Lesson 4: Animations & Dangerous Traps

Objective: Create a Level course for the Player to explore, and make the game more challenging by adding a Trap object the Player must avoid.

Time: 30 Minutes

Level: 2 - Beginner

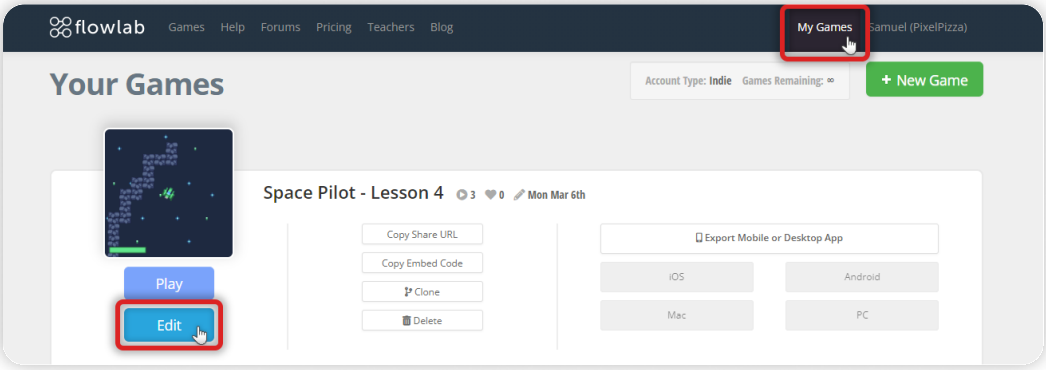
Description: Expand the Game's Level, create Animations, and use custom logic to create a Dangerous Trap object.

Step 1

Edit your Game

Log in and start at your “My Games” page https://flowlab.io/game/list

Then, click “Edit” next to your game to open the game editor.

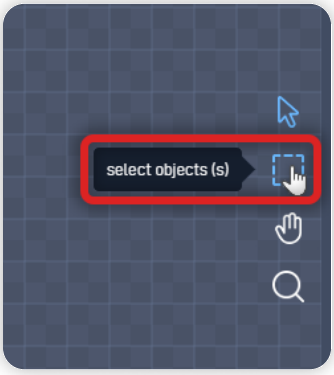


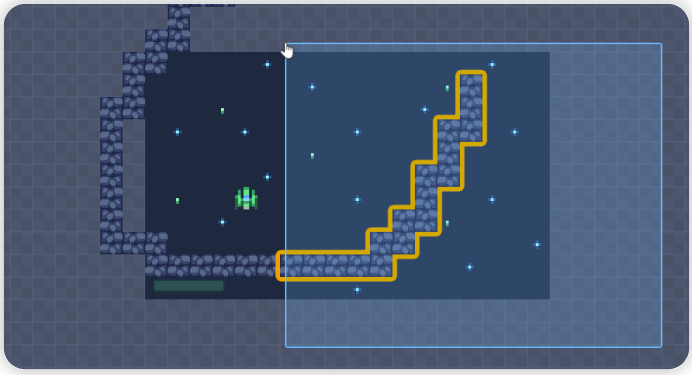
Step 2

Duplicate the Wall Objects and Make the Level Course

We need to start fresh to create a new Level Course.
Therefore, let’s delete the Wall objects we added in the previous lessons.
If you already have a level course created, you can keep what you already have or make adjustments.

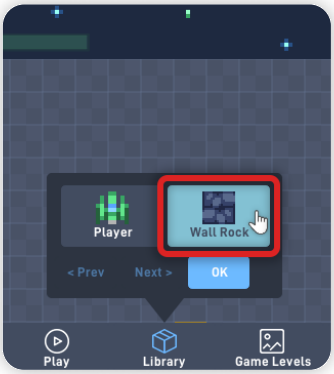
On the right-side toolbar, click on the “Select Objects” tool to select multiple objects simultaneously.





Click and hold anywhere on the editor and select multiple “Wall Rock” objects at once, then press the “Backspace” key to delete all the objects selected.
Repeat this until you don’t have any “Wall Rock” objects left on the level.

Now, select the mouse “Pointer tool” on the right-side toolbar.
Open the Object Library by clicking on the “Library” on the bottom toolbar, click on the “Wall Rock” object, and click “Add to the level” to add the object back to the level.



You can now click and hold to duplicate the Wall Rock object across the level.
Use this to create/draw the level course the player ship must follow.
I made a Level course made of asteroid-like shapes to match the space location of our game, but you can create a closed level or a level shape that feels right to you.

You can see below how the shapes I created determine the Level course:

Click “Done cloning” to stop cloning the objects.

