Phoenix

Rainy Day Fish Pond!

In this workshop, we'll explore how you can use sound as an input for your projects in Scratch. This technique can be used to make patterns that react and dance to sound. We will start very simply, and then build it together as a pond with fish that you can play with.

You will need:

Access to the [Scratch](#) website, from a computer or laptop.
(It should also work from an ipad or tablet)

This project uses sound, so it's important that the device you are using has a microphone.

If you want to save your project at the end, make sure you have created a Scratch account and are logged in.

Below is the template project. Open it up and start remixing:

https://scratch.mit.edu/projects/453780488

And here is a copy of the final project. If you are more experienced with Scratch, you can jump straight into this one:

https://scratch.mit.edu/projects/453586609/

Step 1

We can make our projects react using the loudness block.

Open up the first raindrop sprite to see a simple raindrop setting.

We are saying that every time the microphone picks up sound, louder than 20, we will make something happen.

For the raindrop animation we are going to make a clone. The wait block makes sure we don't make too many clones at the same time.
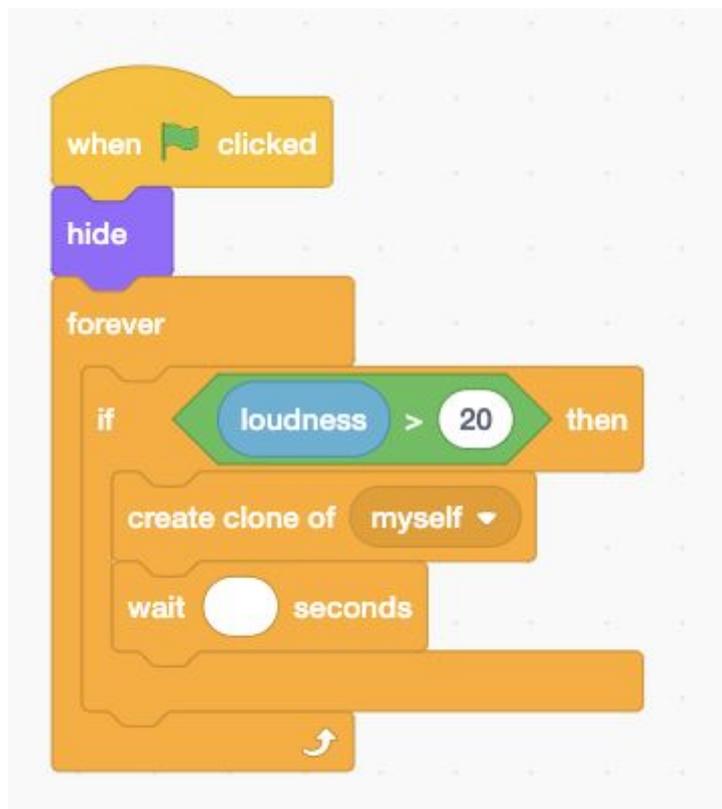
Step 2

Now view the blocks connected to the when I start as a clone block.

So, the loudness makes the clone, and then it also helps set the size of the raindrop.

Click the green flag and try making some different noises or playing some music.

Can you see the raindrops changing with the beat?

Experiment by changing the value in the loudness > 20 block and the set size to loudness * 4 %

Step 3

So this is the part where our project gets interesting. Now that we have created a sprite that can react and change with sound we can make all kinds of things happen. We could make the Scratch cat dance, or a pen draw a line.

Today we're making something a bit more relaxed - a rainy day, fish pond.

