

# Making your own fishing game with Scratch

TechResort Special Session #5137



## What do I need?

- A laptop running Scratch in a web browser (Chrome works best)
- *An email address to sign up for a Scratch account (optional)*

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## Scratch Fishing Game

In this session we'll use Scratch to program a simple fishing game.

When it's running it should look a bit like this:



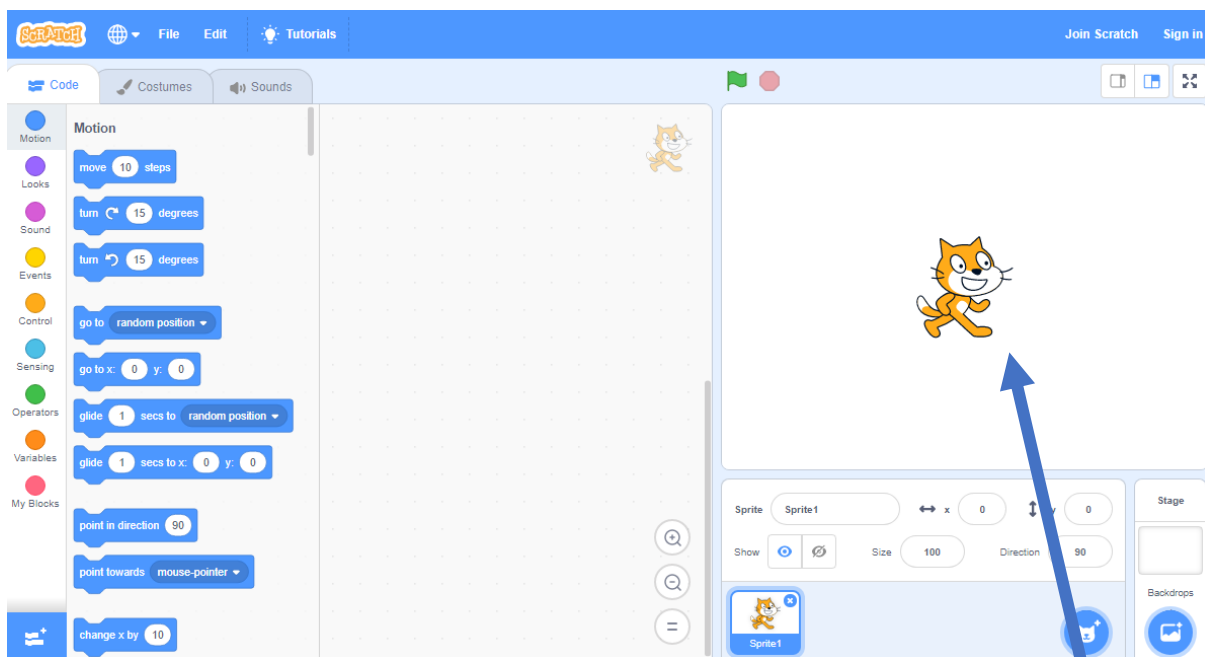
Let's start by...

Open up Scratch in a web browser by typing [www.scratch.mit.edu](http://www.scratch.mit.edu) into the address bar at the top. We find Google Chrome works best with Scratch.



Once the page has loaded, look for the 'Create' button at the top.

The Scratch 3 interface should look like this:



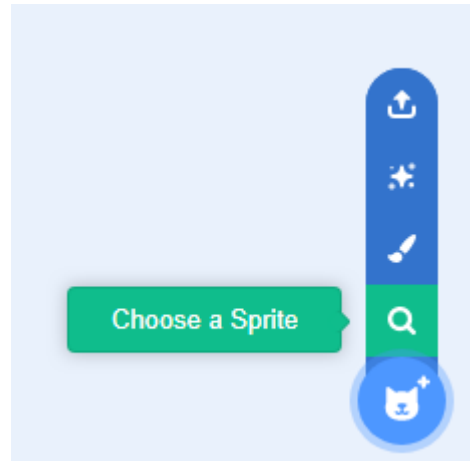
You can get blocks from this side, with each block belonging to a certain category. You can drag the blocks of code out onto the empty coding area.

This is the sprite editor, where you can edit the 'sprites' (or characters and objects) on stage

This is the stage, where you design and run the program

We then want to add a fish sprite. Look in the sprite editor section for the 'Add sprite' button, and hover over it. Then the magnifying glass icon should say 'Choose a sprite'.