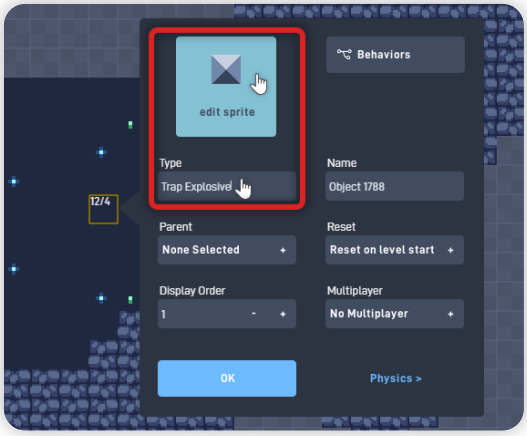
You can delete any extra objects by either:
- Clicking on the object and clicking “Delete” on the circle menu;
- Mouse-hovering the object and pressing the “Backspace” key;

Step 3

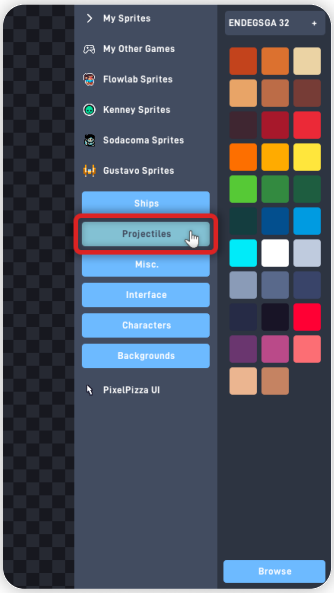
Create a Dangerous Object and Add Animations

Computer animations are typically made by creating multiple frames, which are played back quickly to give the illusion of movement.
We'll add some animation frames to our sprites and play the animations using Logic.

Click anywhere inside the game's visible area and select "Create".
Name this object type **"Trap Explosive"**, and click "edit sprite" to open the Sprite Editor.

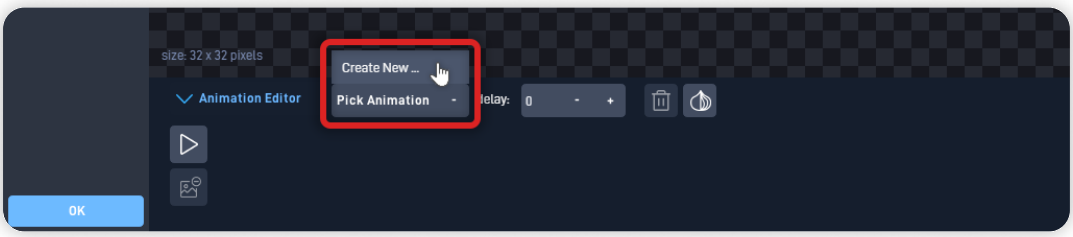


Now to select the sprite, click "Browse", "< Menu", "Gustavo Sprites", and "Projectiles". Select the grey circle **"mine"** sprite.

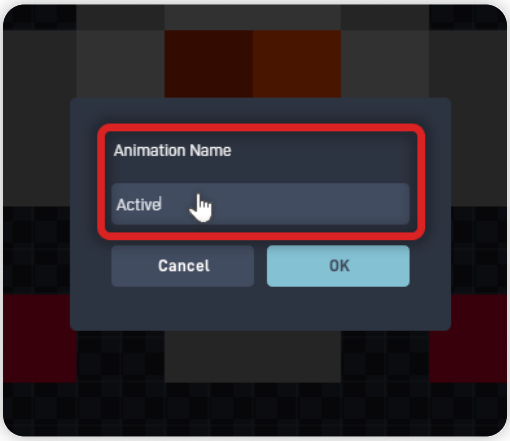


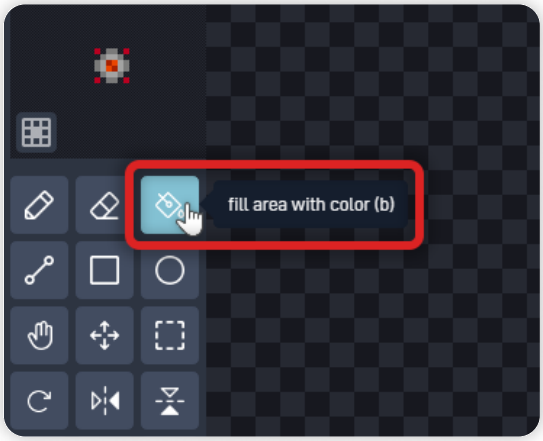
Click again on "Browse" to close the browse panel.

Click on "Animation Editor" to open the animation panel.
Click on "Pick Animation", and click "Create New..." to make a new Animation.

