Projects

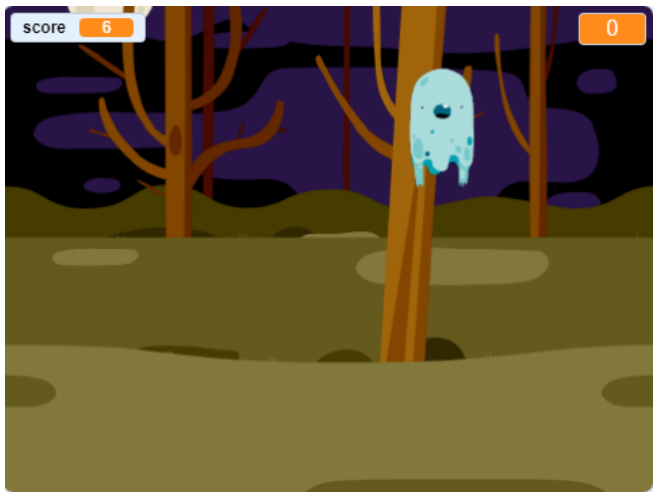
Ghostbusters

Make a game about catching ghosts!

Scratch

Step 1 Introduction

You are going to make a ghost-catching game!



What you will need

Hardware

- A computer

Software

- Scratch 3 (either **online** (http://rpf.io/scratchon) or **offline** (http://rpf.io/scratchoff))

What you will learn

- How to use random numbers to animate sprites
- How to react to mouse clicks
- How to create a timer

Additional notes for educators

Find the **solution to this project here** (http://rpf.io/p/en/ghostbusters-get).

Step 2 Animate a ghost

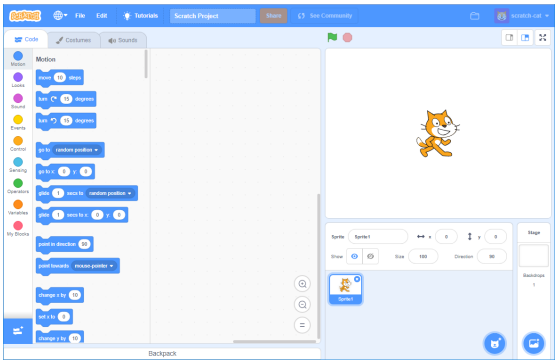
Open a new empty Scratch project.

Creating a new Scratch project

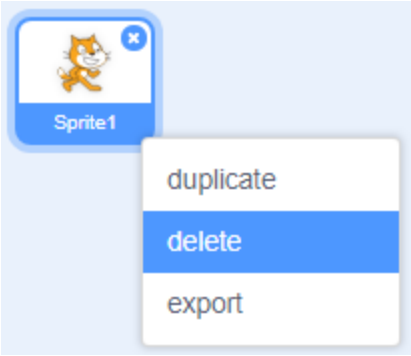
You can use Scratch online or offline.

- **Online** - to create a new Scratch project using the online editor, go to **rpf.io/scratch-new** (http://rpf.io/scratch-new)
- **Offline** - if you prefer to work offline and have not installed the editor yet, you can download it from **rpf.io/scratch-off** (http://rpf.io/scratch-off)

The Scratch editor looks like this:



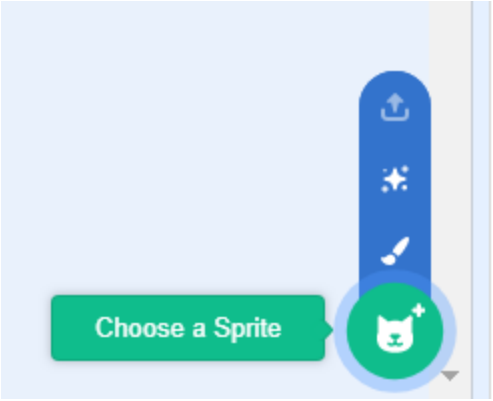
- The cat sprite that you can see is the Scratch mascot. If you need an empty Scratch project, you can delete the cat by right-clicking it and then clicking **delete**.



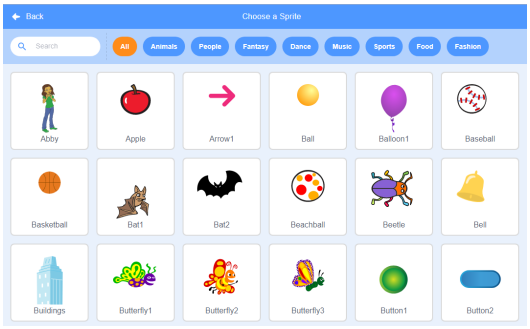
Add in a new ghost sprite and a suitable Stage backdrop.

