

Fireworks

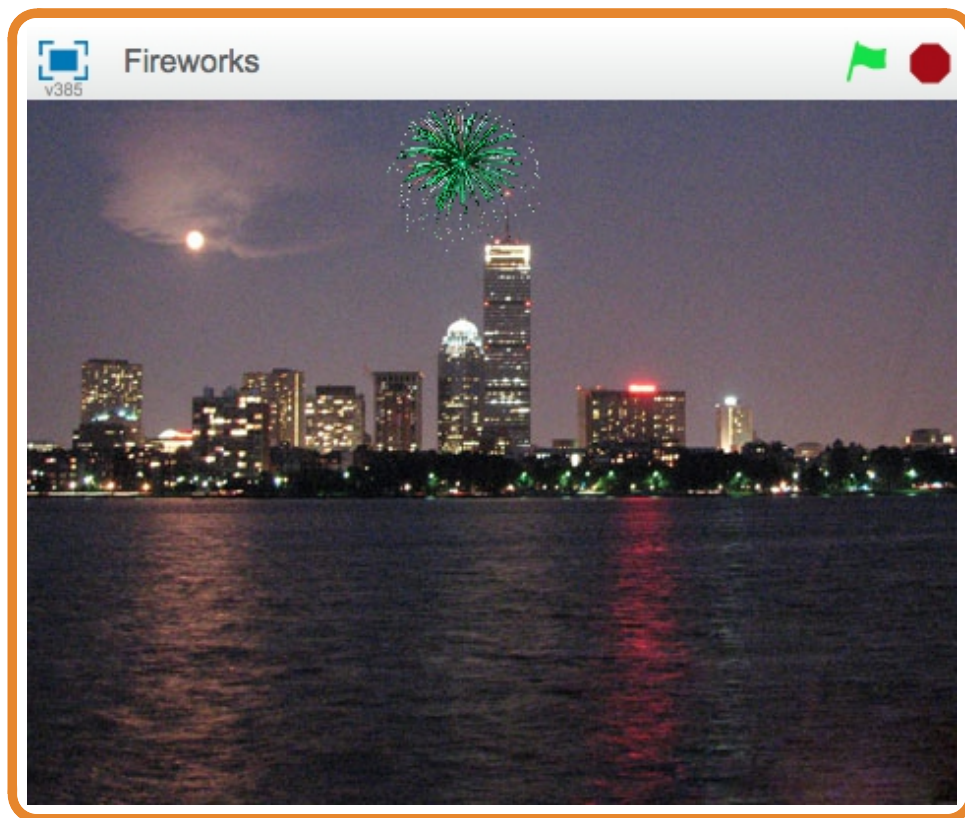
Level 1

These projects are for use outside the UK only. More information is available on our website at <http://www.codeclub.org.uk/>. This coursework is developed in the open on GitHub, <https://github.com/CodeClub/> come and join us!

Languages > English > Beginner Scratch > Fireworks

Introduction

In this project, we'll create a fireworks display over a city.

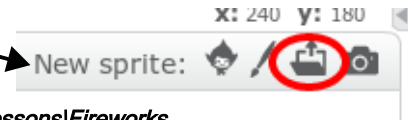


STEP 1: Create a rocket that flies towards the mouse

Let's import the different pictures for the game

✓ Activity Checklist

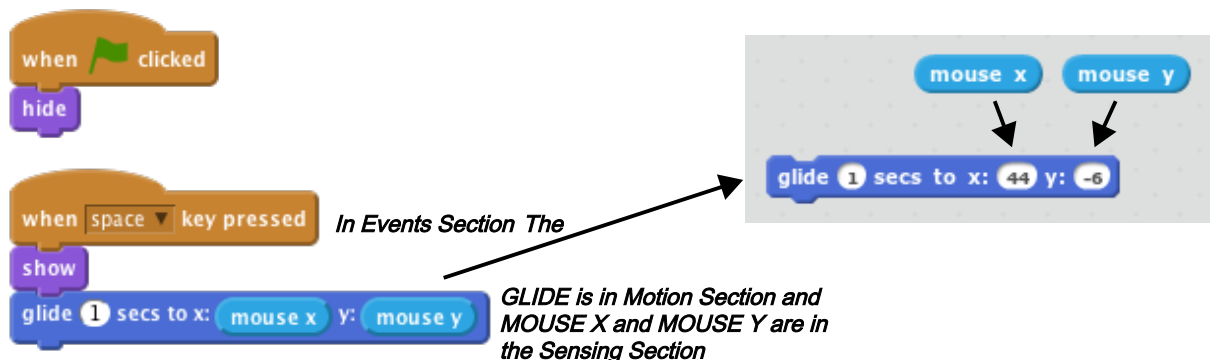
- Start a new Scratch project. Delete the cat by right clicking it and clicking Delete
- Replace the backdrop with outdoor/city-with-water
- Use the `Upload sprite from file` button to add a Rocket sprite to the project by picking the Rocket image in the Lessons folder and clicking Open.
- Make the rocket hide when the green flag is clicked.



