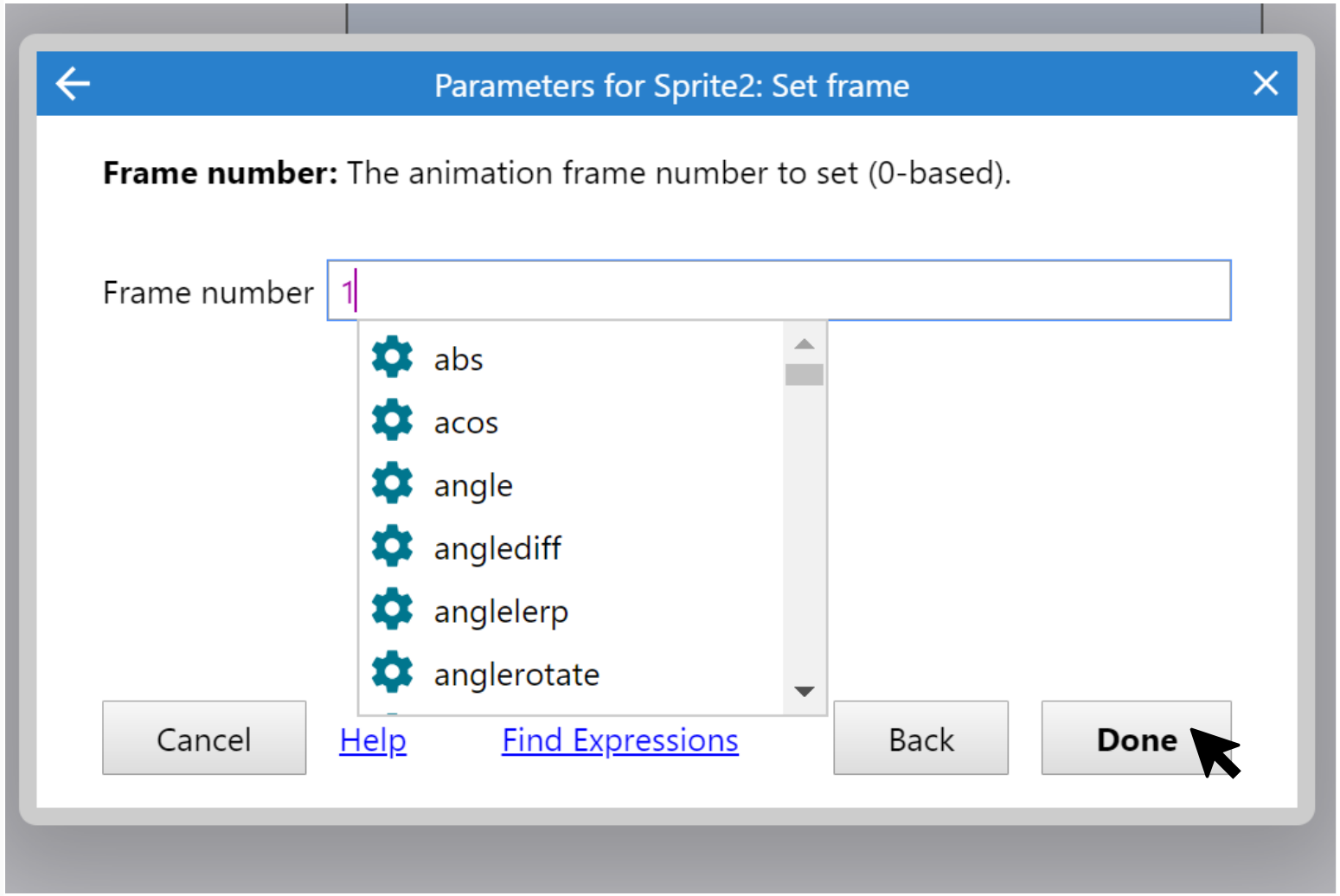
Program sprite



Click Done

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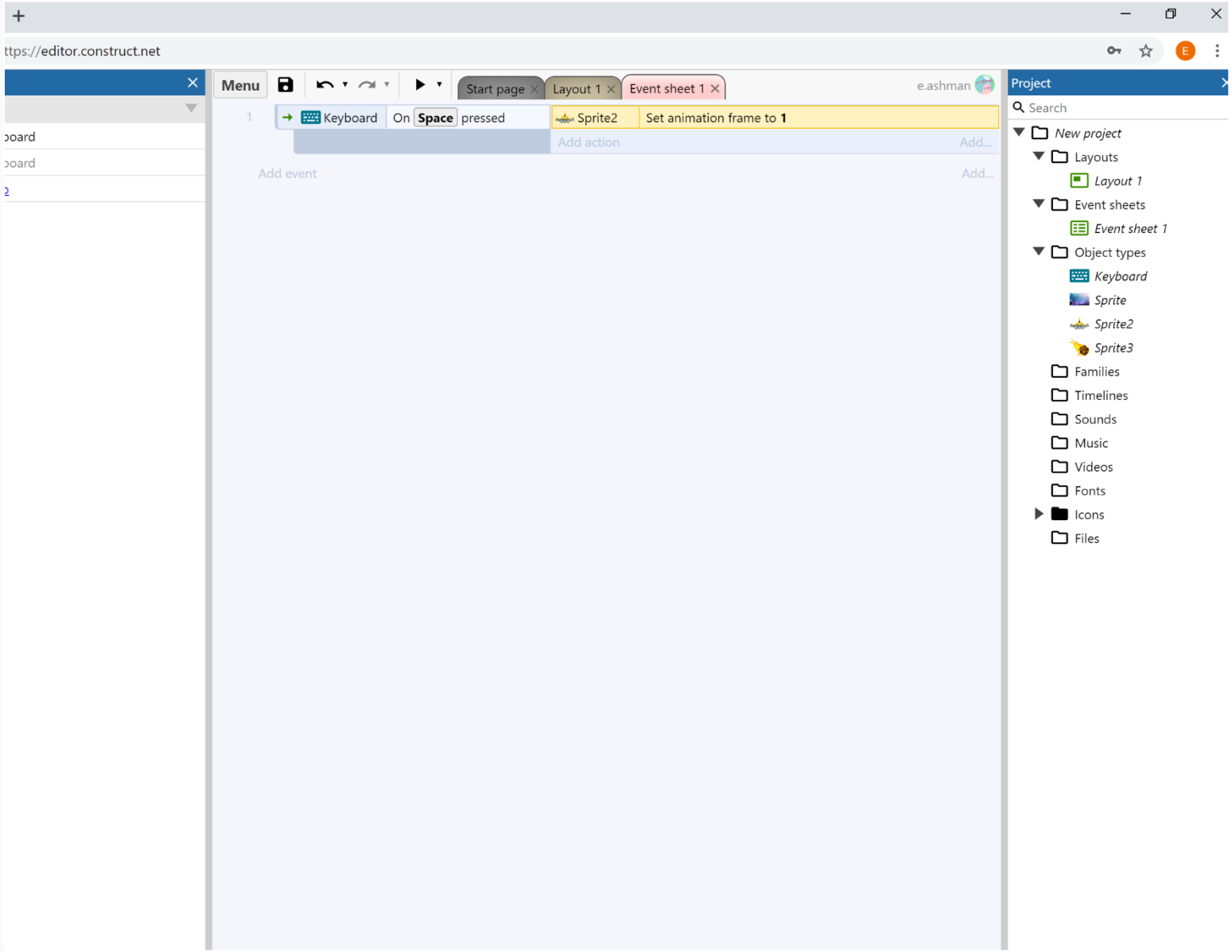
Program sprite