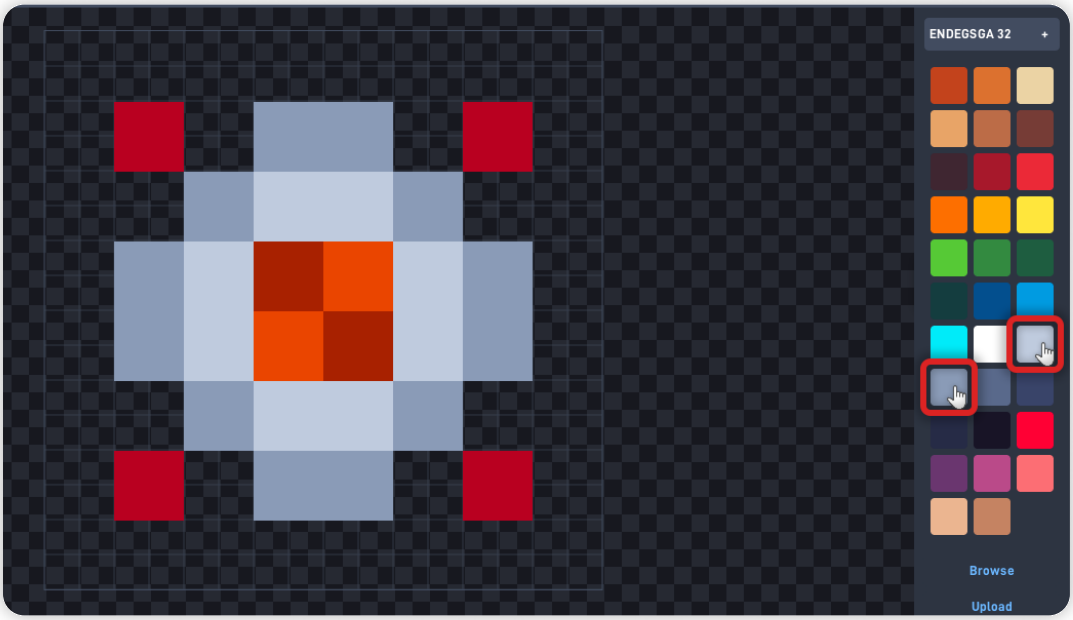


On the panel that appears and name it “**Active**” and click “OK”.
Click on the “Bucket” tool on the left side to fill the colored areas and change the sprite colors.



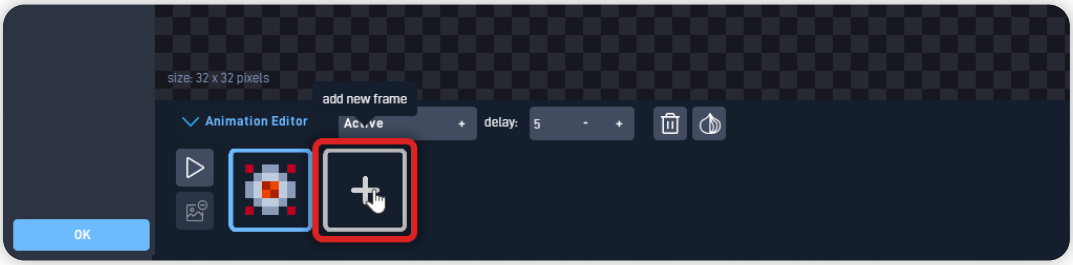


Using the “ENDESGA 32” color palette on the left-side, recolor the dark greys with brighter tones of greyish-white, as shown below:



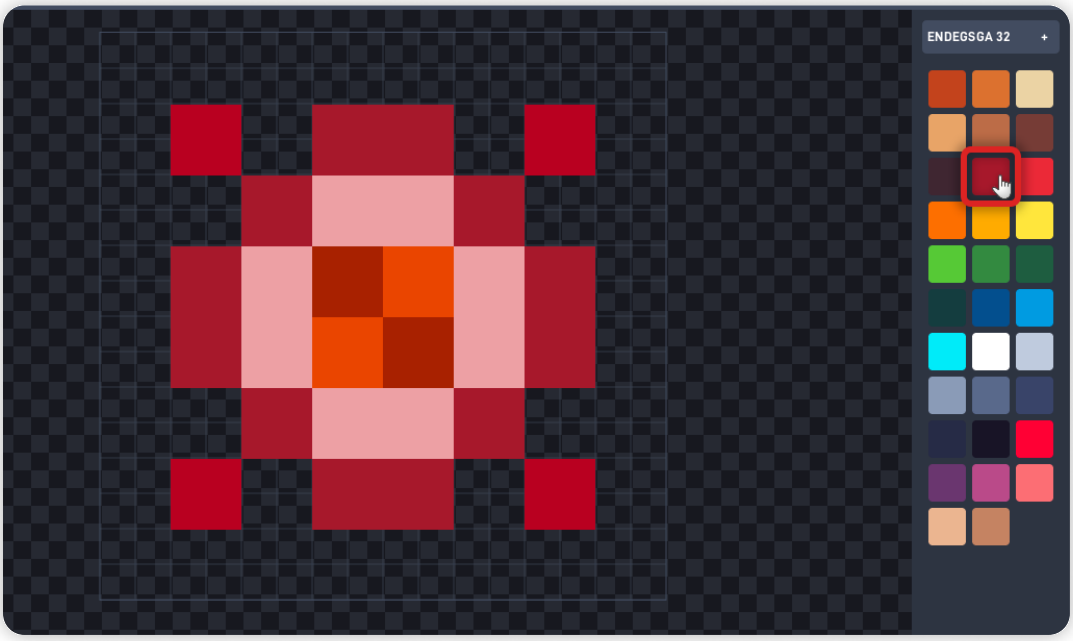
We used these colors to recolor the sprite:
Outer Outline: 8B9BB4 (Grey) **Inner Outline:** C0CBDC (Lighter Grey)

Once you finish recoloring the first frame, click on the “+” to create a new frame.