Adding a Scratch sprite from the Library

- Click **Choose a sprite** to see the library of all Scratch sprites.

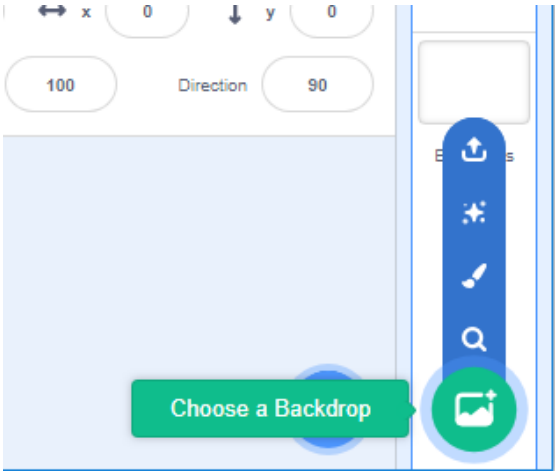


- You can search or browse sprites by theme. Click on a sprite to add it to your project.

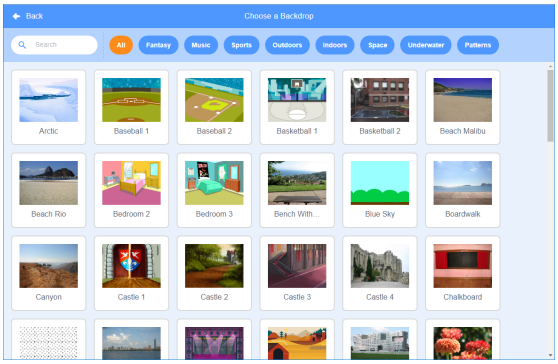


Choose a backdrop from the Scratch library

- Click on **Choose a Backdrop** in the bottom right.

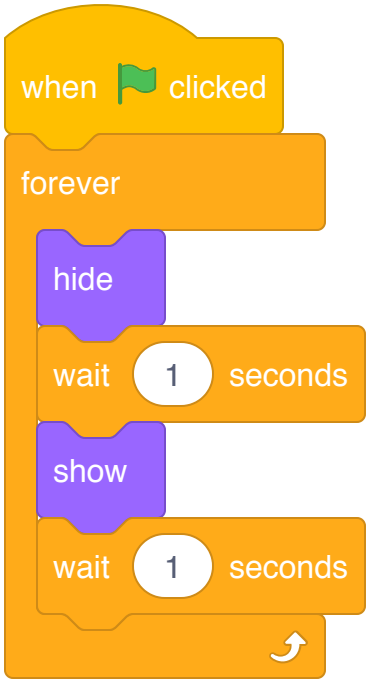


- You can search for a backdrop or browse for one by category or theme. Click on a backdrop to select it.



Add code to your ghost sprite so that the ghost appears and disappears forever when the green flag is clicked.

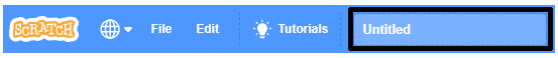
This is what your code should look like:



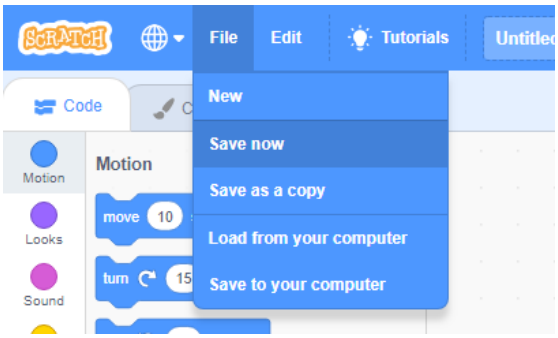
Test and save your project.

Saving a Scratch project

- Give your program a name by typing into the text box at the top.



- You can click **File** and then **Save now** to save your project.