The properties window will close and your event should look like this

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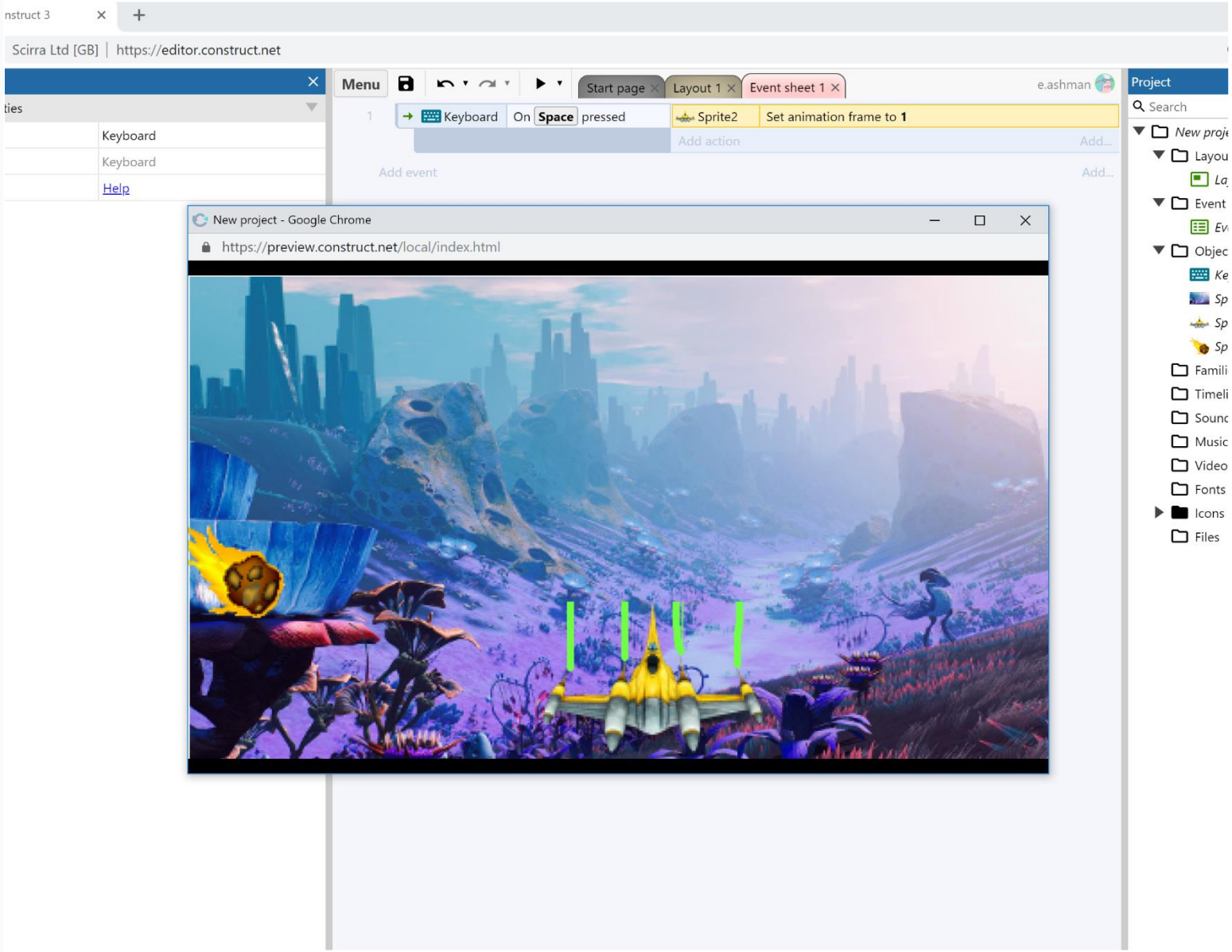

Test your game

Now test your program. Click on the ▶, then press the space bar on your keyboard and check that your ship fires its weapon and then it goes off

Oh no, the lasers stay on once set off!

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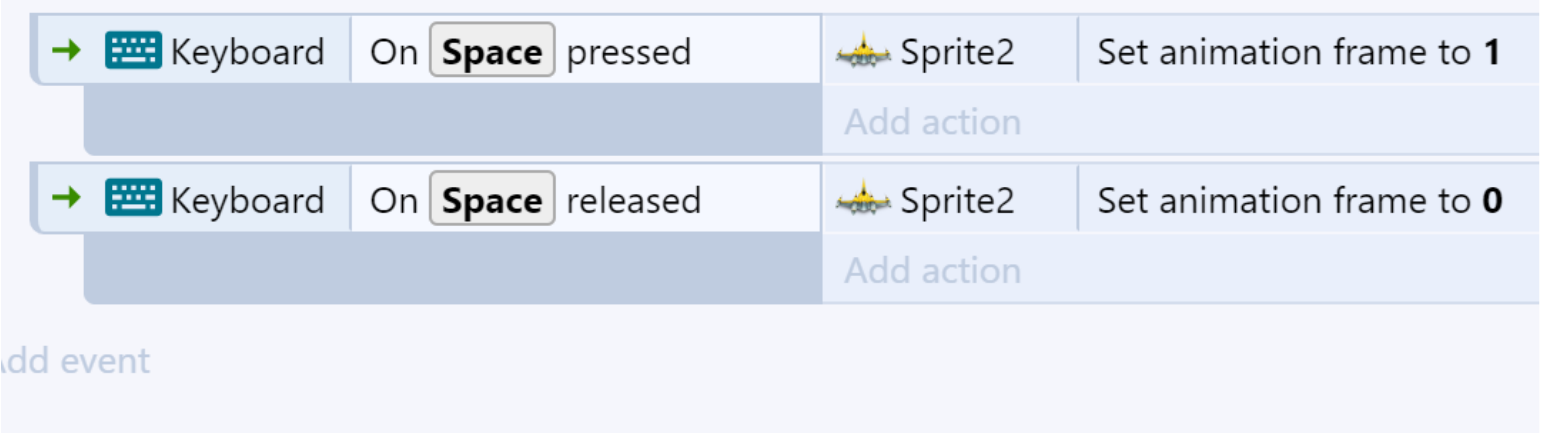
Program sprite



Add a second event like this

(go back and follow the previous steps if you get stuck)

