

# Get with the PROGRAMMING



SCRATCH File Edit Tips About · Saved 5 username



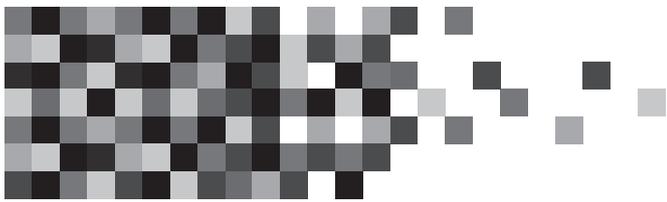
Coding  
is a hoot!



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# What is Scratch?

A computer doesn't have a smart brain like you, so everything you want it to do must be broken down into lists of simple instructions called programs. Giving instructions to the computer is known as programming, or coding.

## What Does a Computer Understand?

Instructions for computers have to be written following special rules and using only words the computer understands. These words and rules make up a "programming language." There are lots of different programming languages. Many have funny names, such as JavaScript, C++, and Python.

## What is Scratch?

Scratch is a computer programming language that's easy for beginners to use. In Scratch, programs are made by joining together coloured blocks using the mouse. These groups of blocks (called scripts) tell characters on the screen (called sprites) what to do. Scratch is free, safe, and fun to experiment with.

## Scratch Projects

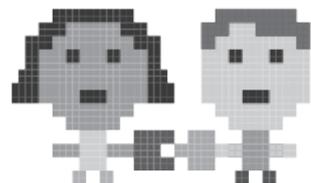
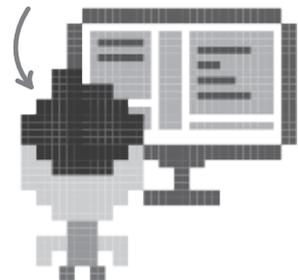
With Scratch, you can make your own interactive stories, animations, games, music, and art. Scratch has large collections (or "libraries") of cool graphics and fun sounds you can play around with. Let your imagination run wild—you'll soon pick up the coding skills you need!



### What You'll Learn:

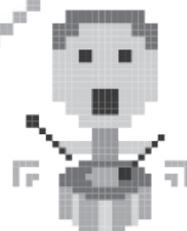
- To do tasks, computers need simple instructions called programs
- Scratch is a great place to start programming
- What the ingredients of a Scratch project are

A program is a list of instructions for the computer



The blocks fit together like jigsaw pieces

We can make lots of sounds!



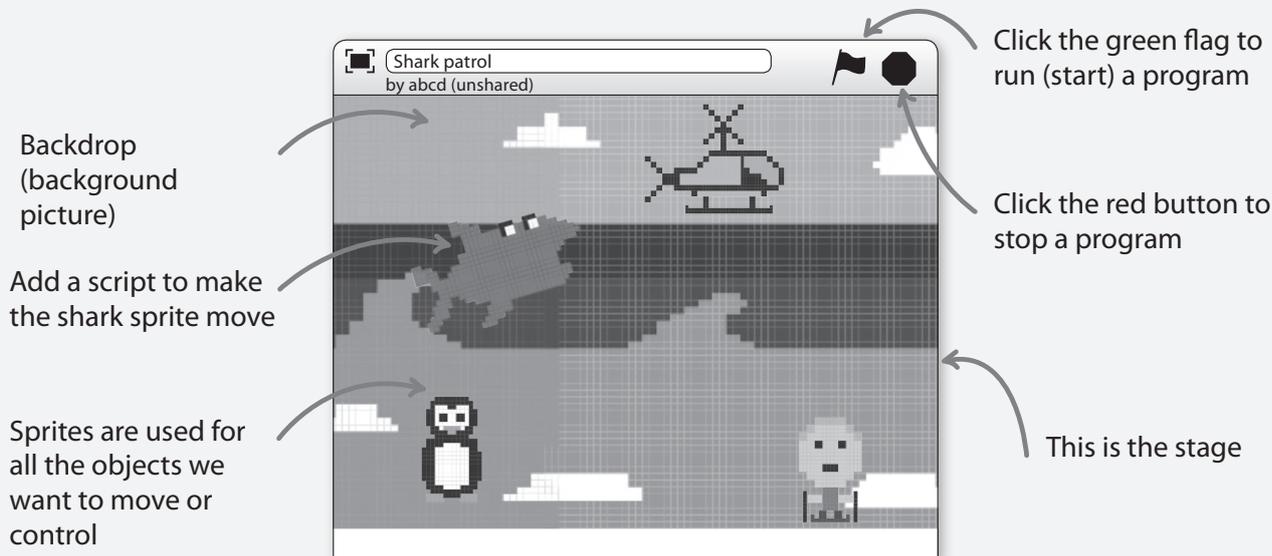
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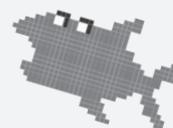
## What Makes Up a Scratch Project?

