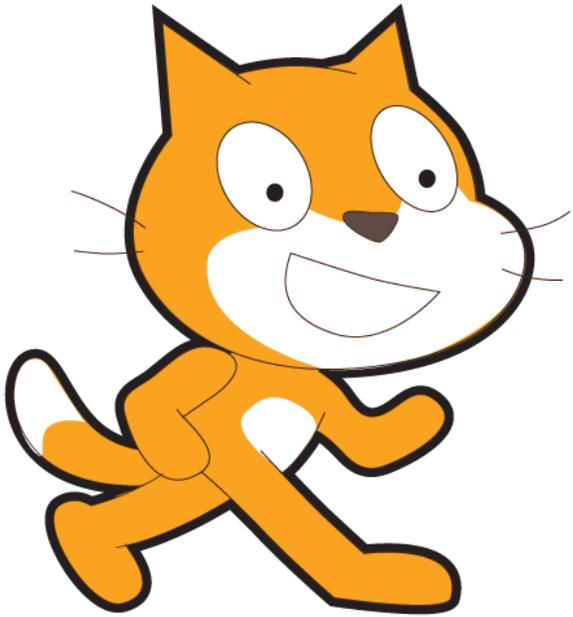


Programming in Scratch

Sprites and movement



Lesson 1

By the end of this unit...

- You are going to learn how to write computer programs using **Scratch**.
- You will create a computer game and test out each others' games to decide what makes a good computer game.





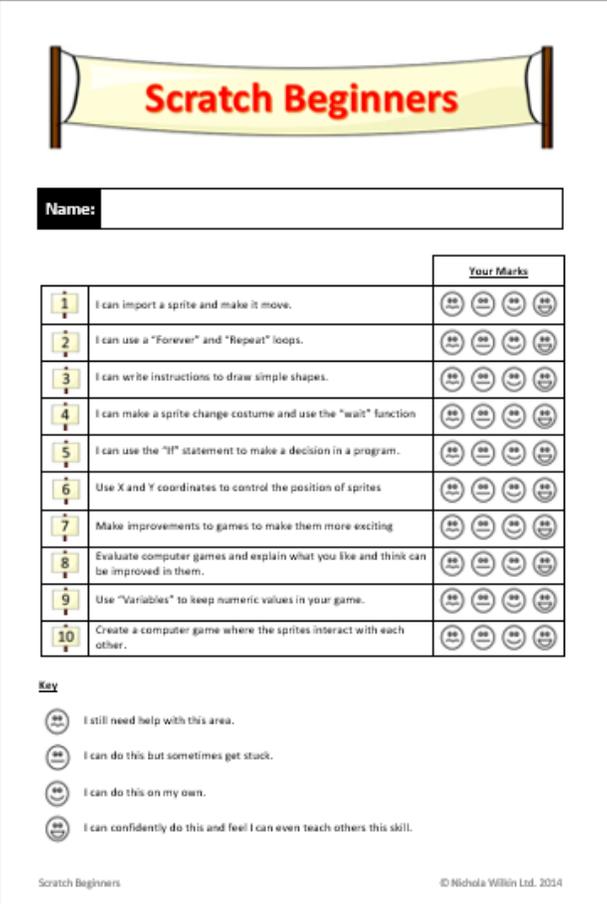
Lesson Outcomes

Write the code to move a sprite

- **By the end of this lesson, you will be able to:**
 - Change the look of a sprite.
 - Make the sprite move.
 - Add further sprites and alter the speed that they move.

Before we begin

- In front of you is a sheet to record your progress
- Fill in your **FULL NAME**
- At the end of the lesson, colour in the face that best describes your confidence
- We'll update after every lesson



A progress sheet titled "Scratch Beginners" with a yellow banner at the top. Below the banner is a "Name:" field. The main part of the sheet is a table with 10 rows, each representing a skill. The first column contains a number from 1 to 10. The second column contains a description of the skill. The third column, titled "Your Marks", contains four smiley faces representing a rating scale. Below the table is a "Key" section with four smiley faces and their corresponding descriptions: a sad face for "I still need help with this area.", a neutral face for "I can do this but sometimes get stuck.", a happy face for "I can do this on my own.", and a very happy face for "I can confidently do this and feel I can even teach others this skill." At the bottom left, it says "Scratch Beginners" and at the bottom right, it says "© Nichola Wilkin Ltd. 2014".