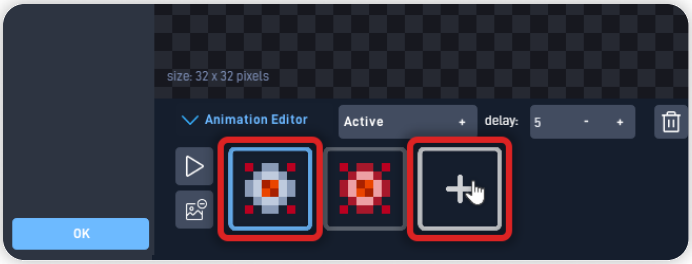


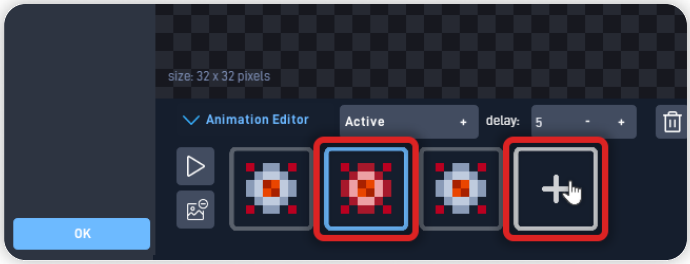
Now, recolor the new frame using more red-ish tones.
Change the Grey into a “Dark Red” color, and the brighter grey into a “bright red-pink” color.

We used these colors to recolor the sprite:
Outer Outline: A22633 (Dark Red) **Inner Outline:** E9A3A6 (Bright Red Pink)

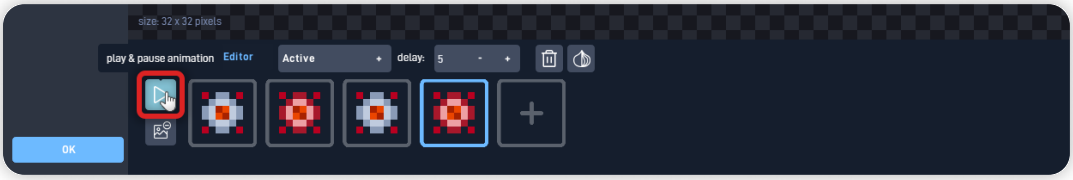


Once you finish recoloring the second frame, click on the first frame to select it,
and click on the “+” frame button to duplicate it.
Then, select the second frame, and click on the "+" frame button to duplicate it.



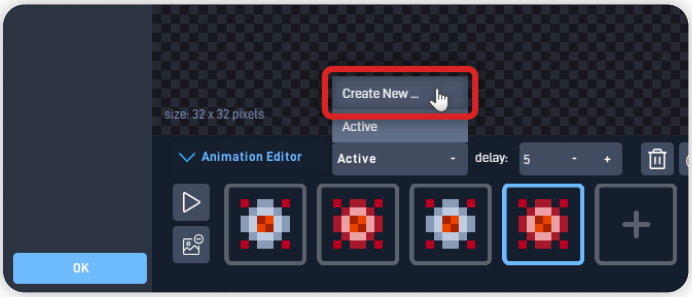


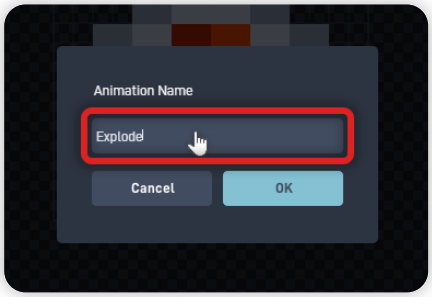
Now our animation plays for the duration of these four frames.
To preview the animation, click the “Play” button on the Animation panel.
Click again on the “Play” button to stop the preview.



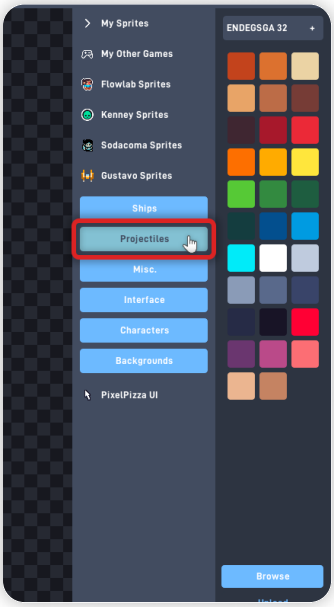
Perfect! You just created a warning animation that will symbolize when the
Trap is activated.

Click on the animation name "Active" and then click on "Create New..." to create a new animation. Name it "**Explode**" and click "OK".





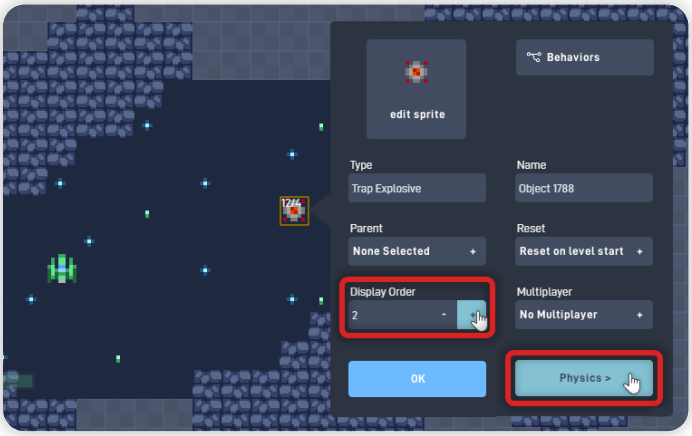
Click "Browse", "< Menu", "Gustavo Sprites", and "Projectiles".
Select the big yellow **“explosion”** sprite.
Click "Browse" to close the browse panel, and click "OK" to close the Sprite Editor and save your changes.



