

# How to write games, animations and stories using

# SCRATCH

for primary schools

## Lesson Plan 1 Under the Sea

**Mathematical Skills / Concepts**  
**Scratch Features**  
**Curricular Links**  
**Problem Solving, XY Coordinates**  
**Moving Left and Right, Up and Down**  
**Mathematics, Art, Science**

# Learning Objectives

## The child will:

- Use problem solving and mathematical skills in an authentic setting.
- Create an animation incorporating movement and images.
- Create an animation of a natural habitat.

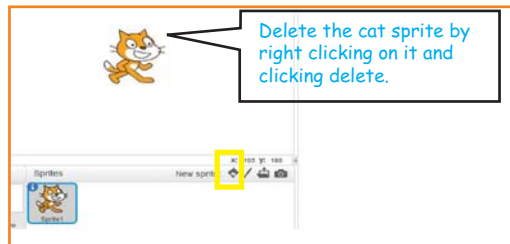
### Teacher Tip

Encourage children to do as much independent experimentation as possible. They should be free to choose their own sprites, alter distances etc. This experimentation will increase children's understanding of Scratch.

# Introduction

To support the children the teacher is encouraged to follow these steps using the interactive whiteboard.

- Ask the children to choose a sprite\* from the library.



- Ask them to click on Motion and experiment with the blocks for a few minutes.

# Left and Right

- To move right add the block "move 10 steps" to the scripts area. Double click on this block to see it work.



- To move left use the same block. Highlight "10" steps by clicking on it. Change this to "-10". Double click on this block to see it work.

- Add an event block to your script. Click on Events and drag out "When space key pressed". Snap this onto your movement block.



- Add a forever block to make a continuous movement. Insert the block "if on edge bounce" to stop your sprite disappearing from the screen.





## Challenge Time 1!

1. Select 2 fish / underwater sprites from the library. Be as creative as you can.
2. Use the move blocks to make them move left and right across the screen.
3. Add the “wait 1 sec” block to one of your sprites. What happens?
4. Change the wait time and see what happens.

## Up and Down

- To move up and down children will need to experiment with the y axis. Ask children to move the sprite on the stage. Observe the xy coordinates changing on the bottom right of the stage. Try to move the sprite to (0,0). Show the children how the x coordinates change as the sprite moves left to right, and how the y coordinates change as the sprite moves up and down.
- Use the “when space key pressed” block. Using the drop down arrow alter it to “when up arrow key pressed”. Add the movement block “change y by 10”.



- Ask the children to demonstrate how to move their sprite downwards.



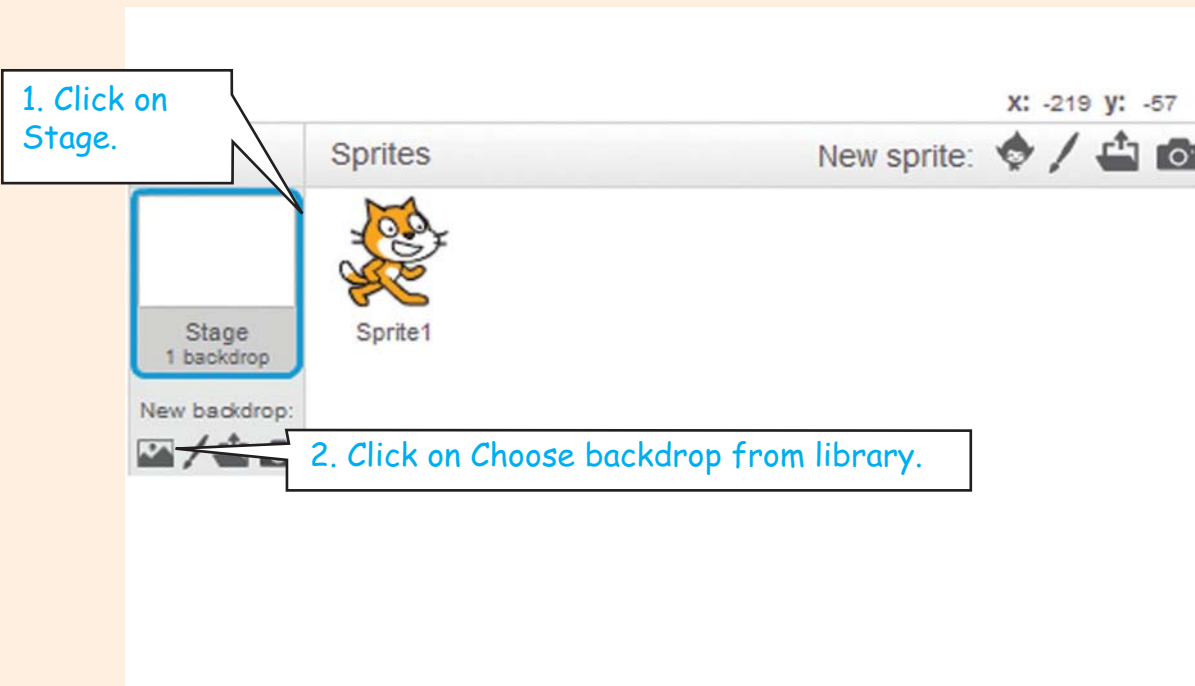
## Challenge Time 2!

1. Open a new Scratch project.
2. Select the trampoline sprite from the sprite library.
3. Select any other sprite.
4. Create a script which allows the sprite to bounce up and down on the trampoline.
5. Add another sprite which jumps more slowly.

\*Sprites are the objects that perform actions in a Scratch project. While the Stage can also be programmed in a project, most projects have at least one sprite as well because only sprites can move.

## Ultimate Challenge!

1. Open a new Scratch project.
2. Select an underwater backdrop.



3. Select some underwater sprites.
4. Using different types of movement create an underwater animation.
5. Have your sprites move left, right, up and down.
6. Have a look at classmates projects. Tell them what you like and suggest ideas to make their project even better!

## Notes