Scratch Beginners

Name: _____

		Your Marks
1	I can import a sprite and make it move.	😊😊😊😊
2	I can use a "Forever" and "Repeat" loops.	😊😊😊😊
3	I can write instructions to draw simple shapes.	😊😊😊😊
4	I can make a sprite change costume and use the "wait" function.	😊😊😊😊
5	I can use the "If" statement to make a decision in a program.	😊😊😊😊
6	Use X and Y coordinates to control the position of sprites	😊😊😊😊
7	Make improvements to games to make them more exciting	😊😊😊😊
8	Evaluate computer games and explain what you like and think can be improved in them.	😊😊😊😊
9	Use "Variables" to keep numeric values in your game.	😊😊😊😊
10	Create a computer game where the sprites interact with each other.	😊😊😊😊

Key

😊😊 I still need help with this area.

😊 I can do this but sometimes get stuck.

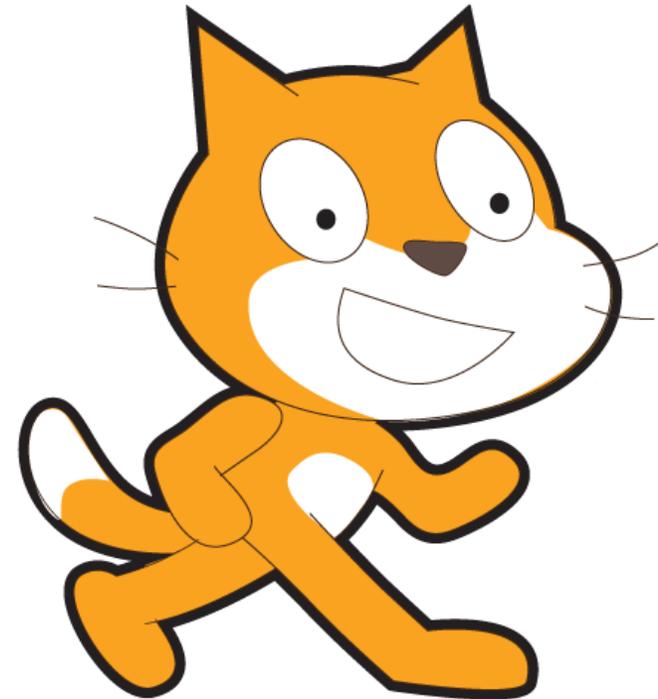
😊😊 I can do this on my own.

😊😊😊 I can confidently do this and feel I can even teach others this skill.