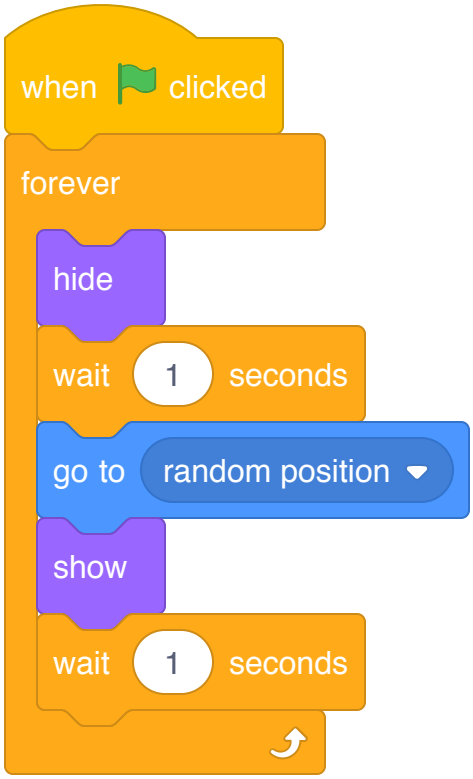
Note: if you are not online or don't have a Scratch account, you can save a copy of your project by clicking on **Save to your computer** instead.

Step 3 Random ghosts

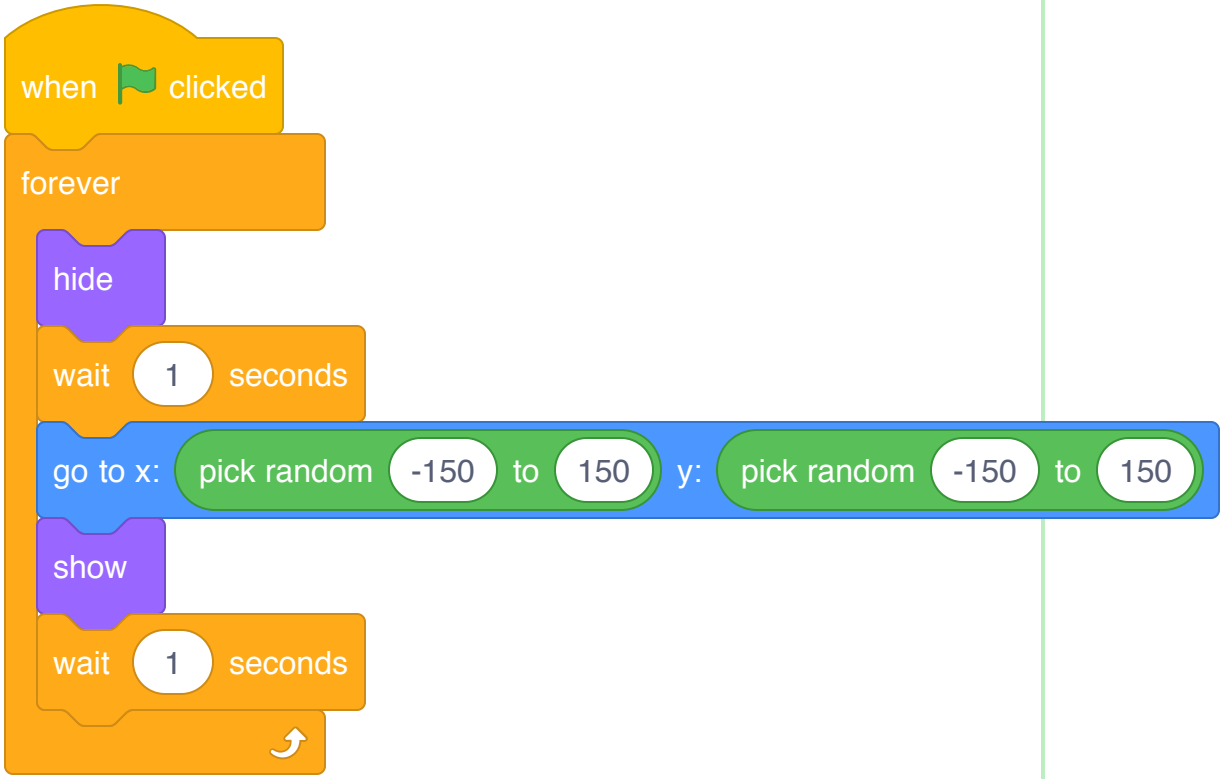
Your ghost is really easy to catch at the moment, because it doesn't move!

Can you add code to your ghost so that, instead of staying in the same position, the ghost appears at random positions on the Stage?

Your code could look either like this:



Or it could look like this:



Challenge!

Challenge: more randomness

Can you add code to your ghost sprite to make the ghost `wait` a random amount of time while it is hidden?