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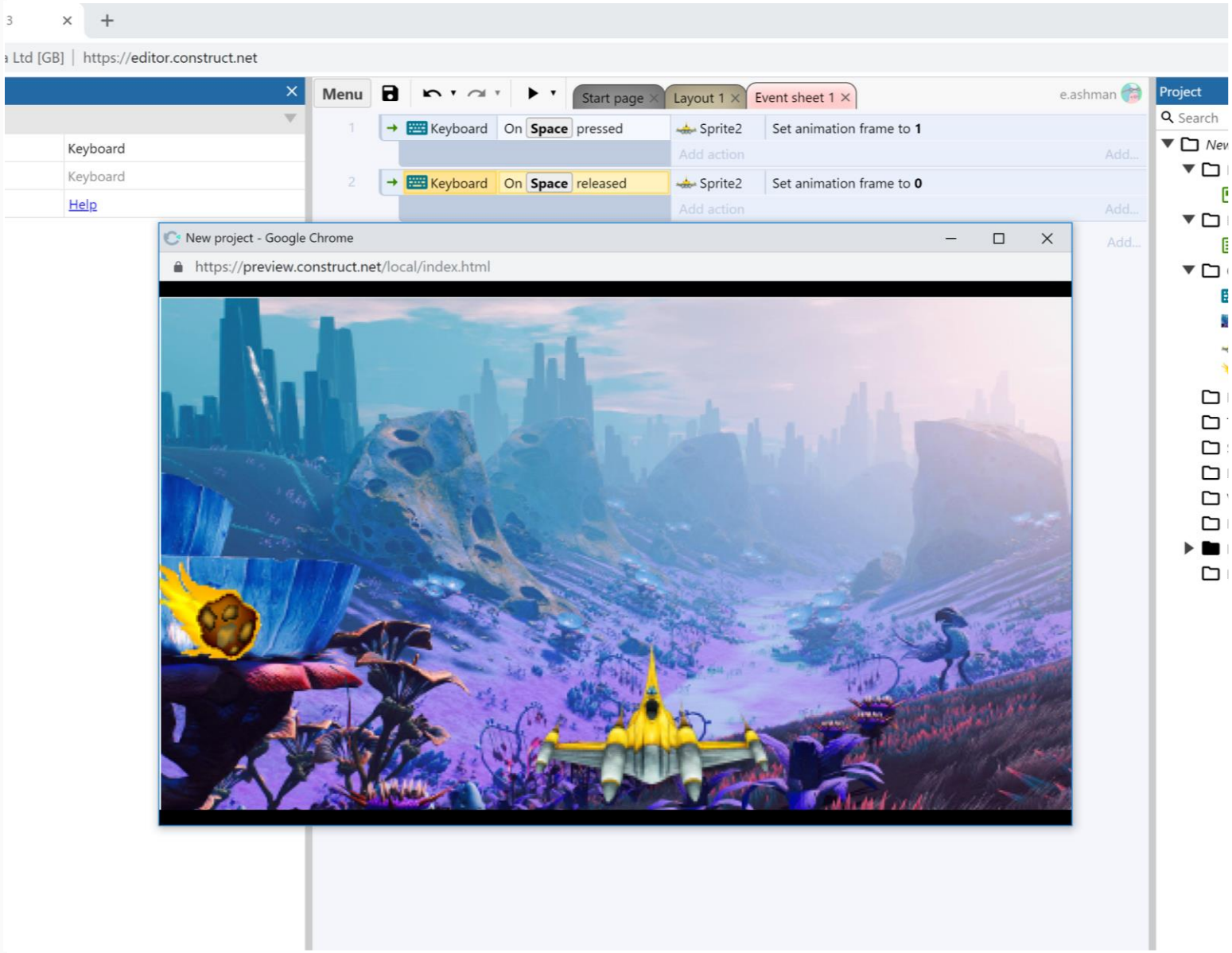

Test your game

Now test your program again

Click on the ►, then press the space bar on your keyboard and check that your ship fires its weapon and then it goes off

Phew, they go off now!

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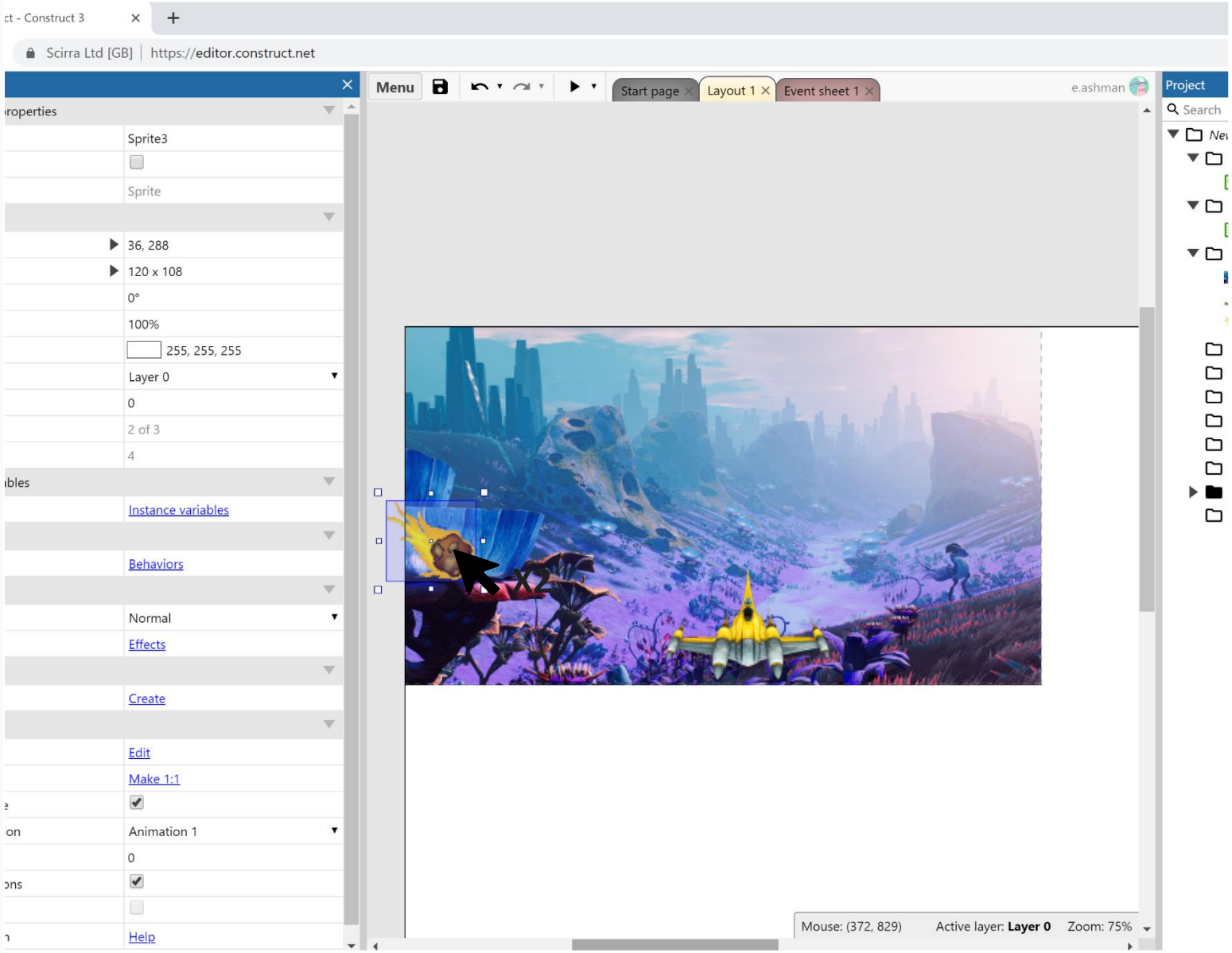
Animate sprite



Now we need to make the meteor explode if it is hit by the ship sprite's lasers

We do this by adding a second frame to the meteor sprite which the sprite changes to when a collision with the ship sprite is detected

