

SHARK ATTACK!



Code Club Project

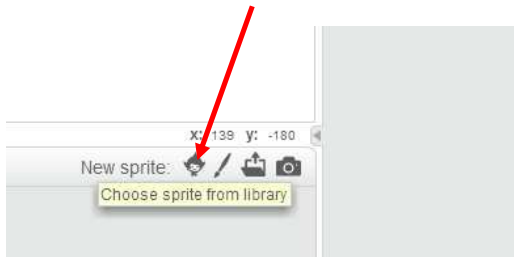
Step 1: Controlling a sprite

In our last tutorial we learned how to make a sprite move around the screen. This time we are going to look at moving sprites interactively to create a computer game.

- Start a new Scratch project, and delete the cat sprite so that your project is empty. You can find the online Scratch editor at jumpto.cc/scratch-new.

From the sprites library, add the Diver sprite:

- Click 'Choose sprite from library'



- Select the People category – then choose the Diver sprite
- You are going to control the diver with your mouse. Add this code to your diver:



- Test out your diver, by clicking the flag and moving the mouse. Does the diver swim towards the mouse?

What happens if the boat reaches the mouse pointer?

To stop this happening, you'll need to add an **if** block to your code, so that the boat only moves if it is more than 5 pixels away from the mouse:

- Test out your diver again, to check whether the problem has been fixed.
-

Save your project

Step 2: Add another sprite

Let's add the shark sprite to your animation.



- Add the following code to your shark:



- Click the flag to check if the shark chases the diver?

How quickly does the shark catch the diver? How can we slow it down?

When you restart, both sprites are in the position they finished last time. So the shark is already touching the diver. How can we fix this?

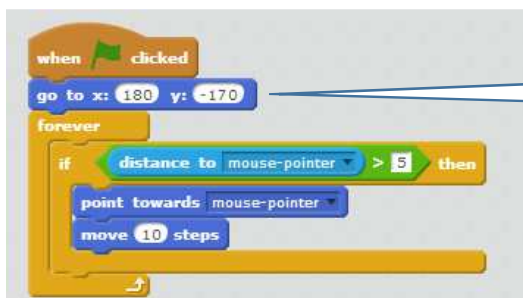
- We need to add some more code. Select the shark sprite:



The **go to** block will place the shark towards the top-left of the stage

Set the **move** block to 5 step to slow down the shark

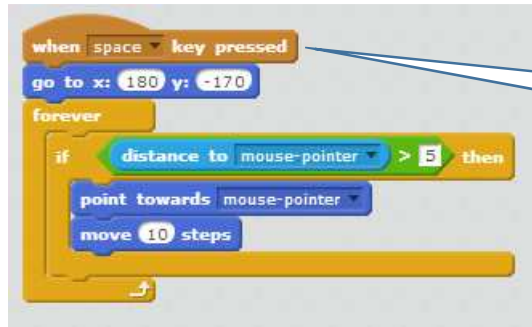
- Now select the diver sprite and add this code:



The **go to** block will place the diver towards the bottom-right of the stage

- Click the flag to check your code

When you click the flag the diver heads straight towards it. Ideally, we should be able to start the game with the mouse in a better position. Instead of clicking the green flag, we can start the game by pressing a key:



Delete the **when flag clicked** block and replace it with the **when space key pressed**

- press the spacebar to check your code
- do the same for the other sprite
- Use the 'Shrink' tool to make both sprites smaller



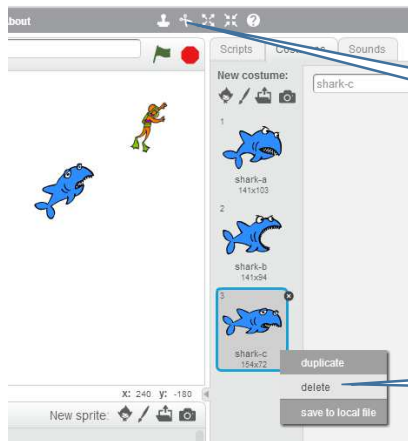
- press the spacebar to check your code

Save your project

Step 3: Shark eats diver!

What happens when the shark catches the diver? What do you think should happen? First, let's make the shark snap his jaws like we did in the 'Aquarium' project.

- Go to the shark's Costume tab and delete 'shark-c'



You can delete by clicking on the 'Delete' (scissors) tool and then click on the costume

Or you can delete by right-clicking the costume and selecting 'delete'

- Go back to the shark's Scripts tab and add the following code:



Remember to use the **when space key pressed**

- Press the spacebar to check your code

Now, what do you think should happen when the shark catches the diver?

- Try adding these bits of code to the diver's script:



Now, when the shark touches the diver, the **hide** block will make it disappear.

Don't forget to add the **show** block, or the diver won't be there when you restart the game

- Press the spacebar to check your code

Now, just one little tidying-up job to do.