*The files are located in the folder S:\Shared\Students\Tech Ed\Video Game Design\Scratch\Lessons\Fireworks
YOU MUST COPY THE LESSONS FOLDER TO YOUR DESKTOP FIRST AND THEN USE THE FILES FROM THERE*

Now we want to make the rocket move towards the mouse when the mouse is clicked.

- Add a when space key pressed control block, and under this make the rocket appear and glide towards the mouse



🚩 Test Your Project

Click the green flag, place your mouse over the stage and press the space bar.

Does the rocket appear and move to the mouse?

What happens if you move the mouse and press space again?

✓ Activity Checklist

- Fireworks don't tend to fly from side to side, so let's make sure it always glides towards the mouse from the bottom of the screen. Before we show the rocket, use the go to block to tell it to move to below the bottom of the screen, but stay in the same place horizontally.

```
when green flag clicked
hide
when space key pressed
go to x: mouse x, y: -200
show
glide 1 secs to x: mouse x, y: mouse y
```

GO TO X is in Motion Section and MOUSE X is in Sensing Section

🚩 Test Your Project

Click the green flag, place your mouse over the stage and press the space bar. Does the rocket fly towards the mouse from the bottom of the screen? What happens if you move the mouse and press space again?

✓ Activity Checklist

- Finally, let's make this work by using the mouse button instead of the space bar. To do this, we can wrap our script in a forever if mouse down. Then swap the when space key pressed control block for when flag clicked and last but not least make sure the rocket is hidden when everything starts up.

```
when green flag clicked
hide
forever
if mouse down? then
go to x: mouse x, y: -200
show
glide 1 secs to x: mouse x, y: mouse y
```


IF THEN is in the Control Section and MOUSE DOWN? is in the Sensing Section

Test Your Project

Click the green flag, and then press the mouse button over the stage. Click again at another point.

Things to try

- 1. Try making some rockets a little slower or faster than others.
- 2. Try changing where the rocket moves to be fore gliding towards the mouse to make it arc a little.

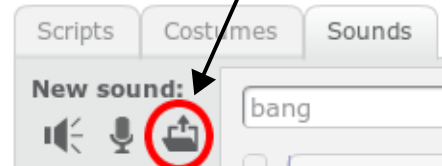
 Save your project

STEP 2: Make the rocket explode

✓ Activity Checklist

- The first step to make the rocket explode is to make it play a bang sound bang.wav before it starts moving, and then hide itself once it reaches the mouse. To import a sound go to the Sounds tab and click the `Upload sound from file` button.

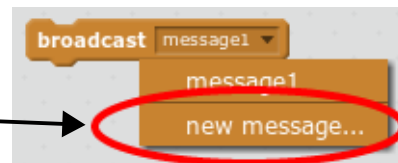
```
when green flag clicked
  hide
  forever loop
    if mouse down? then
      go to x: mouse x y: -200
      play sound bang
      show
      glide 1 secs to x: mouse x y: mouse y
      hide
```



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- Next, make the rocket broadcast a new message when it explodes. We'll listen for this message later on.

```
when green flag clicked
  hide
  forever loop
    if mouse down? then
      go to x: mouse x y: -200
      play sound bang
      show
      glide 1 secs to x: mouse x y: mouse y
      hide
      broadcast explode
```