Double click meteor sprite to open the animations editor

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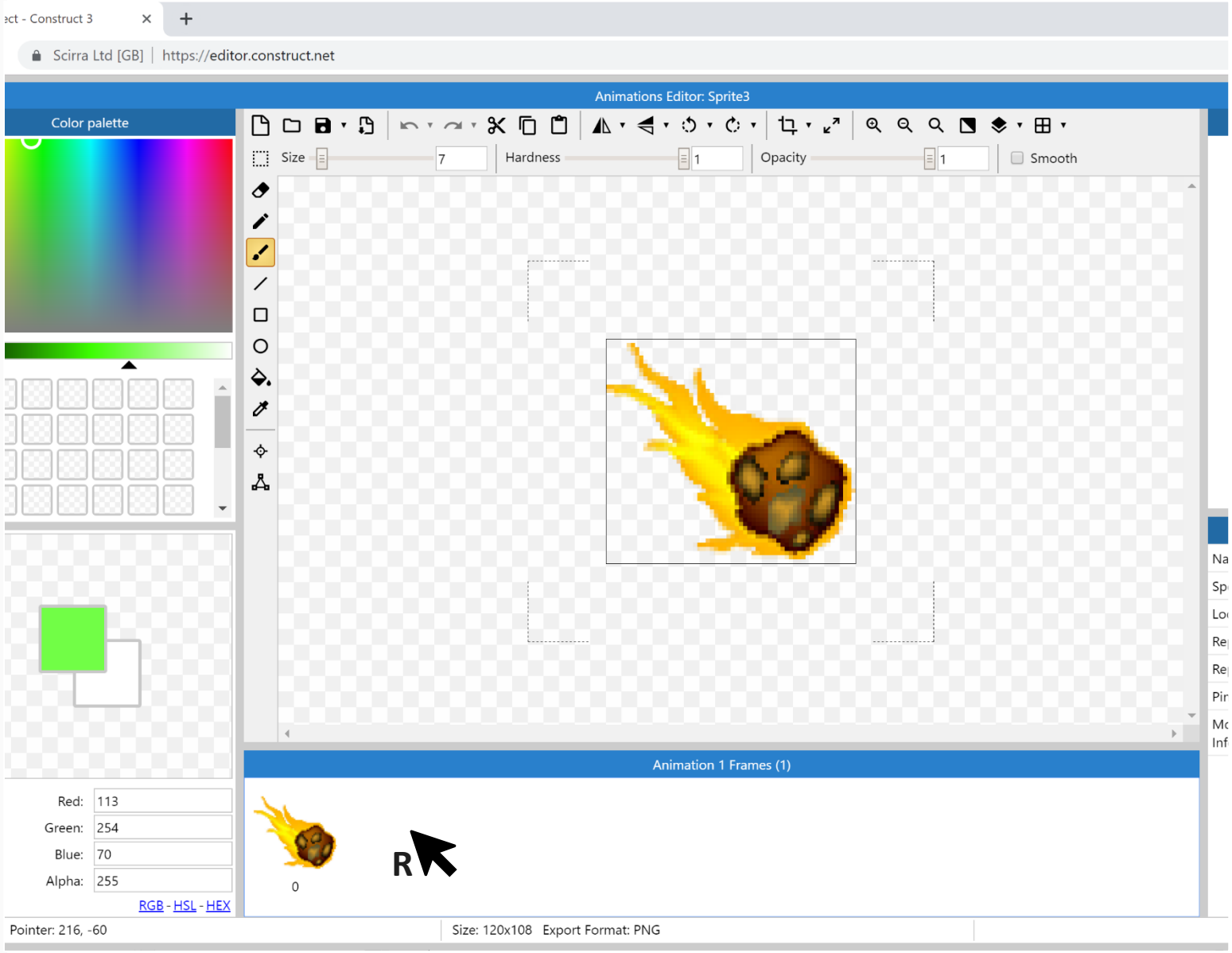
Animate sprite



Right click in the space next to frame 0 at the bottom in the frames bar

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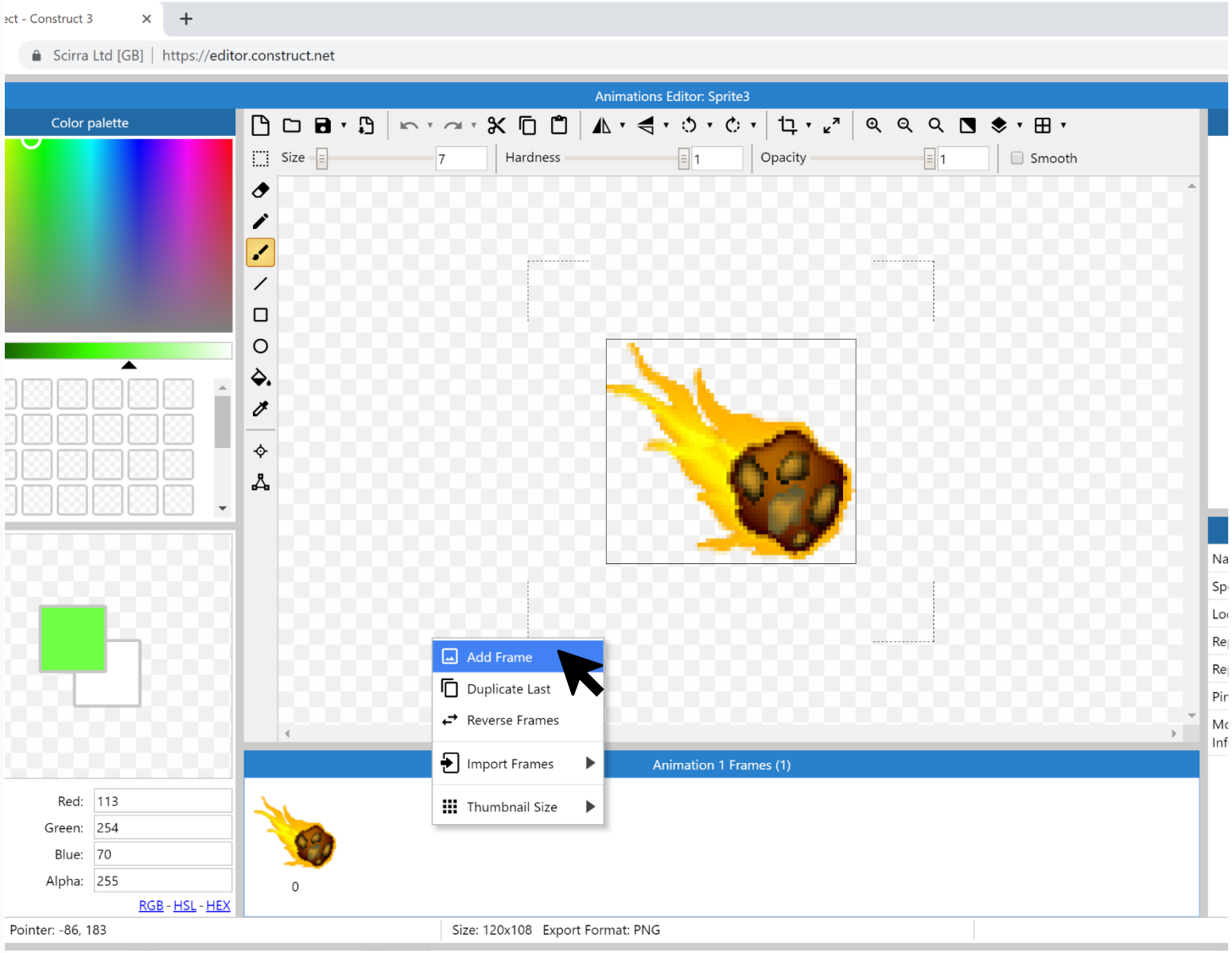
Animate sprite