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Starter

1. Log onto your computer.
2. Find the program called ***Scratch***.
3. Load it up.

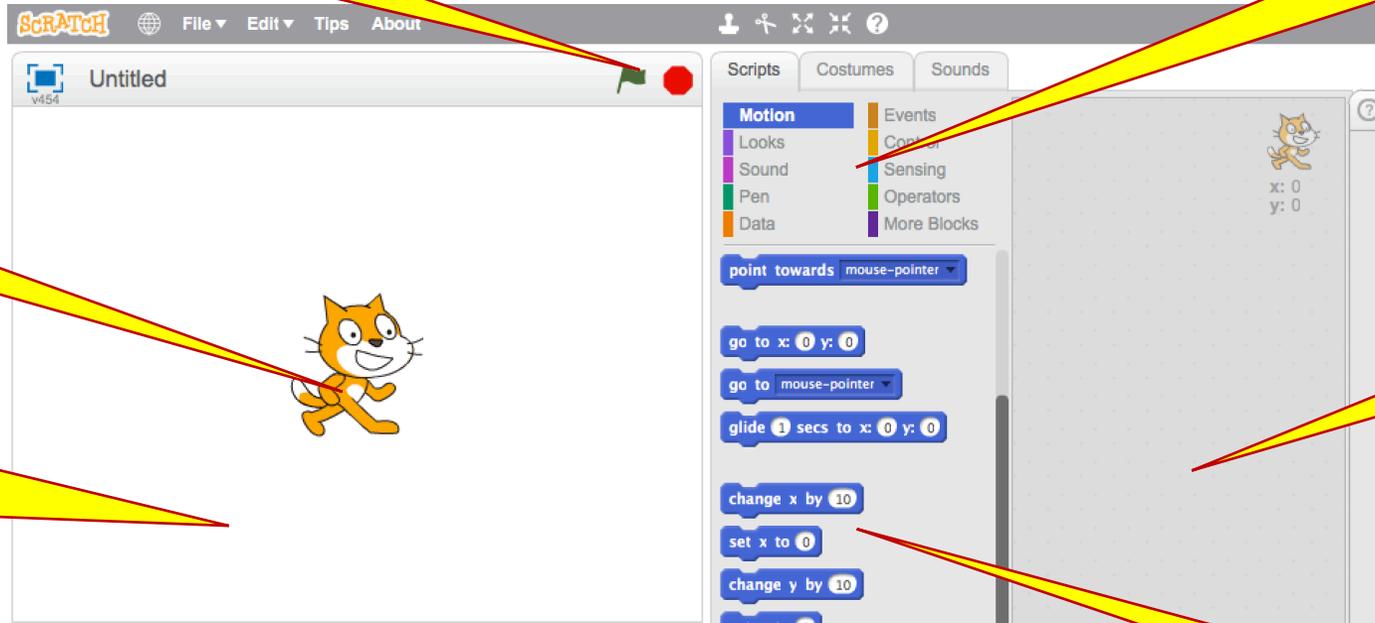


Start / Stop
Buttons

Scratch

Script Groups

Sprite



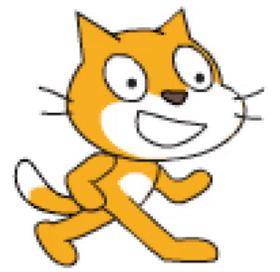
Script Area

Stage

Script Blocks



Untitled



x: 240 y: 180

Scripts Costumes Sounds

- Motion**
- Looks
- Sound
- Pen
- Data
- Events
- Control
- Sensing
- Operators
- More Blocks

```

move 10 steps
turn 15 degrees
turn 15 degrees

point in direction 90
point towards mouse-pointer

go to x: 0 y: 0
go to mouse-pointer
glide 1 secs to x: 0 y: 0

change x by 10
set x to 0
change v by 10
  
```

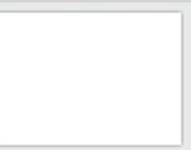
Scratch cat icon

x: 0
y: 0

Search, equals, zoom in icons

Sprites

New sprite: [Icons for new sprite]



Stage

Sprite1

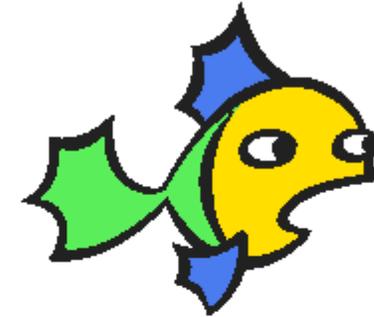
How much do you remember?



1. What is a sprite?
2. What is the stage?
3. How can you delete a sprite?
4. Which button can you use to add a sprite to the stage?
5. How can you change the folder you are looking at?

Activity: Try it yourself

- Delete the cat sprite.
- Add the fish3 sprite.
- Delete the fish3 sprite.
- Add the beach ball sprite.
- Delete the beach ball sprite.
- Add any sprite of your choice.