Here's a Scratch project. Think of it like a play. The action takes place in an area called the stage. The "actors" (the sprites) are controlled by lists of instructions (the scripts). Behind is the backdrop —the "scenery," which can be changed.



### Scripts for Sprites

This is an example of a script. It makes the shark sprite bounce around the stage, opening and closing its mouth. Each block gives an instruction to the sprite. A block might tell a sprite to move, change how it looks, talk in speech bubbles, react to other sprites, or make a sound.



## Show What You Know

Fill in the spaces to practice the key language of Scratch.

1. A ..... is a set of instructions (program) in Scratch.
2. Objects that perform actions in a project are called .....
3. In a Scratch program, the action takes place on the .....
4. Starting a program is called ..... it.
5. A collection of sounds or graphics is called a .....

Answers:  
1. script, 2. sprites, 3. stage  
4. running, 5. library



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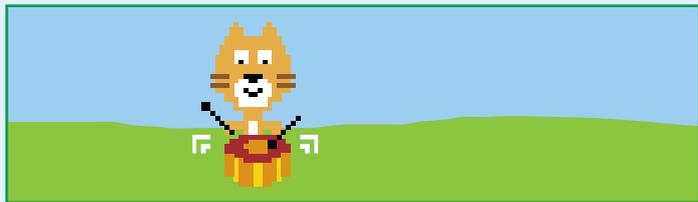
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# Scratch Activities

PROGRAM

## MOVE TO A BEAT



Have your sprite dance to a drum beat.



Choose your sprite:

New sprite:

Choose a sprite from the library

Enter the code:

```

when green flag clicked
  forever loop
    move 30 steps
    play drum 1 for 0.25 beats
    move -30 steps
    play drum 2 for 0.25 beats
  
```

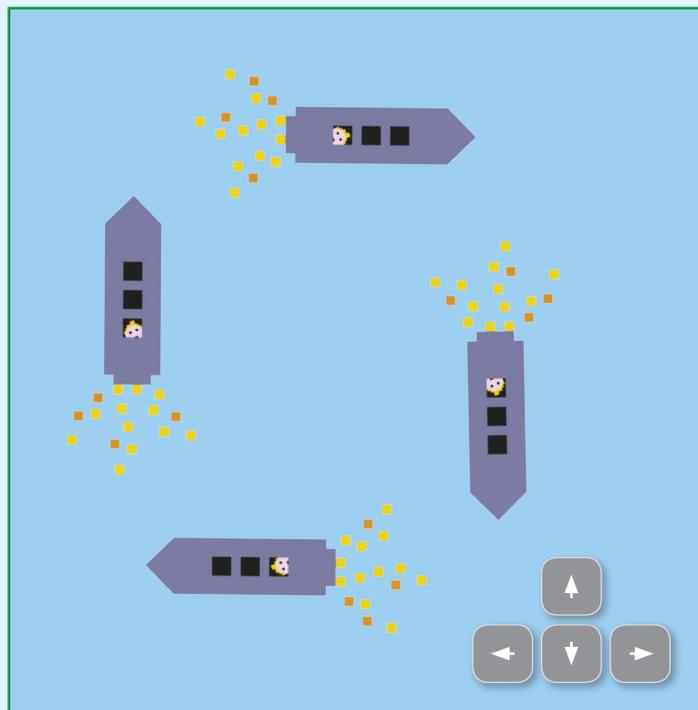
GO!



Click the green flag to run (start) a program

PROGRAM

## KEY MOVES



Use the arrow keys to move the sprite.