Let's have a look at how the raindrops are animated.
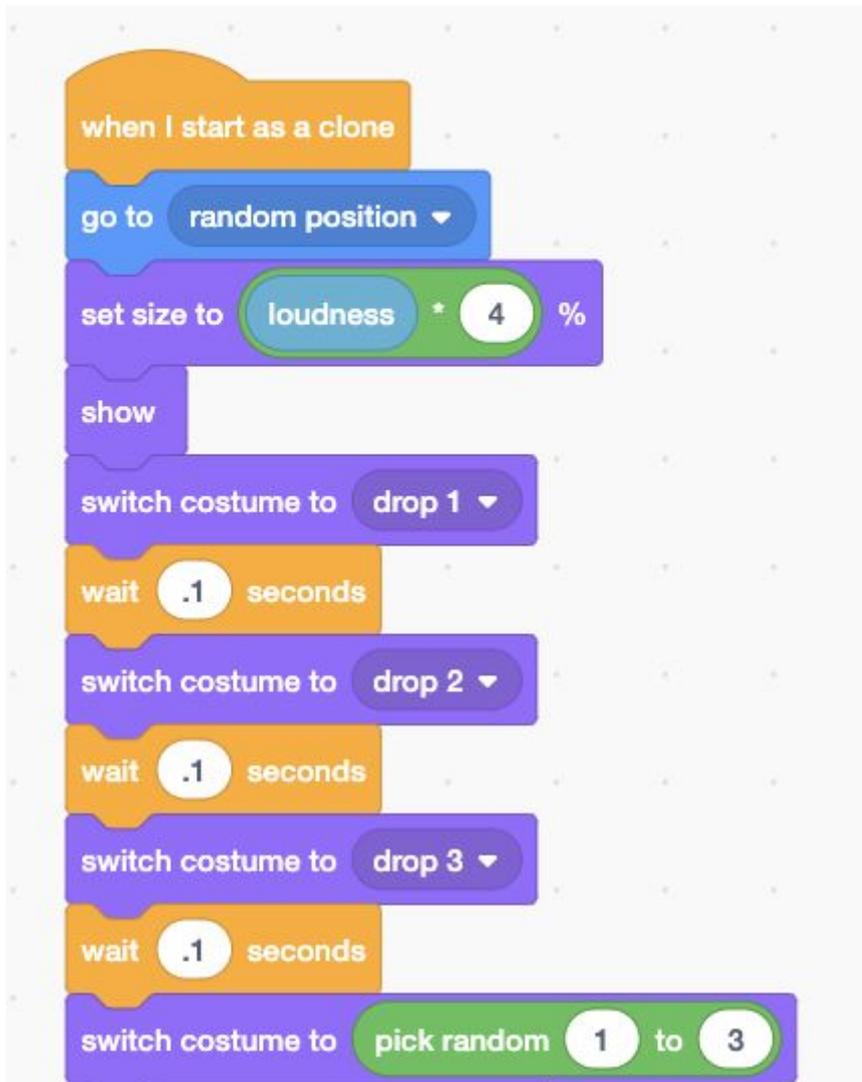
The sound has made a clone appear.

We then set the size of the clone based on the loudness. So every time there is a very loud noise, there will be a very big clone.

And then give the raindrop an animation by changing between different costumes. Firstly there are three drops, and then we pick a random ripple costume.