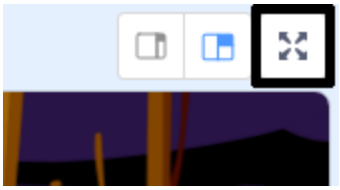
Can you use the `set size` block to make your ghost a randomly larger or smaller each time it appears?

Step 4 Code for catching ghosts

Now you're going to add code to your game so that the player to catch ghosts!

Can you make your ghost disappear when it's been caught? The player should be able to click ghosts to catch them.

If you test your game and find catching ghosts difficult, you can play the game in full-screen mode by clicking on this button:



Your code should look like this:

Challenge!

Challenge: add a sound

Can you add code to your ghost so that the ghost makes a sound when it's caught?

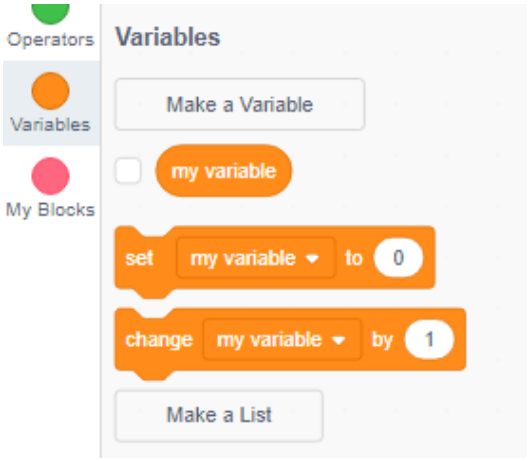
Step 5 Add a score

Now you're going to make your game more interesting by keeping score!

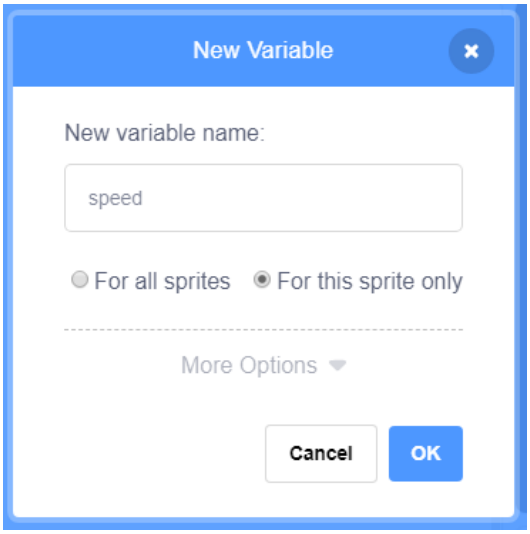
Create a new variable called `score`.

Add a variable in Scratch

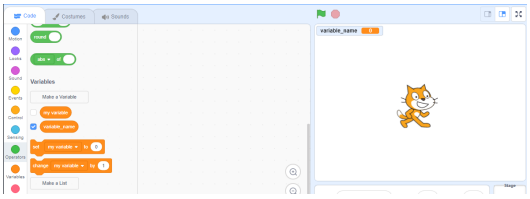
- Click on **Variables** in the Code tab, then click on **Make a Variable**.



- Type in the name of your variable. You can choose whether you would like your variable to be available to all sprites, or to only this sprite. Press **OK**.

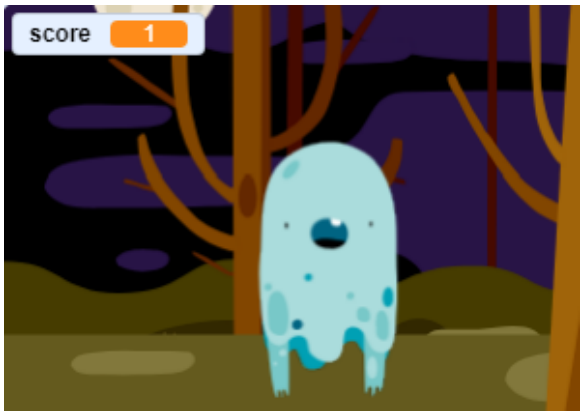


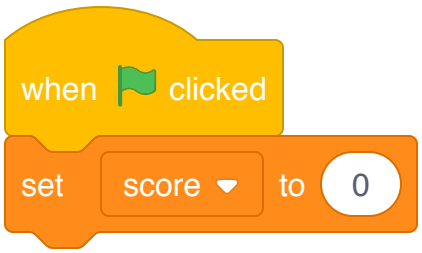
- Once you have created the variable, it will be displayed on the Stage, or you can untick the variable in the Scripts tab to hide it.