Click Add Frame to add a new blank frame

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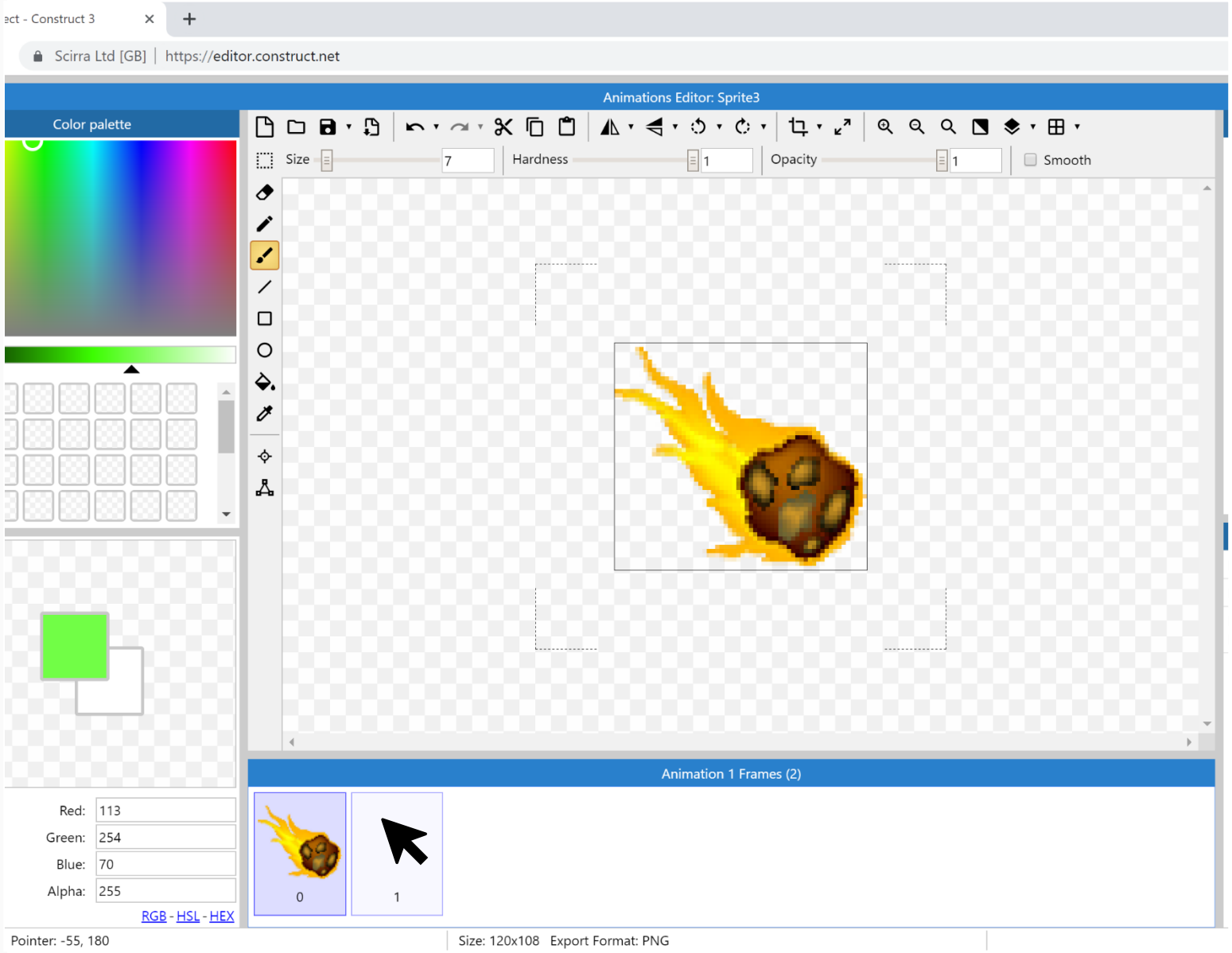
Animate sprite



Click on the blank frame to select it

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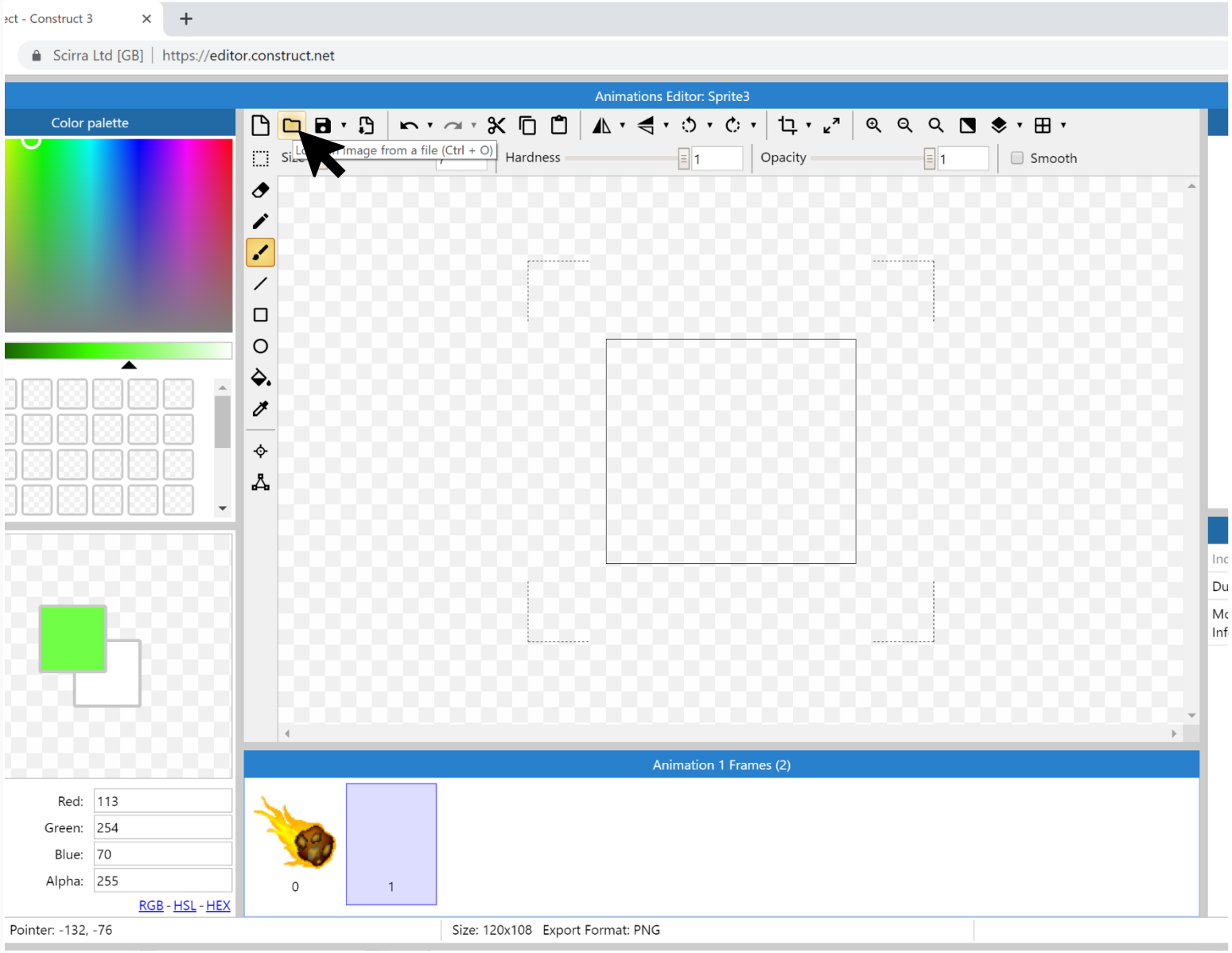
Animate sprite