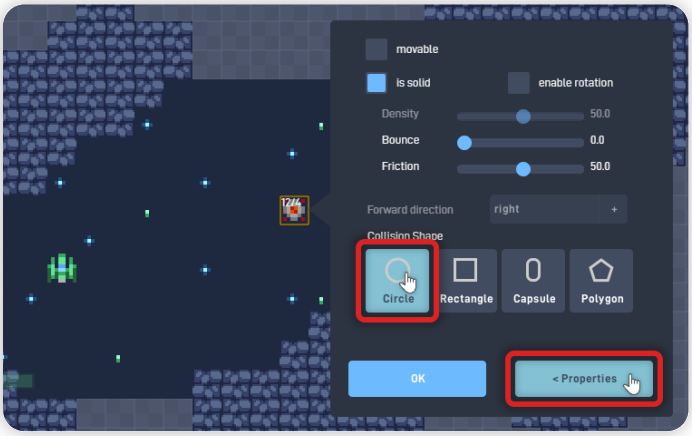
Step 4

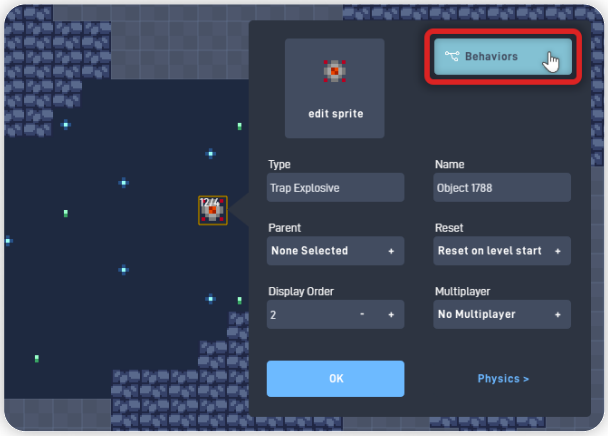
Add Logic to Make the Trap Explode

Back in the object properties panel - Set its “Display Order” to “2” so the object appears in front of the player object (which has its display order set to 1).
Click on “Physics” to go to the Physics tab.

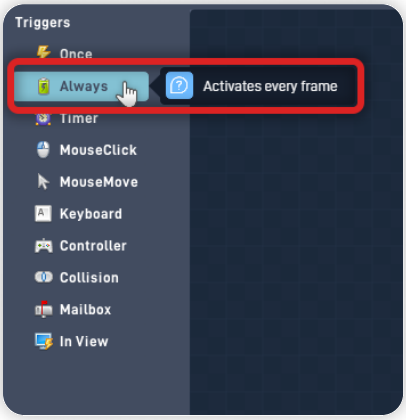


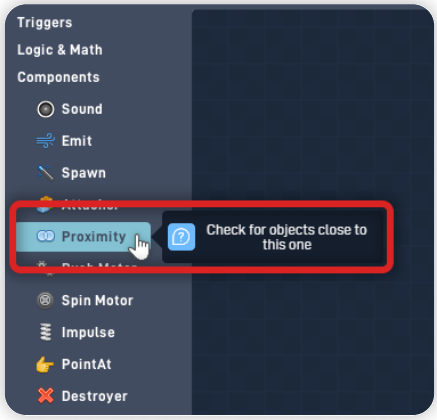
Set the "Collision Shape" to "Circle", and go back to the “Properties” tab.
Click on "Behaviors" to open the Behavior Editor.

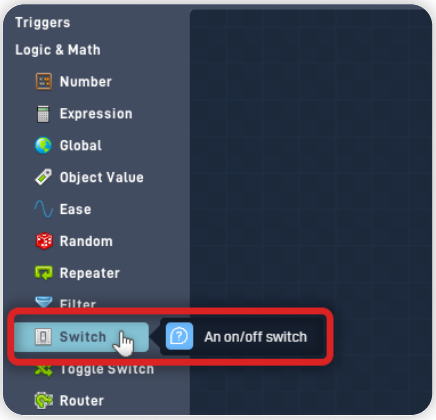




From the "Triggers" section, add an "Always" behavior.
From the "Components" section, add a "Proximity" behavior.
From the "Logic & Math" section, add a "Switch" behavior.







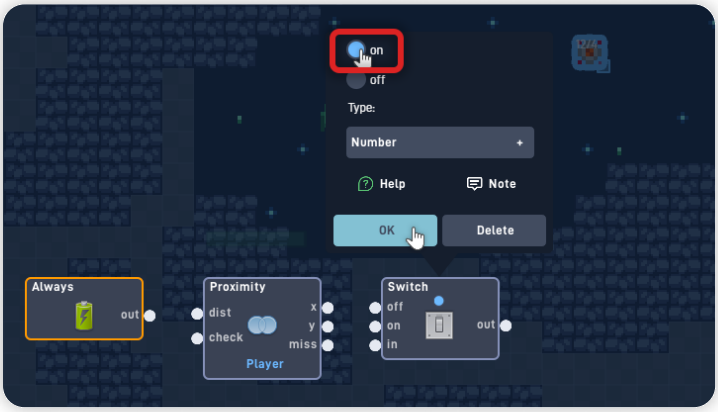
Click and hold to move the newly added behaviors and place them side by side.
Click on the empty space to move the behaviors so you can see the game behind.