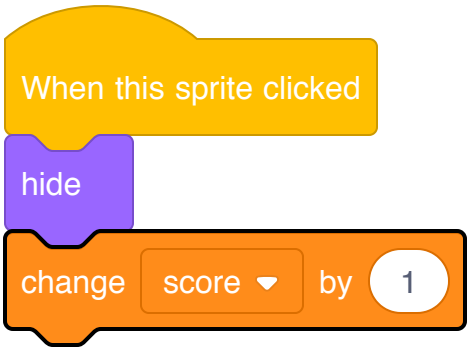


Can you keep track of the player's score? Players should score points when they click on ghosts to catch them.

Each time a player clicks on a ghost, their score should increase.







Step 6 Add a timer

Now you're going to add a timer so that the player only has ten seconds to catch as many ghosts as possible.

Create a new variable called 'time'.

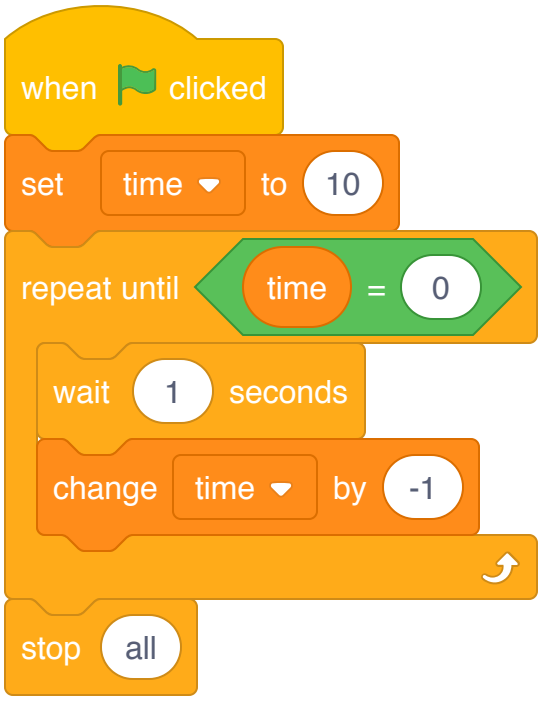
Can you add a timer to your Stage to give your player only 10 seconds to catch ghosts?

Your timer should:

- Start at 10 seconds
- Count down every second

The game should stop when the timer gets to 0.

Here is the code you should add to create a timer:



Ask a friend to test your game. How many points can they score?

If your game is too easy, you can:

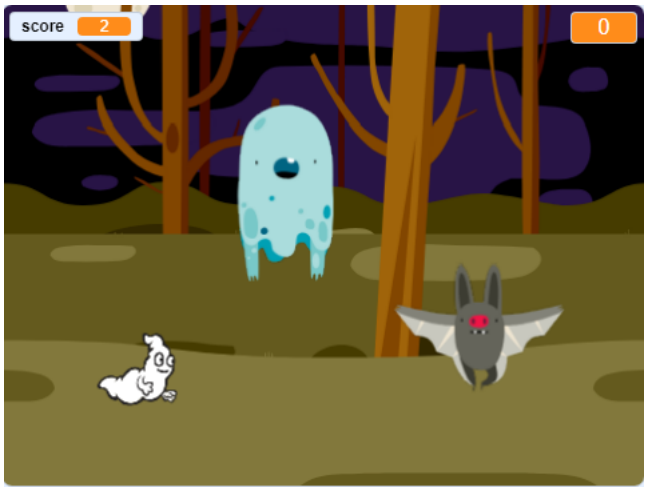
- Give the player less time
- Make the ghosts appear less often
- Make the ghosts smaller

Change and test your game a few times until you're happy with its level of difficulty.

Challenge!

Challenge: more sprites

Can you add other sprites to your game?



You need to think about some things for each sprites you want to add:

- How big should the sprite be?
- Should it appear more or less often than the ghost sprite?
- What does it look/sound like when it gets caught?
- How many points does the player win (or lose) for catching the sprite?

If you need help, you can back through to the instructions in the previous steps, or ask a friend!

Step 7 What next?

Well done on completing the Ghostbusters project! Do you want to create something a little more challenging?

Try out the **Chatbot** (https://projects.raspberrypi.org/en/projects/chatbot?utm_source=pathway&utm_medium=whatnext&utm_campaign=projects) project.