Enter the code:

```

when up arrow key pressed
  point in direction 0
  move 10 steps

when down arrow key pressed
  point in direction 180
  move 10 steps

when left arrow key pressed
  point in direction -90
  move 10 steps

when right arrow key pressed
  point in direction 90
  move 10 steps
  
```

GO!



Press the arrow keys to move



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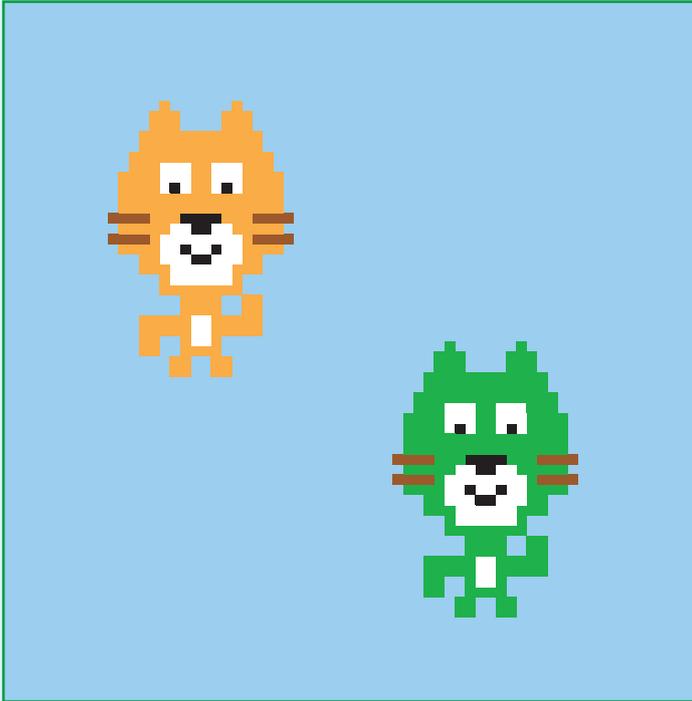
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# Scratch Activities

PROGRAM

## COLOUR CHANGE



Press a key and change the colour of a sprite.



Choose your sprite:

New sprite:

Choose a sprite from the library

Enter the code:

when **space** key pressed

change **color** effect by **25**

GO!



Press space bar to change colours

Tip:

change **color** effect by **25**

You can choose a different effect

or Type a different number

Then press the space bar again

PROGRAM

## SAY SOMETHING



What do you want your sprite to say?

Choose your sprite:

New sprite:

Choose a sprite from the library



Enter the code:  
when this sprite clicked

say **Coding is a hoot!** for **2** secs

Type in any words

GO!



Click on the sprite to start

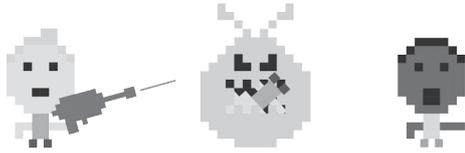


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# Scratch Glossary



LINGO

## Why is it called Scratch?

“Scratching” is a way of mixing different sounds to make new music. The Scratch programming language enables you to mix pictures, sounds, and scripts to make new computer programs.



### animation

Changing pictures quickly to make something appear to move on the screen.

### backdrop

The picture behind the sprites on the stage.

### backpack

A way to copy things between Scratch projects.

### block

An instruction in Scratch. Blocks can be joined together.

### bug

A mistake in a program. It's called a bug because insects got into the wiring of the first computers, causing errors.

### condition

A “true or false?” question that is used to make a decision in a computer program.

### costume

The picture a sprite shows on the stage.

### data

Information—for example, numbers or words.

### debug

To remove bugs; to find and fix the errors in a program.

### event

Something that happens on the computer, like a mouse click.

### input

Data that goes into a program; for example, from the keyboard.

### library

A collection of sprites, sounds, or costumes.

### loop

An instruction that makes other instructions repeat.

### program

A list of instructions that tell a computer what to do.

### operator

A block that works something out from data, such as adding two numbers together.

### operating system (OS)

The program that controls everything on your computer, such as OS X or Windows.

### run

To start a program.

### script

A stack of instructions that are run in order.

### sprite

A picture on the stage that a script can move and change.

### stage

The area containing the sprites, where a Scratch project runs.

### string

The word used by programmers for data that contains words.

### variable

A place to store data in a program. A variable always has a name and a value.



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