Click on the “Proximity” behavior, click on the “Select Type”, and set it to “Player”.
Set the “Distance” to “96”. *The “Distance” sets the proximity area size, represented by the grey circle/shape around the “Trap Explosive” object.*

Click “OK” to close the behavior panel and save your changes.

Open the “Switch” behavior panel and set its initial state to "on", so the switch starts turned on and allows logic to pass through.

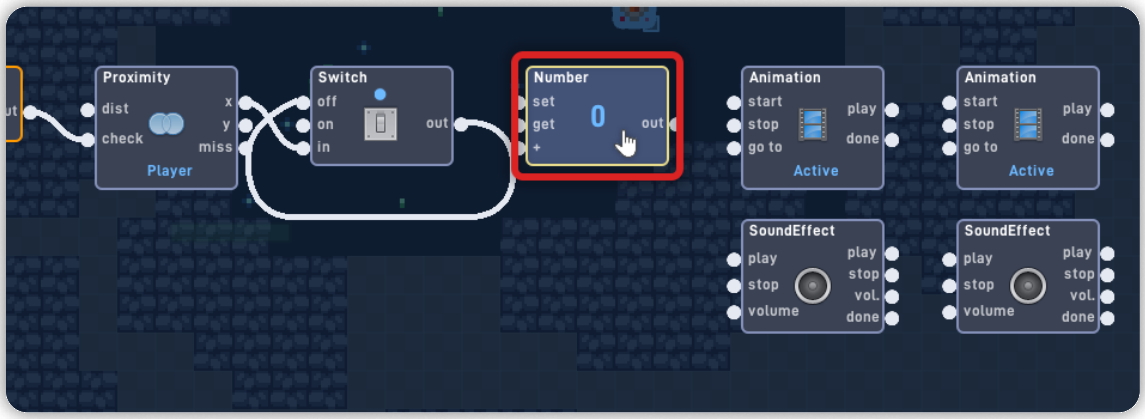
Click “OK” to close the behavior panel and save your changes.



Now, let’s connect these behaviors.
Connect the Always "out" to the Proximity's "check" input.
Connect the Proximity "x" to the Switch "in" input.
Connect the Switch "out" to its own "off" input. *This will turn off the Switch behavior after triggering, only allowing logic to pass through once.*

From the "Logic & Math" section, add a “Number” behavior.
From the "Properties" section, add two "Animation" behaviors.
From the "Components" section, add two "Sound" behaviors.

Click and hold on the newly added behaviors to move and align them as shown.



Move the view so you can see more empty space to work with the behaviors.

Open the Number behavior panel, set its "Label" to ”Activate" and its "Current value" to "1".
Click “OK” to close the behavior panel and save your changes.

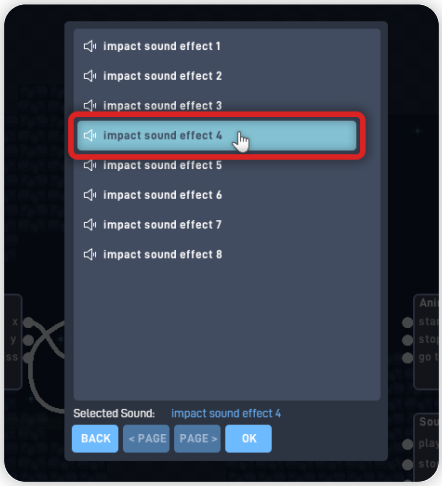
Confirm if the first Animation block is set to the "Active" animation.

Open the second Animation behavior panel, set its animation to "Explode", and check "Loop animation".
Click “OK” to close the behavior panel and save your changes.

Open the first Sound behavior panel and click on "Choose Sound".
Go to "Effects", "Alert", and scroll down to select the "alert sound effect 34".
Click "OK" to confirm your sound choice.

Change its “Volume” from “100” to "40".
Click “OK” to close the behavior panel and save your changes.

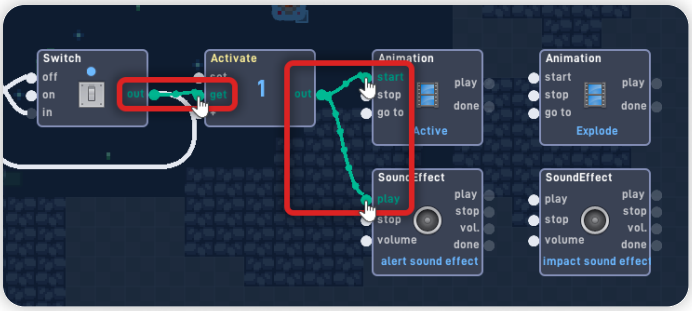
Open the second Sound behavior panel, and click "Choose Sound".
Go to "Effects", "Impact", and select "impact sound effect 4".
Click "OK" to confirm your sound choice.



Change its “Volume” from “100” to "30".
Click “OK” to close the behavior panel and save your changes.

Now, let's connect the behaviors.
Connect the Switch "out" to the “get” input from the Activate Number.
Connect the Number "out" to the “start” input from the Active Animation.
Connect the Number "out" to the “play” from the Alert Sound.