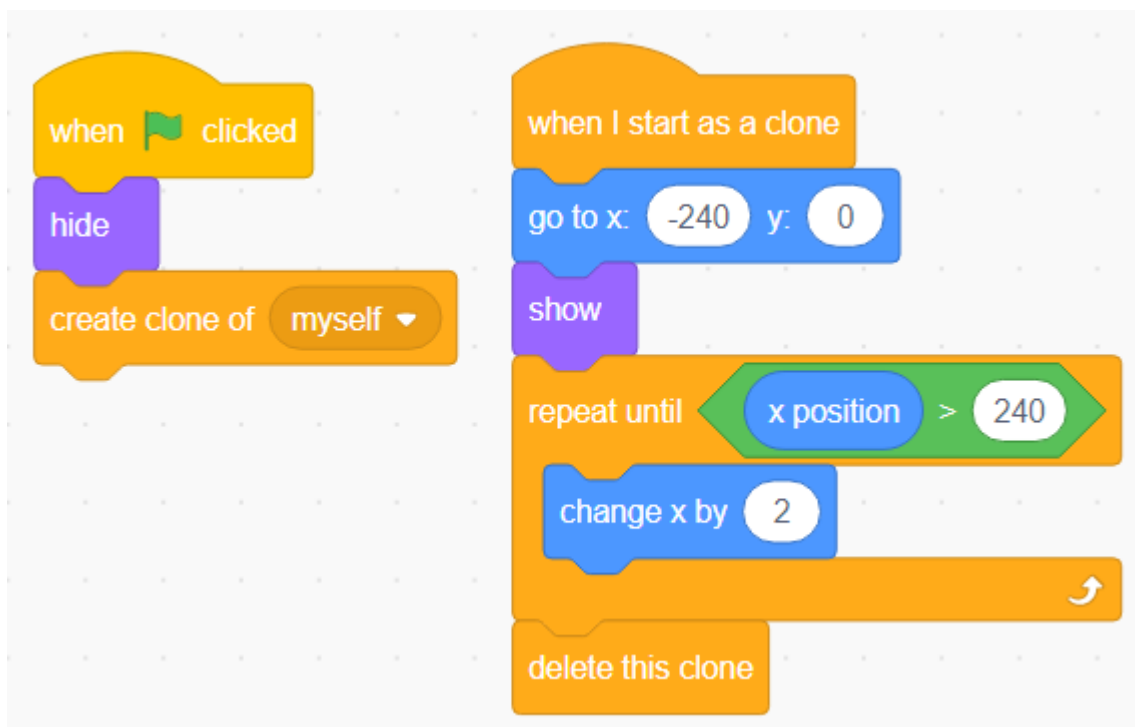
Look through the different sprite category until you can find a fish.



We'll want to make the fish a bit smaller. Look for 'size' and click, then change it to about 30 from 100.

We can also delete the cat, as we won't be needing that for the game. Right-click it and press 'Delete'.

We can now start to write some code so that the fish will start to swim downstream. Create the following code:





Run the code you've just created by clicking on the green flag above the stage.

Does your fish go to the left of the screen and swim to the right before disappearing? If not, check your code is correct.

However, you'll see it is just one fish. Let's change the code so that 10 fish appear instead of just the one.

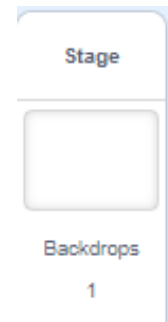
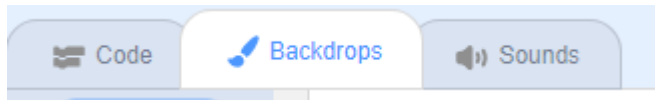
```
when green flag clicked
hide
repeat 10 times
  create clone of myself
  wait 10 seconds
```

While this will make 10 fish appear, they will all swim down the middle of the screen. We can change this by making the 'y' position random. Change the code so it looks like this:

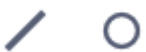
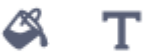
```
when I start as a clone
go to x: -240 y: pick random -150 to 150
show
repeat until x position > 240
  change x by 2
delete this clone
```

Test your code by pressing the green flag, and then we can edit the stage so it looks more like a river.

First look for the stage section (on the right side of the screen) and then for 'backdrops' near the top.