- Add a **stop all** to the diver's script to end the game:



- Press the spacebar again to check your code

Save your project

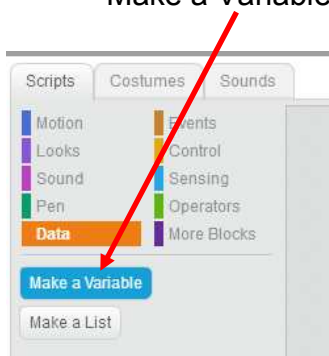
Step 3: Improving game-play

How long can you avoid being eaten by the shark? How do you know?
How can we find out?

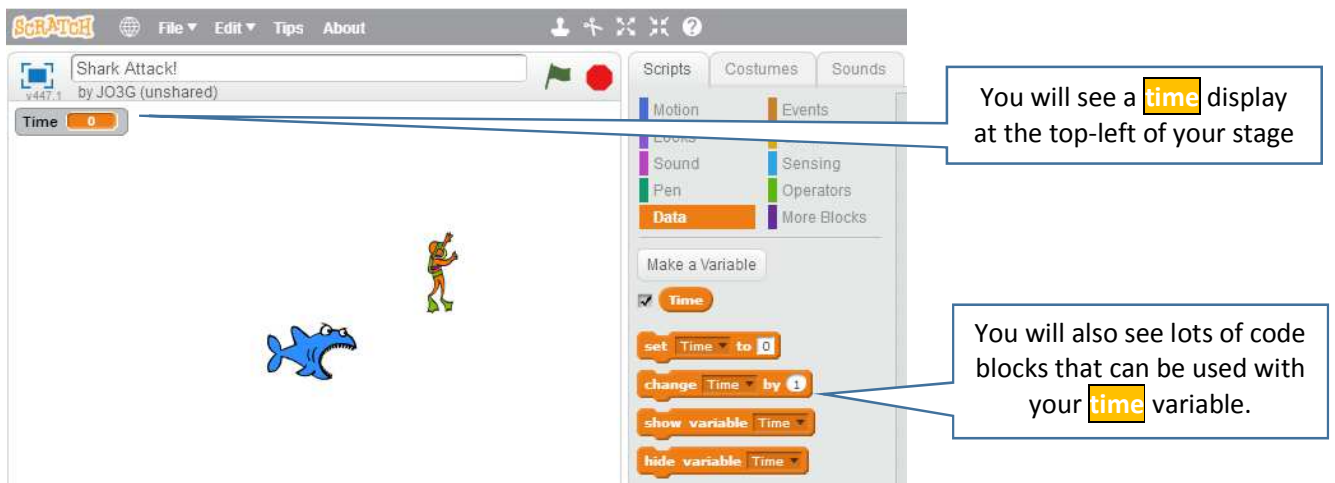
Let's add a timer to your game, to see how long you can avoid the shark attack!

To do this, we are going to create a variable. A variable is a place to store data that can change.

- To create a new variable, click on the 'Scripts' tab, select **Data** and then click 'Make a Variable'.



- Type 'Time' as the name of the variable, make sure that it is available for all sprites, and click 'OK' to create it. You'll then see lots of code blocks that can be used with your **Time** variable.



- Add this code to your stage, so that the timer counts up until the shark catches the diver:

When a new game is started (by pressing spacebar), the **set time to** variable block will reset timer to zero

This loop will add 1 to the timer every second

- Press the spacebar to check your code
- Challenge a friend to try to beat your best score!

Save your project

Step 4: Speeding up the shark

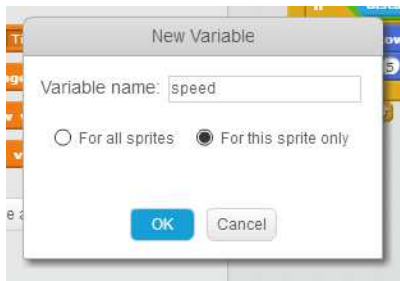
This game is far too easy - let's add things make it more interesting.

You will probably find, with a bit of practice, it is possible to avoid the shark for a very long time (boring!).

We could make it more difficult by speeding it up. But then it may be too difficult for some players.

OR – We could use a variable to make the shark speed up as the game progresses. That way. The game can start very easy – and suit any player – and speed up so that the shark will eventually catch even the best players!

- In the shark scripts tab, create a new variable called 'speed'.



- Set the variable 'For this sprite only'.

This time we do not need to see the variable display in the stage area

Uncheck the box to remove the variable display

- Add this code:

You may decide that 1 is to slow to start. Experiment, and set it how you want

You may also decide that .25 is speeding up too fast or slow. Again, experiment and fid the setting you prefer

- Add the **speed** variable into the **move 5 steps** block:



- Press the spacebar to check your code
- Challenge a friend to try to beat your best score!

Now that the game is just about ready, you might want to add a suitable backdrop. Look back at the 'Aquarium' project if you need a reminder of how to do this.

Save your project