Connect the Active Animation "done" output to the “start” input from Explode Animation, and also connect it to the “play” input from the Impact Sound.



This logic detects every frame (Always) if the “Player” object is near the “Trap Explosive” object.

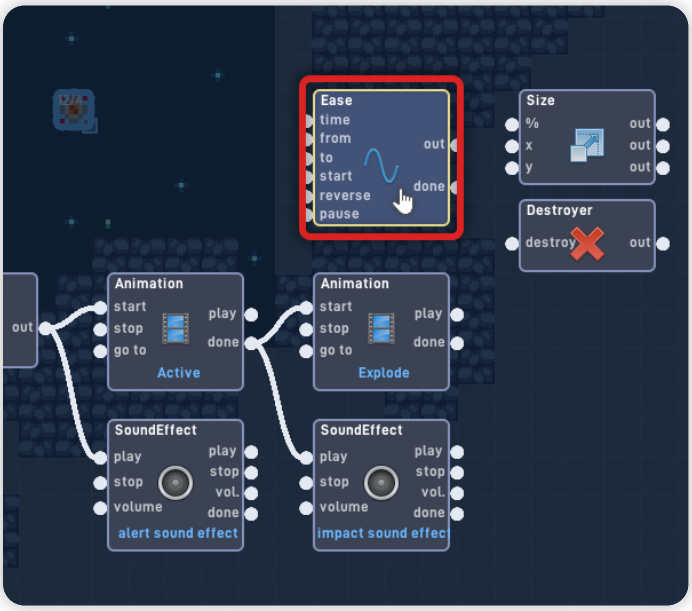
If it is, the Proximity will trigger, causing the Switch behavior to turn itself off and trigger the “Activate” Number once.

The “Activate” Number behavior plays the “Active” Animation and plays the alert Sound; Once the “Active” animation is done, it will start the “Explode” Animation and play the impact (explosion) Sound.

To finish our logic, let’s make this object grow in size when it explodes and delete itself at the end.

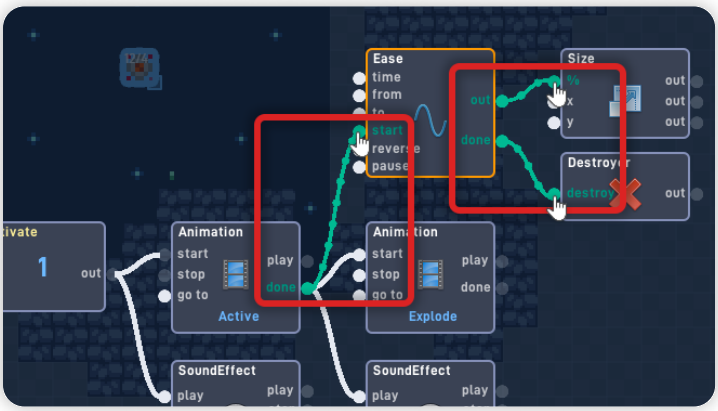
From the "Logic & Math" section, add an "Ease" behavior.
From the "Properties" section, add a "Size" behavior.
From the "Components" section, add a "Destroyer" behavior.

Move the newly added behaviors and align them as shown below.



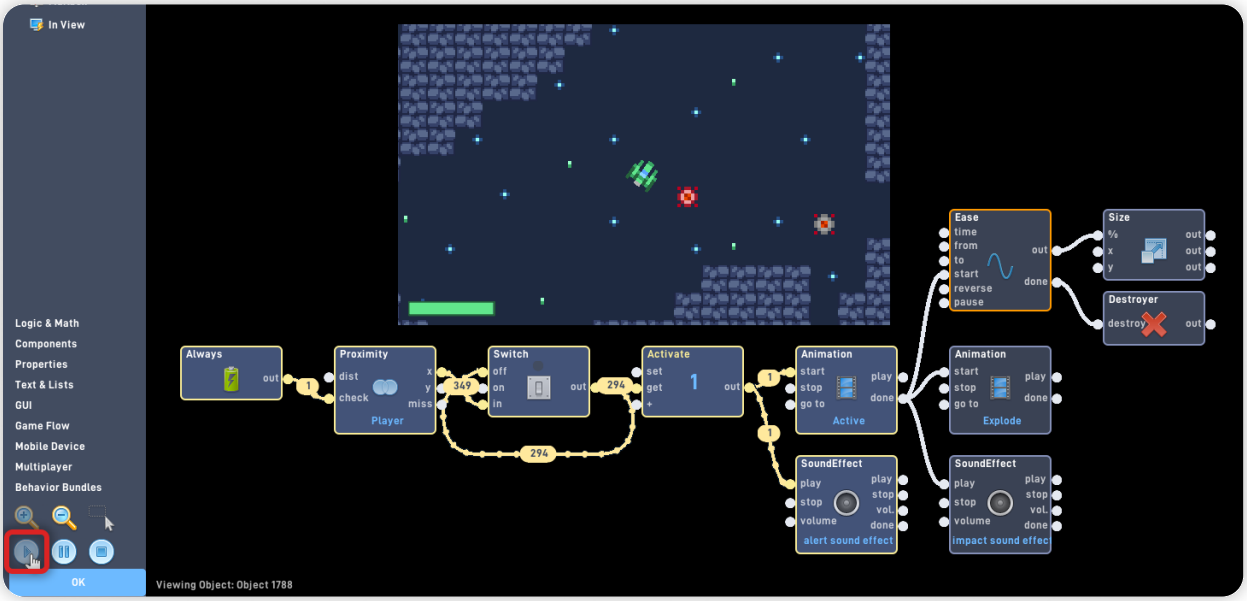
Open the Ease behavior panel and set the Easing Function to "Back".
Change its mode from "Ease In" to "Ease Out". Change the Seconds to "0.5".
Set the From value to "100", and set the To value to "600".
Click “OK” to close the behavior panel and save your changes.