Then, you can use the different tools and colours to make your backdrop look something like this:



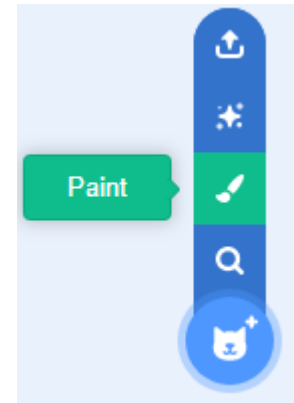
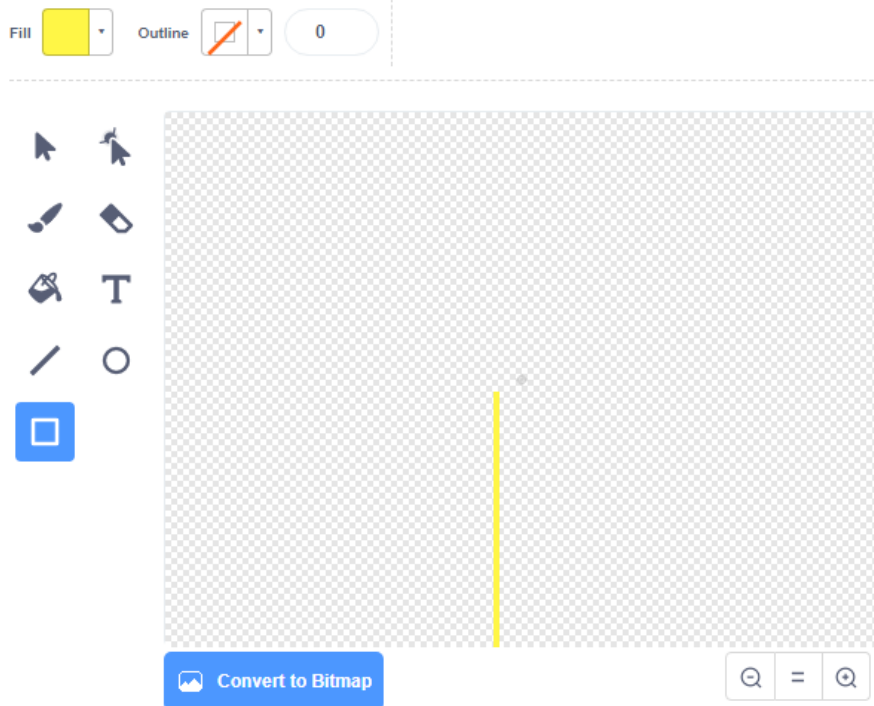
The easiest way is to use the rectangle tool to create two different rectangles, one of each colour. Click and drag to create them.

You can use the fill tool to pick a colour, and set the outline to 0.



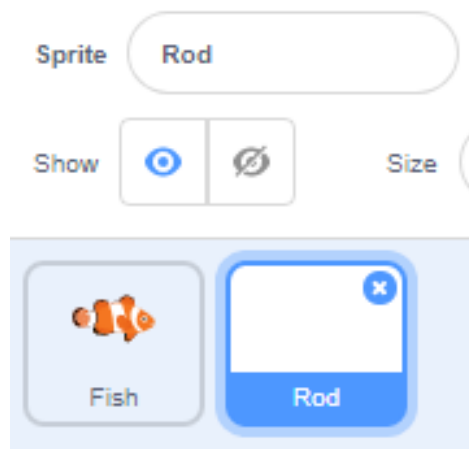
We now need to add a fishing rod as a new sprite. Go to the sprite editor and then add new sprite, and 'Paint'.

You'll then want to create a fishing rod using the drawing tool. It might look something like this:



It should be a long and thin rectangle – make sure the colour stands out from the background!

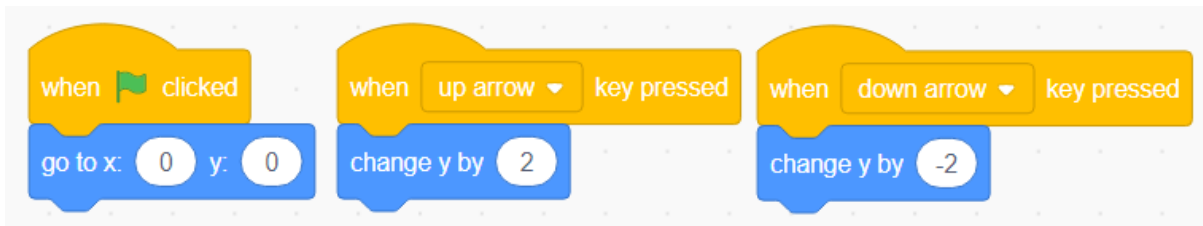
Once you have drawn it, go to the sprite editor and click where it says 'Sprite1' and change it so it says 'Rod'.