Click on Load image

Select the Explosion from your Starlink folder

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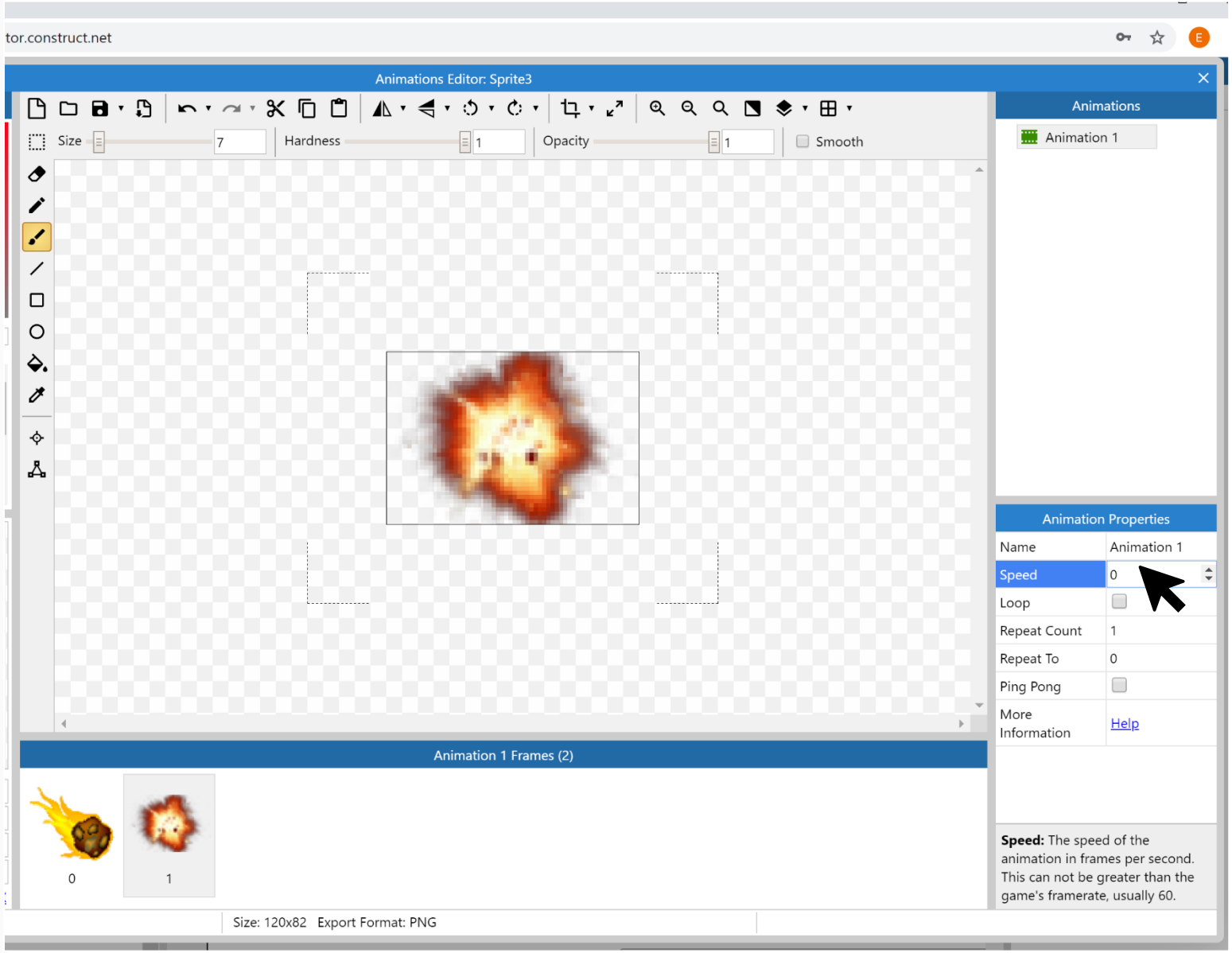
Animate sprite



As with the ship sprite, we need to prevent the animation from automatically playing

1. Click on Animation
2. Set the Speed to 0
3. Close the animations editor

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DIGITAL SCHOOLHOUSE together with NINTENDO SWITCH

Starlink.

Programming the meteors to explode

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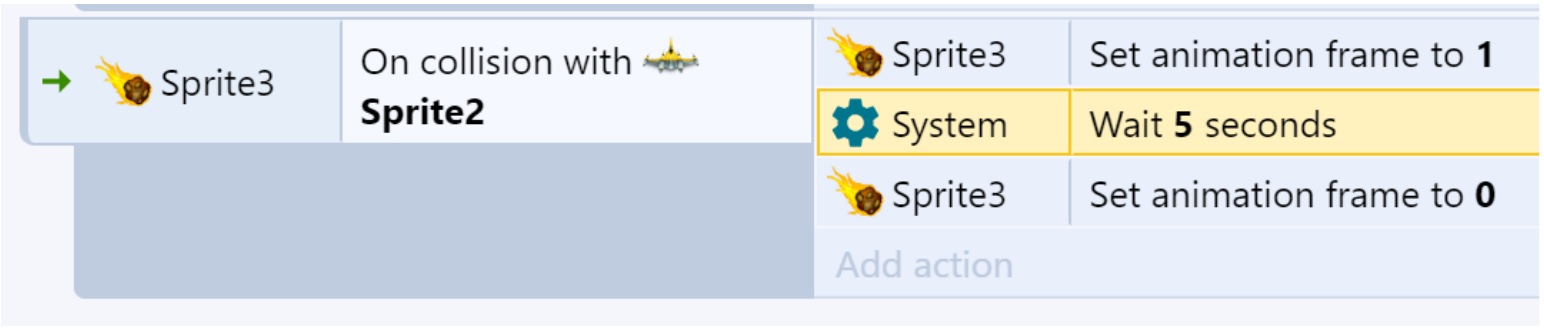
Program sprite



Now we need to add the event that will trigger the explosion

Create this event in your events tab

Now test your program to make sure the meteor explodes when shot and then resets in time to fly across the screen again

The lasers work but the meteor explodes whether you press them or not …

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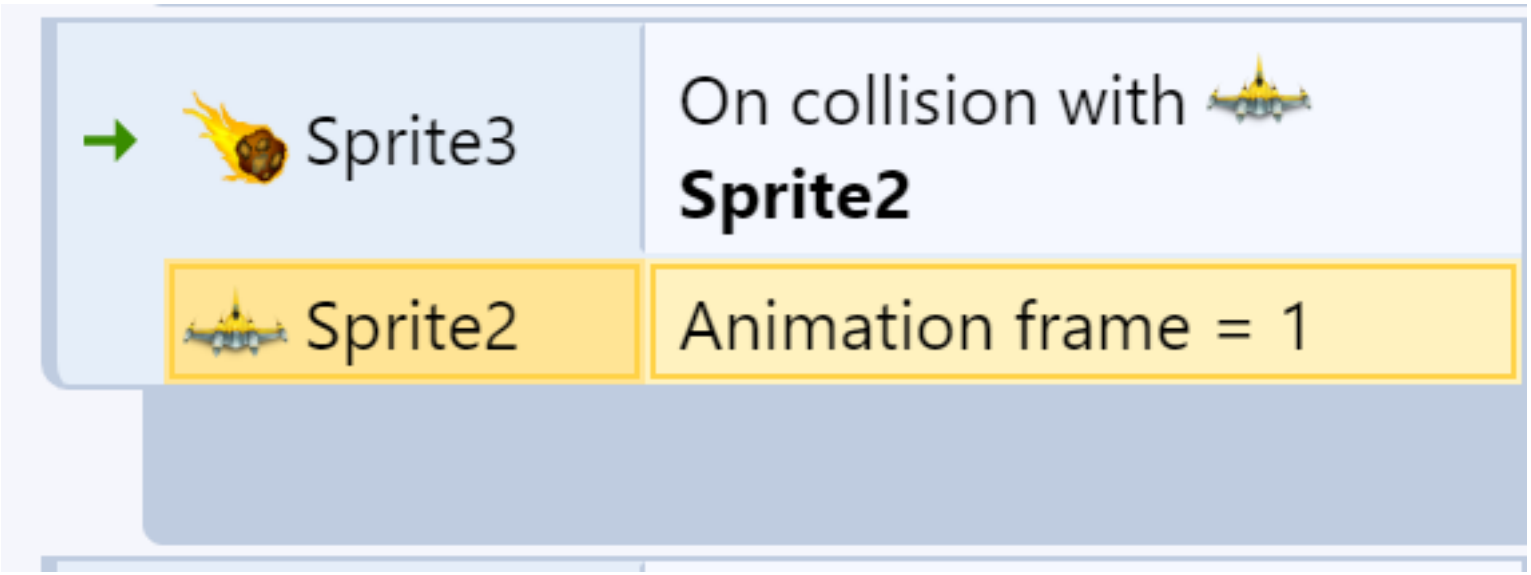
Program sprite