Now, connect the behaviors. Connect the Active animation "done" output to the "start" input from the Ease behavior.
Connect the Ease "out" to the "%" input from the Size behavior.
Connect the Ease "done" to the "destroy" input from the Destroyer behavior.



This new logic bit makes the object go from its 100% size to 600% (6 times bigger) and deletes itself once the Ease interpolation is done - making it look like a big explosion.

Click the “Play” button to playtest your game inside the editor.
When the Player is near, the Trap object should activate by playing the Active animation and a Sound. A few frames later, it explodes by growing in size, playing the Explode Animation and a Sound.

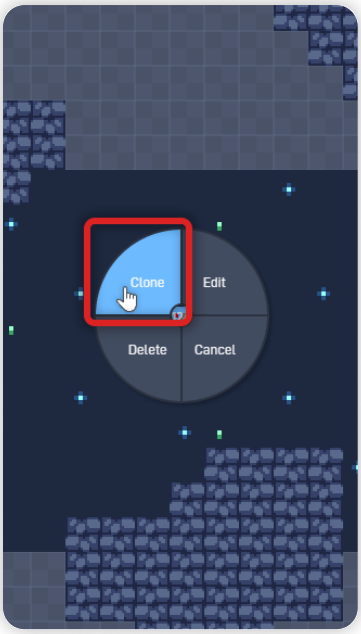


Click "OK" to close the Behavior Editor and save your changes.
Click "OK" to close the object properties panel.

Step 5

Add More Trap Objects to the Level

Click on the “Trap Explosive” object, and click “Clone” to add more traps to the level.
Add it to the level in a way that makes exploring it more challenging.
Click "Done Cloning" to stop cloning.



As before, you can delete any objects you may have placed accidentally, or if you need, add more traps by repeating this step.

Step 6

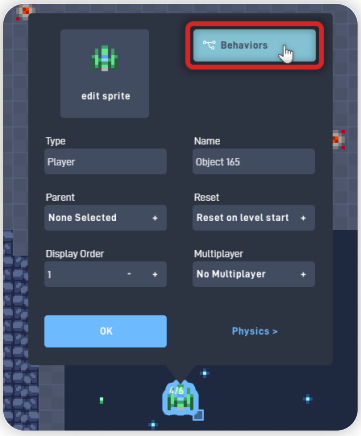
Make the Trap Object Damage the Player

Open the Player object behaviors by clicking on it, selecting “Edit”, and clicking on “Behaviors” to open the Behavior Editor.

From the "Triggers" section, add a “Collision" behavior.

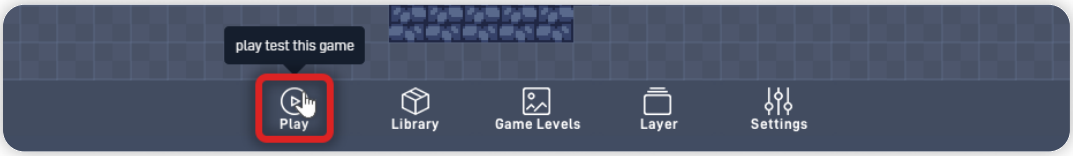
Place it below the Wall Rock Collision behavior, and open its behavior panel.
Change its collision from “Any Type” to “Trap Explosive”.
Set the Repeat Delay to “10”.
Click “OK” to close the behavior panel and save your changes.

Connect the Collision behavior “hit” output to the “get” input from the Damage Number behavior.



Click "OK" to close the Behavior Editor and save your changes.
Click "OK" again to close the object properties panel.

Now click "Play" on the bottom toolbar to play your game.
You can open the editor again to adjust the level if necessary.



When in Play mode:

- You will be able to explore the level you created;
- If the Player Ship gets near the Explosive Trap, it will activate the trap and make it explode;
- If the Player Ship collides with the Trap object or the explosion, it will reduce its health by “1”;

If you run into any problems, check the troubleshooting section.

Troubleshooting

A big part of game development is figuring out why things sometimes do not behave as you expect. If your game is misbehaving, check the following points:

- **If the Player's health reduces more than once when colliding with the Explosion,** ensure that the "Trap Explosive" collision on the Player logic has its Repeat Delay set to "10"; *(Step 6)*

- **If the Trap Explosive object "activates" more than once,** ensure that on its logic, the Switch behavior output is connected to its "off" input, which makes the logic to activate only once; *(Step 4)*

- **If the Explosion stays on screen for too long,** ensure that on the Trap Explosive object logic, the Ease "seconds" is set to "0.5", and its "done" output is connected to the "destroy" input from the Destroyer behavior; *(Step 4)*

Space Pilot - Part 1

Nice work!

You've now finished **Lesson 4 out of 6.**