We can now program the fishing rod. We want it to:


- Go to the middle of the screen when the program starts
- Move upwards when we press the 'up' arrow
- Move downwards when we press the 'down' arrow

This is what your code should look like:



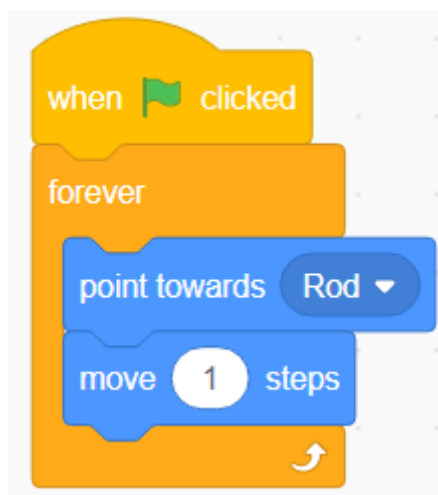
Check your code works by moving the up and down arrows.

Your challenge is now to make another sprite for bait – use the same steps as before to make and name the new sprite:

- The bait will be a small red circle
- Make sure you place it correctly using the  tool and clicking right in the middle of the circle (as you did with your Rod)
- Make sure you name it 'Bait'

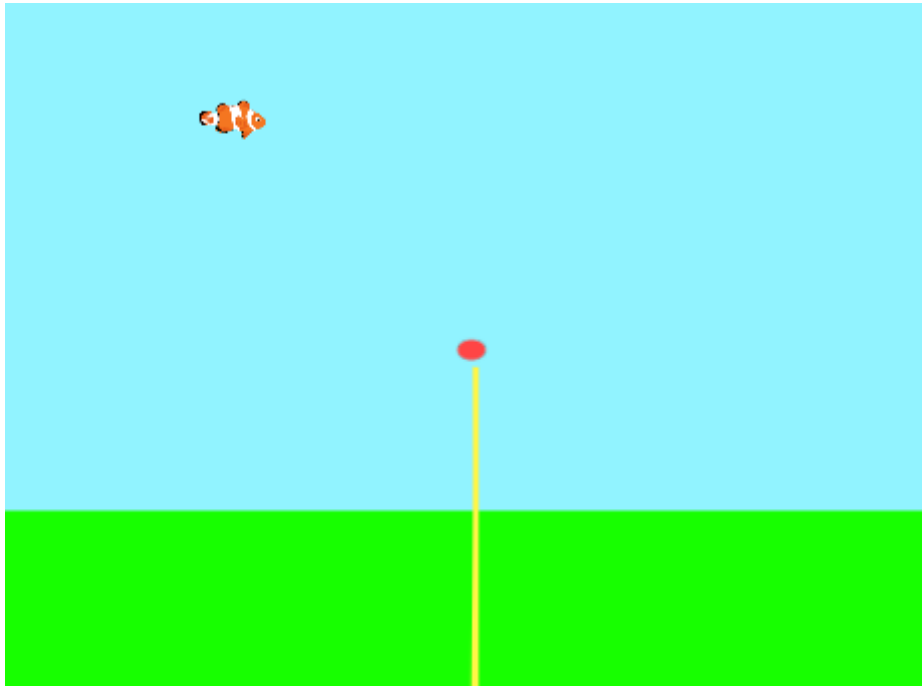
Drag it on the stage so it appears at the tip of the rod.

We can now write some code so that the bait will always try to move so that it will be on the end of the rod. Make sure this code is written under the 'bait' sprite – as you've seen, each sprite can have its own pieces of code.



Run your code.

Just after it has started, it should look something like this:



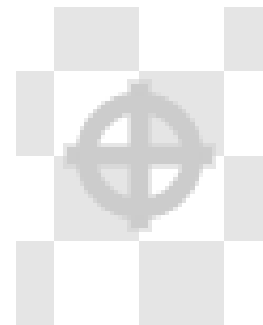
Check that all these happen:

- A fish swims from left to right 10 times at different heights
- When the code starts the end of the rod is in the middle with the bait at its end
- You can move the rod up and down using the arrow keys
- The bait follows the end of the rod but a little bit slower

If you notice the bait is very 'jumpy', make sure both the rod and bait sprites are painted close to the centre.