Add a second condition by right clicking under the 1st one that checks that the laser animation frame is visible

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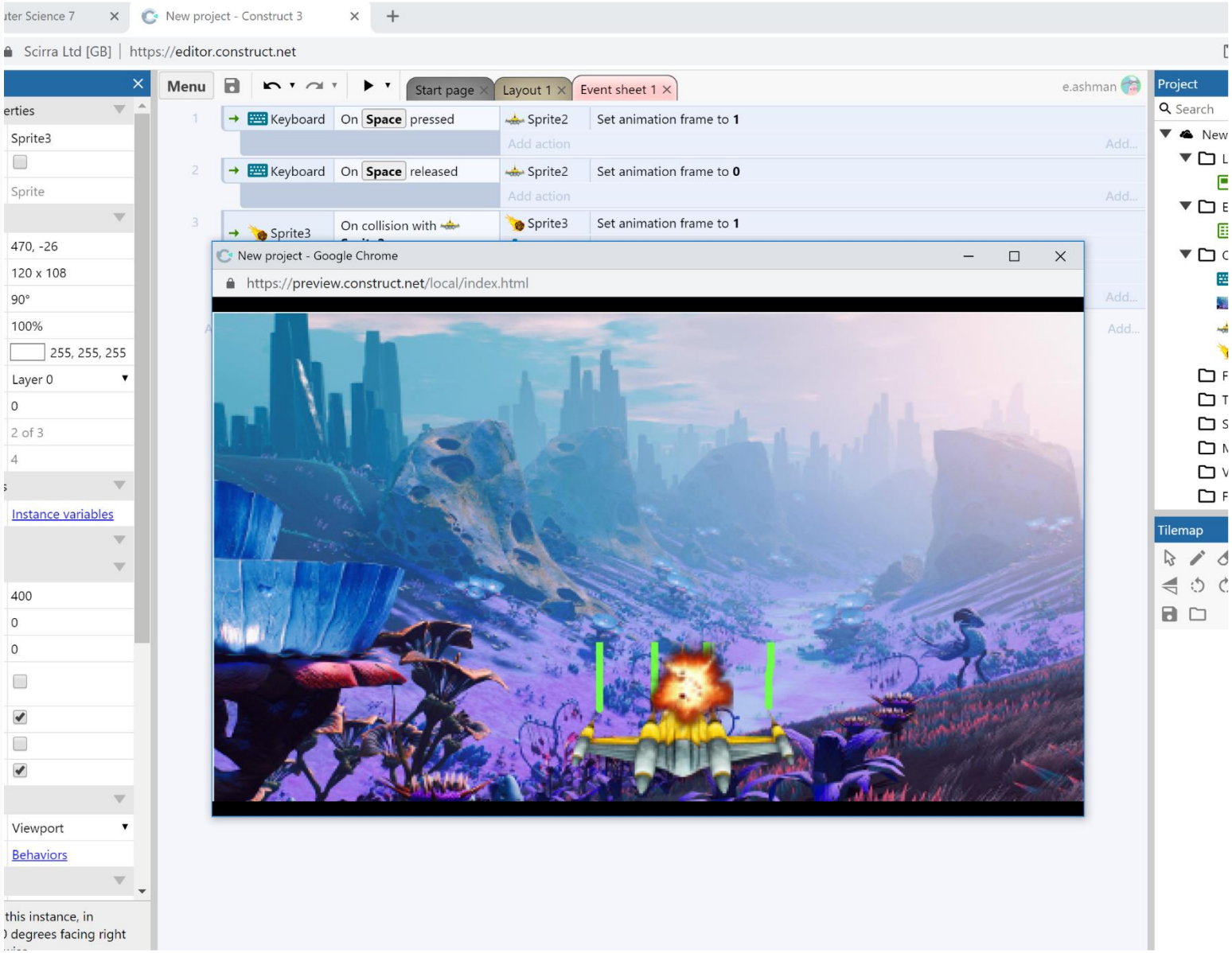

Test your game

Now test your program again

Click on the ▶ and make sure the meteor explodes when shot and then resets in time to fall down again

Change the settings and positions as you need

You have now completed the basic game

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DIGITAL SCHOOLHOUSE together with NINTENDO SWITCH

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Challenges

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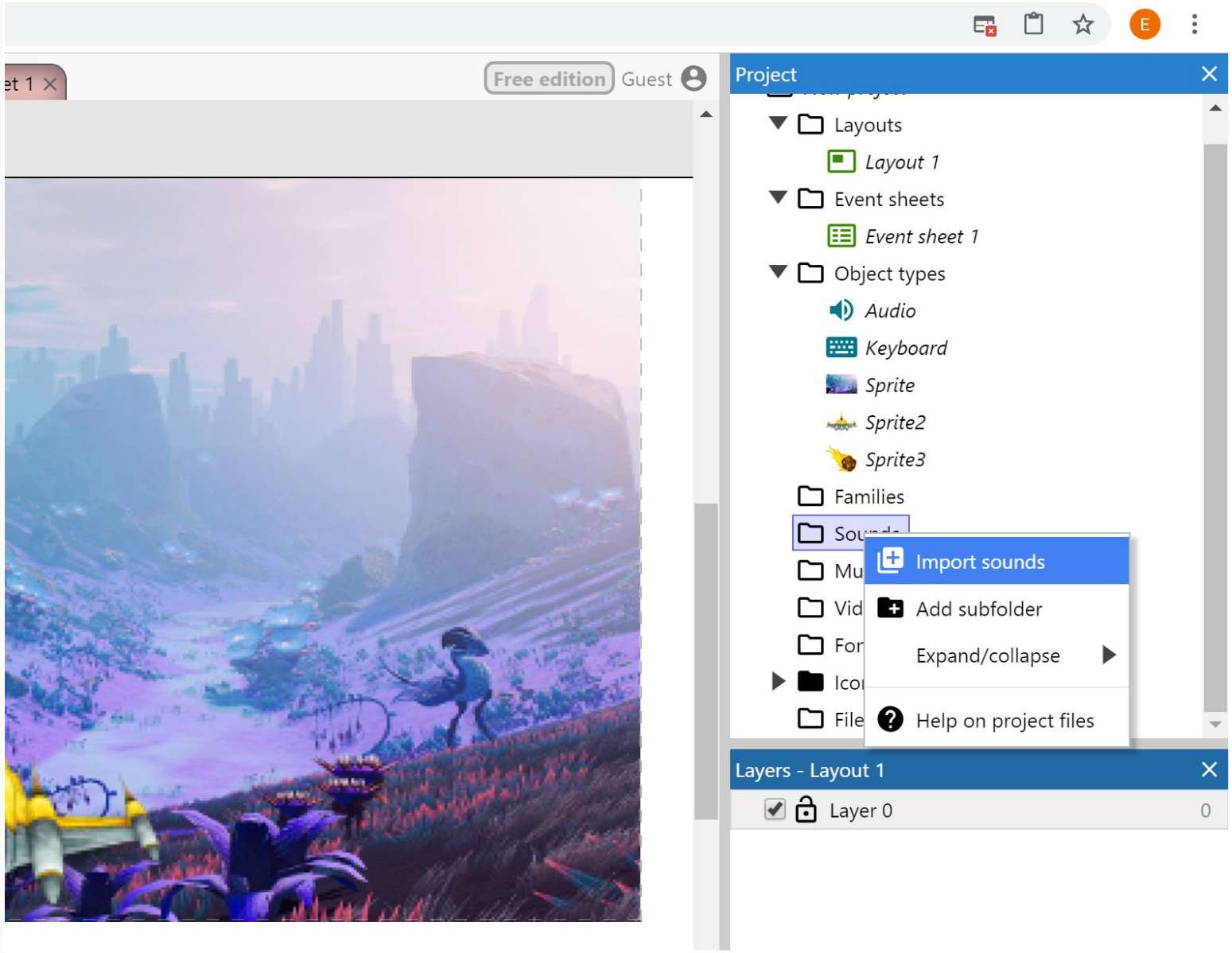