Moving the Sprite

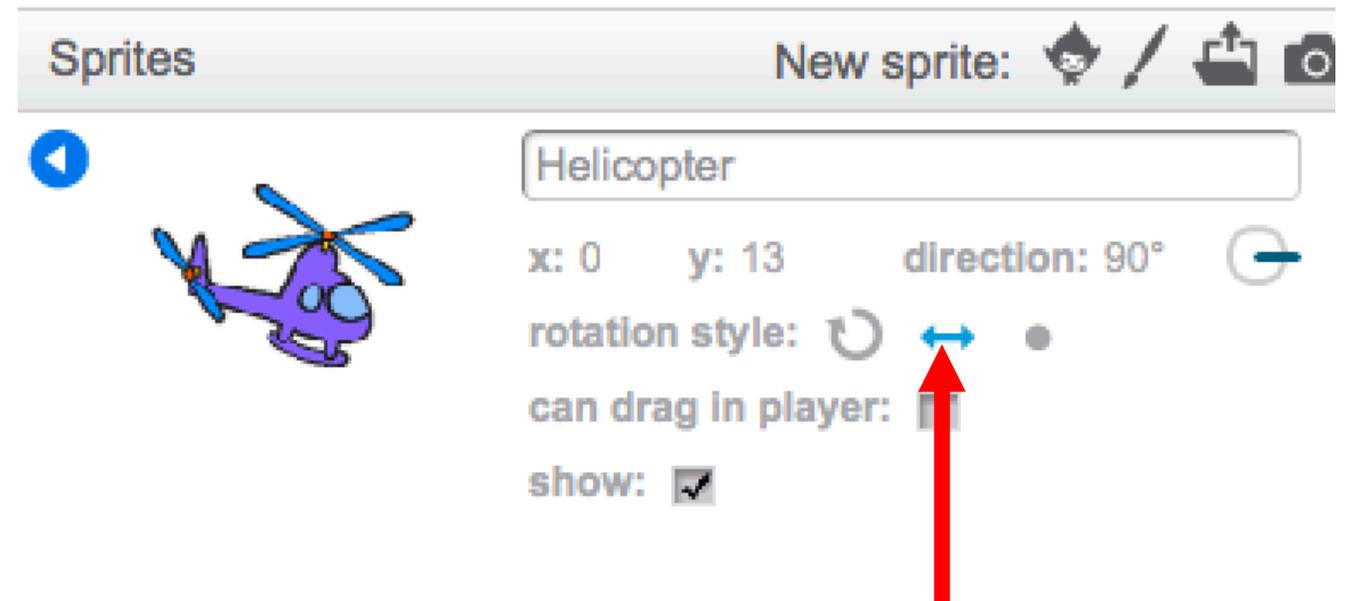
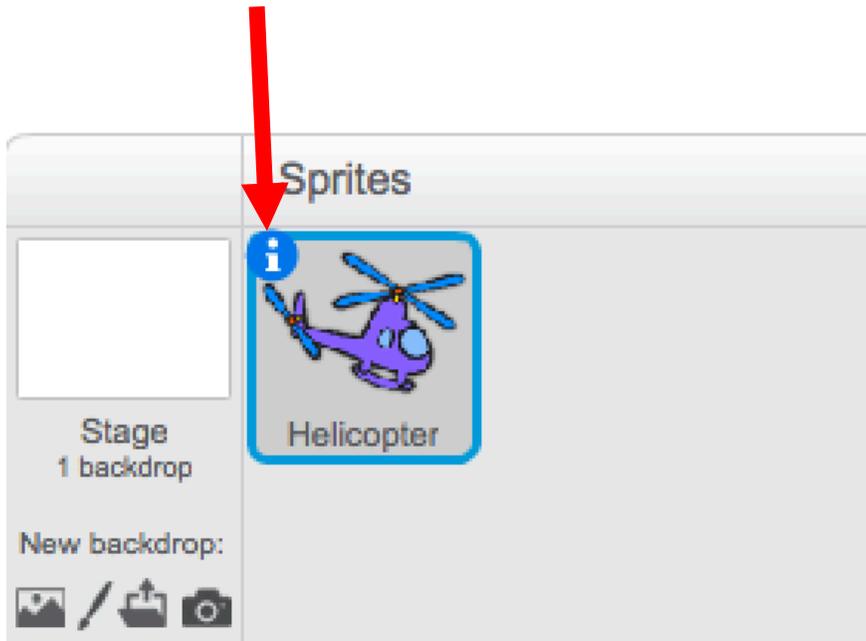


Click to start the video

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Keeping the helicopter the right way up

Click on the "i" symbol under Sprites at the bottom of the screen



Then click on the ←→ symbol

How much do you remember?

1. In which group of scripts would you find the option for “When space key is pressed”?
2. In which group of scripts would you find “Move 10 steps”?
3. How can you stop your sprite going off the edge of the screen?
4. How can you stop your sprite from turning upside down?