Go to the design section and look for the centre mark in the middle (pictured on the right).

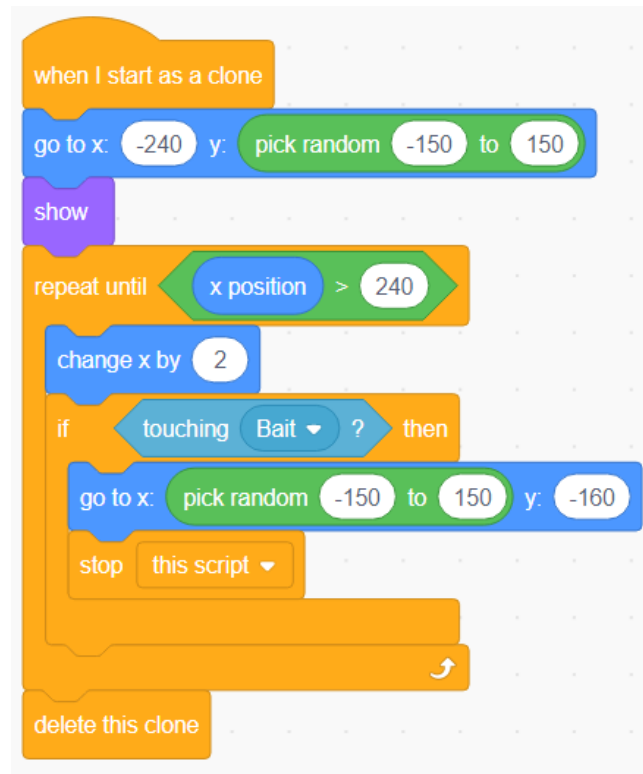
You might need to zoom in to look for it; the bait should cover the centre mark, and the top of the rod should be lined up with it.





Now let's add some code so that when the fish bumps into the bait, it is 'caught'.

Go back to the code for your fish and edit the 'clone' block so it looks like this:



Test your new improved code and see if it works. You should now have a working fishing game. Can you catch all 10 fish?

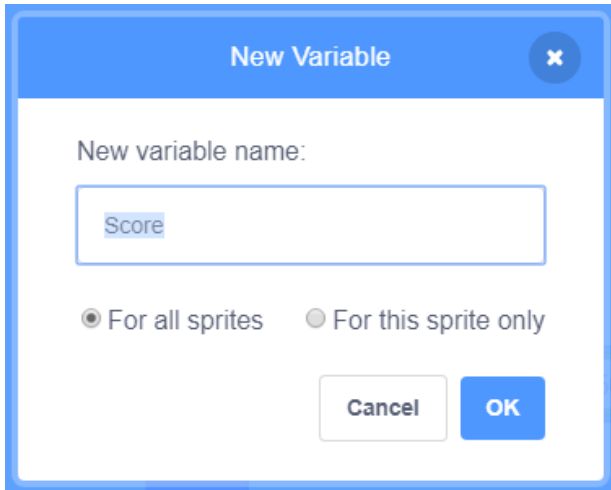
If it isn't quite working, make sure the code is for the correct sprite and matches exactly the screenshot above.

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We can still make the game even better! Let's think of some improvements:

- Keep track of the number of fish caught
- Add some sound effects
- Tell us when the game is finished

Turn over the page to find out how to add a variable to keep track of the score.

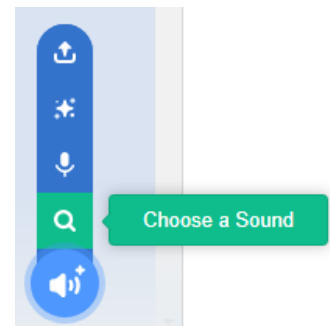


Click on 'Variables' on the left hand side, then 'Make a Variable'.