Challenge 1

For this challenge you are going to add sound effects to your game

First you will need to add the sound file to your game

Add audio object to layout view

Right click on sounds and click on import sounds

Click Import Audio

Go to your Starlink folder and double click on ‘Primed for battle.mp3’

Click Import

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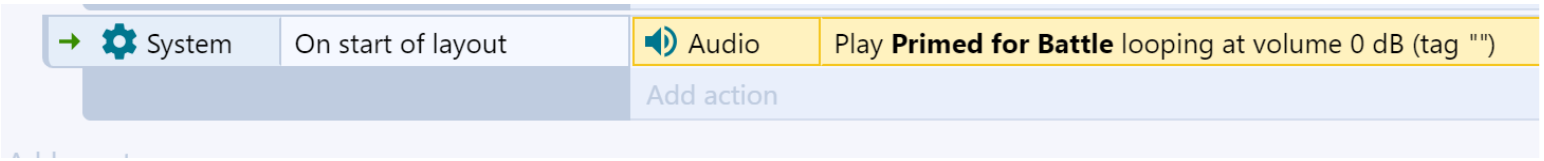
Challenge 1



For this challenge you are going to add sound effects to your game

1. Go back to the events sheet and add the following event

Find some other suitable sound files and add them to your game

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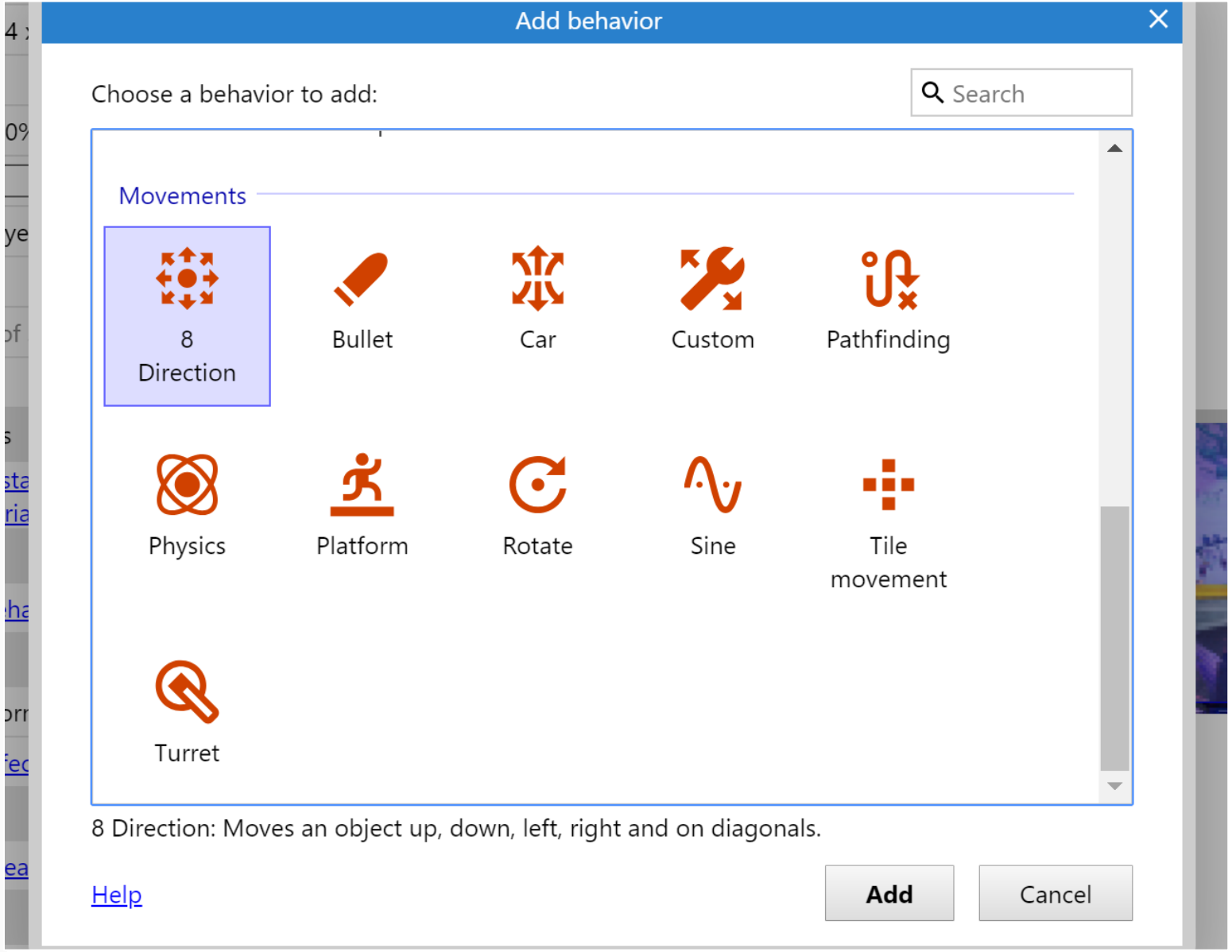
Challenge 2



Program the ship to move around the screen using the arrow keys

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Challenge 3

Add a character who says how to play the game at the beginning

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Challenge 3

Add code so that the user has to press a specific button to start the game

This event will give you some clues on how to complete this challenge

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Challenge 4

3	Sprite3	On collision with **Sprite2**	Sprite3	Set animation frame to **1**
			System	Wait **5** seconds
	Sprite2	Animation frame = 1	Sprite3	Set animation frame to **0**
			Text	Add *1* to **score**
			Add action	
4	System	On start of layout	Audio	Play **Primed for Battle** looping at volume 0 dB (tag "")
			Add action	
5	System	Every tick	Text	Set text to "*Score: " & Text.score*
			Add action	

Add event

Add a scoring system to the game – this will get you started:

1. Add the text object to your layout
2. Right click on it and add an instance variable called score with an initial value of 0
3. In the event sheet add the following to your events

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Challenge 5

System	On start of layout	Audio	Play **Primed for Battle** looping at volume 0 dB (tag "")
		Sprite3	Set position to (*random(0,250)*, *0*)
		Add action	

Get the meteor to appear at random places and move in random directions

Use this event as a starting point

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Well done!

You are now ready to join us in the Battle for Atlas

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