Activity: Changing the speed

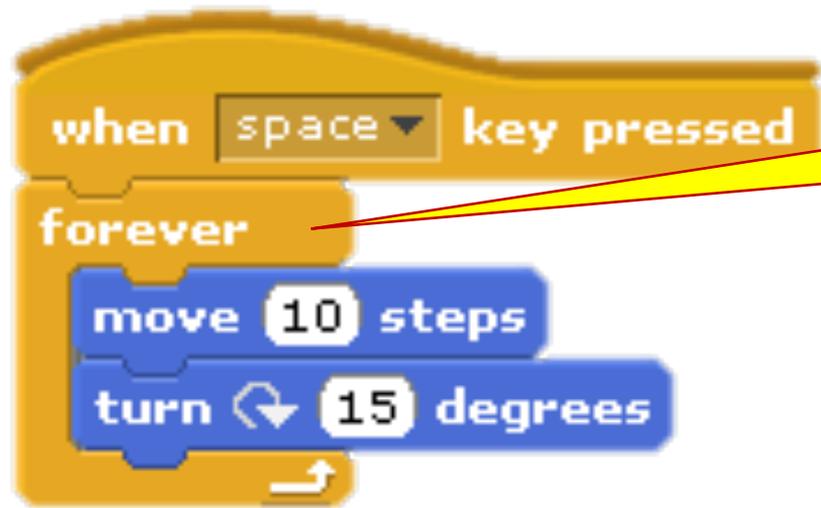
- To make the sprite go faster or slower, change the number of steps it moves.

A blue Scratch 'move' block with the text 'move 10 steps'. The number '10' is inside a white rounded square.

- What happens when it moves 3 steps?
- What happens when it moves 20 steps?
- Work out how you can get your sprite to move and turn using the turn option.

A blue Scratch 'turn' block with the text 'turn 15 degrees'. It includes a right-turn arrow icon and the number '15' inside a white rounded square.

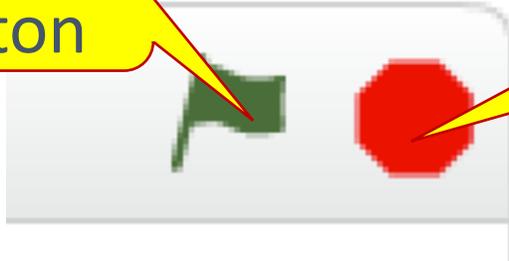
What will this code do?



This time we have a “Forever” loop in our script

- When you press the space bar the sprite will keep moving, even after you release the spacebar.
- Try it out.
- Use the stop button to stop the sprite from moving.

Start button



Stop button

Activity: Moving sprites

- Add a second sprite of your choice.
- Make it move at a different speed to your first sprite.
- Work out how you can make that sprite move when you press the up arrow rather than the space bar.
- Add another sprite which starts to move when you press a different button.



How much do you remember?



1. What is a sprite?
2. Which script group will allow you to move a sprite?
3. Which script group will allow you to choose how a script starts?
4. How can you stop a script from running?
5. What does the forever loop do?
6. How can you stop a sprite from going over the edge of the stage?
7. How can you change the speed that a sprite moves?

What skills have you practised today?

New skills you have learnt today...



Colour in the face for Skill 1 that best describes your confidence with it

Scratch Beginners

Name: _____

		Your Marks
1	I can import a sprite and make it move.	☹ ☹ ☹ ☹
2	I can use a "Forever" and "Repeat" loops.	☹ ☹ ☹ ☹
3	I can write instructions to draw simple shapes.	☹ ☹ ☹ ☹
4	I can make a sprite change costume and use the "wait" function	☹ ☹ ☹ ☹
5	I can use the "If" statement to make a decision in a program.	☹ ☹ ☹ ☹
6	Use X and Y coordinates to control the position of sprites	☹ ☹ ☹ ☹
7	Make improvements to games to make them more exciting	☹ ☹ ☹ ☹
8	Evaluate computer games and explain what you like and think can be improved in them.	☹ ☹ ☹ ☹
9	Use "Variables" to keep numeric values in your game.	☹ ☹ ☹ ☹
10	Create a computer game where the sprites interact with each other.	☹ ☹ ☹ ☹

Key

- ☹ I still need help with this area.
- ☹ I can do this but sometimes get stuck.
- ☹ I can do this on my own.
- ☹ I can confidently do this and feel I can even teach others this skill.

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