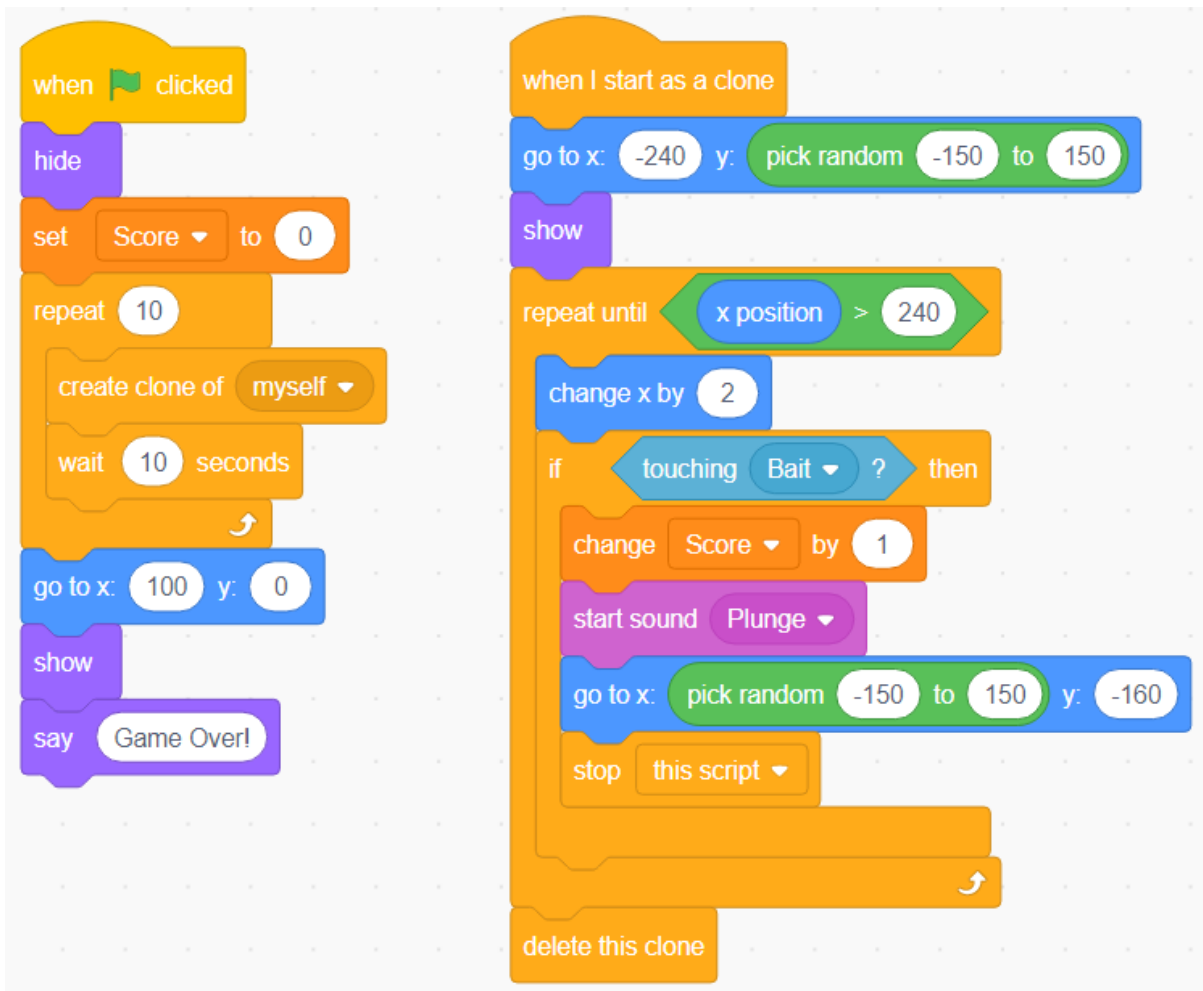
We will come back to this later to write some code for it.

Now, let's add some sound effects in.

Go to the 'Fish' sprite tab, and then 'Sounds'. Look for the 'add sound' button at the bottom and then 'Choose a sound'.



Search for the sound 'plunge' and add them. You can then modify the code for the fish to look like this:



Play your game a few times and try it on your friends.

Think of some improvements it could have to make it even better. For example:

- Fish swim at different speeds
- Fish don't swim in a straight line
- Fish under the water are invisible!
- The water and riverbank are more realistic

Try and work out how you might do these and have a go at programming them.

Optional – once you're done, ask an elf to help with setting up your own Scratch account. You'll need an email address, and this allows you to access your work, and create more Scratch games, at home!