Have a look in the costume tab and try to design some of your own ripples.
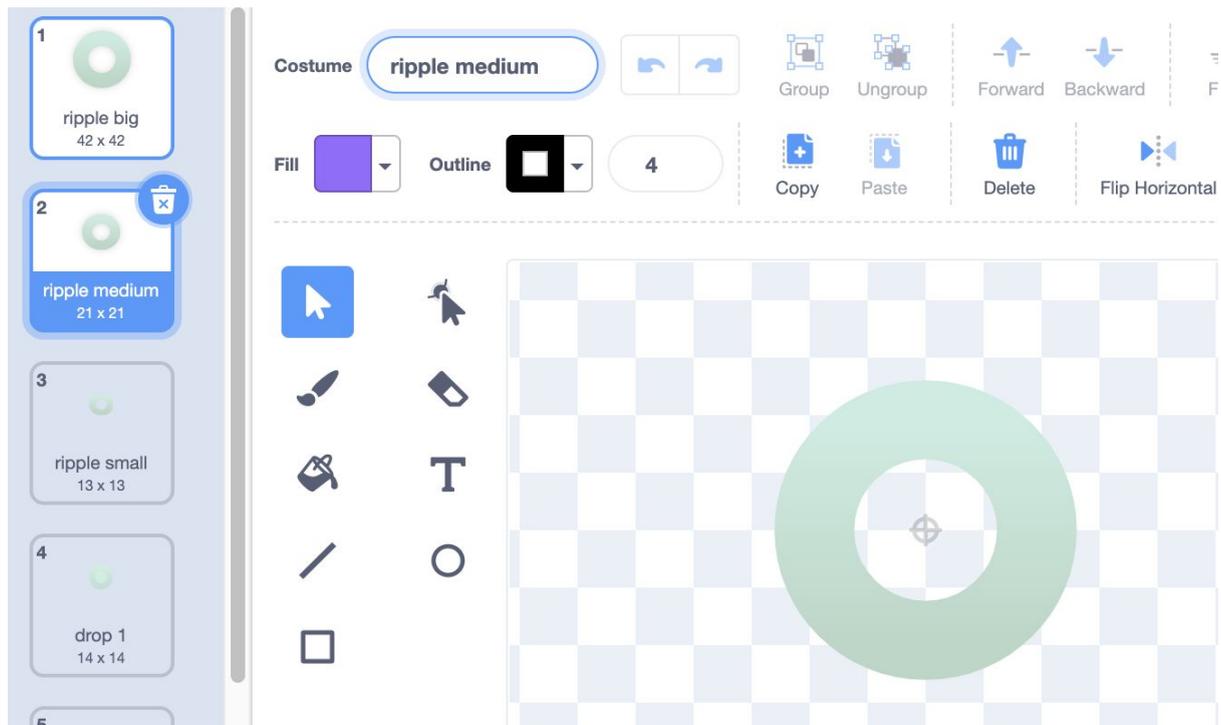
Once you've done this remember to connect them in the code blocks.

You'll need to make sure the `switch costume to` `pick random 1 to 3` block contains the right numbers!

Step 4

The final part of this animation is created by the last section of code.

Here we make the ripple effect. The clone is getting bigger, whilst also becoming more transparent.

And then finally, the clone deletes itself.

Step 5

Now open up the Spinning Fish sprite. This has a simple example of another way you can use the loudness block to control the animation. Connect the blocks to see what happens.
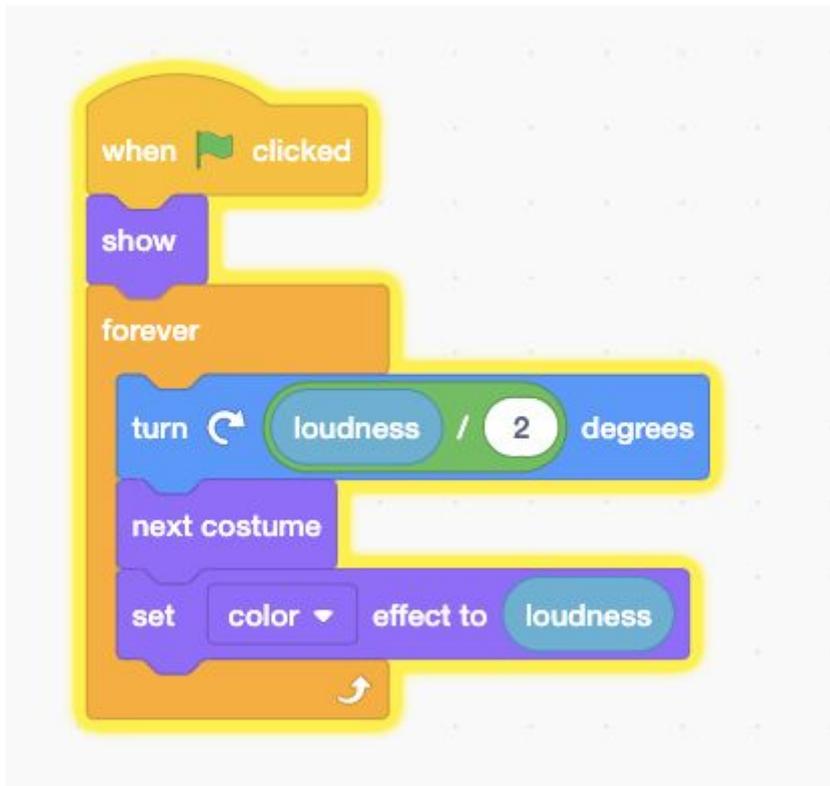
The fish is simply turning around depending on how loud the sound is. We've divided the loudness value by 2. You can adjust this and see how it changes things.

After each turn the sprite changes to the next costume.

If you open up the costume tab, you'll see our fish sprite already has a swimming animation, built out of the different costumes.

Try swapping this to a different character or editing the fish costumes!

Step 6

When you are happy with this you can open up the General Fish sprite and connect the blocks. Do the same with the Raindrop sprite.

Can you work out all the ways the fish is reacting to the sound?

There are also several different stages to the animation here, and different ways the user can interact with the fish.

Can you work out all the ways the user can interact with the fish?

Step 7

Let's focus on one of the things that is happening with the fish.
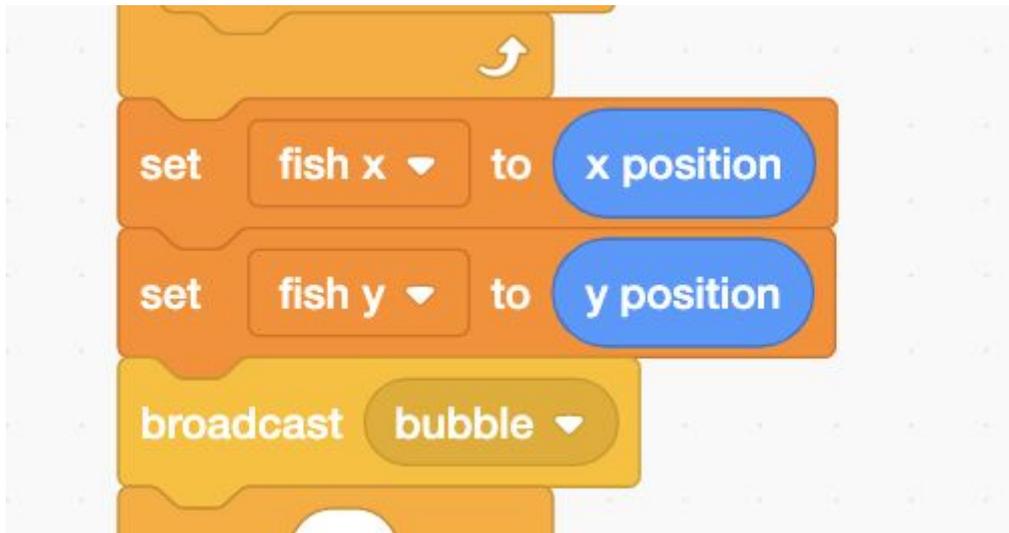
This section of code is right in the middle of the fish sequence.

Perhaps you worked it out already… the fish is making a little air bubble.

We are using the variables fish x and fish y to store where the bubble should appear.

If you switch to the bubble sprite, you can see how the bubble reacts.

Step 8

With the General Fish, Raindrop and Light sprites connect, click open the Pen Example or Pen Example 2 sprite.

Connect up the blocks here and see how the pen blocks can also be used to react to the sound.

Can you create something with this to go in the pond?

Step 9

You can open up our final project and explore the different things we have built into the pond!

- Can you add in some other fish?
- Can you change the way the rain falls?
- Can you make the lily pads react to the sound?

Remember to share your project to the Phoenix Scratch studio!

We hope you enjoyed this animation activity and can't wait to see what you create.

Phoenix.org.uk
@PhoenixLeic