BROADCAST is in the Events Section

🚩 Test Your Project

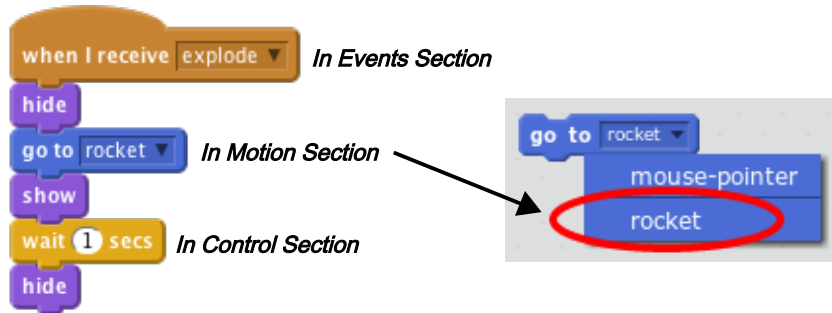
Click the green flag.

Make sure the rocket plays a noise and hides when it reaches the mouse.

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Activity Checklist

- Create new sprite from File firework1.png
- When it receives the explode message, it should hide itself and then move to the position of the rocket using the go to block, show itself, and then vanish again a second later.



Test Your Project

Send another rocket flying.

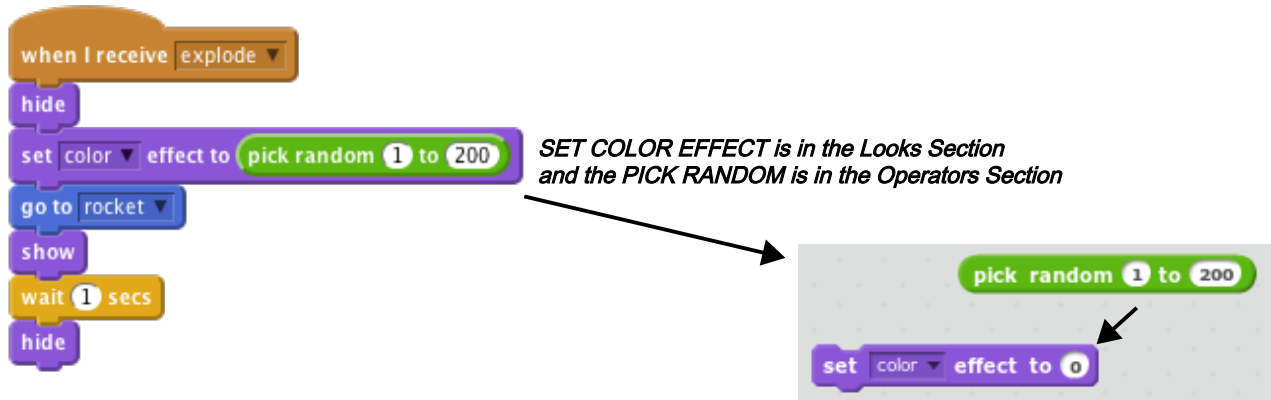
Does it get replaced with the explosion graphic when it explodes?

What happens if you hold the mouse button down whilst moving the mouse? (Don't worry, we'll fix this later on).

Save your project

STEP 3: Make each explosion unique

- Now we can make each explosion even more unique by using the `set color effect` block, and have it pick a random colour between 1 and 200 before showing it.



The image shows a sequence of Scratch code blocks: `when I receive explode`, `hide`, `set color effect to pick random 1 to 200`, `go to rocket`, `show`, `wait 1 secs`, and `hide`. An arrow points from the `pick random 1 to 200` block to a zoomed-in view of the `set color effect to 0` block, with a text annotation: "SET COLOR EFFECT is in the Looks Section and the PICK RANDOM is in the Operators Section".

Test Your Project

Click the green flag.

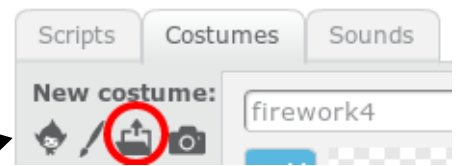
Does each explosion have a different colour?

Activity Checklist



5dd ZfYk cf_&'db['UbX'ZfYk cf_' 'db[as 7CGHI A 9G'Zcf'ci f'ZfYk cf_'gdf]hž and switch between them for each 'fcWYh'H< 9G9'5F9'BCH'B9K 'GDF #H9G"

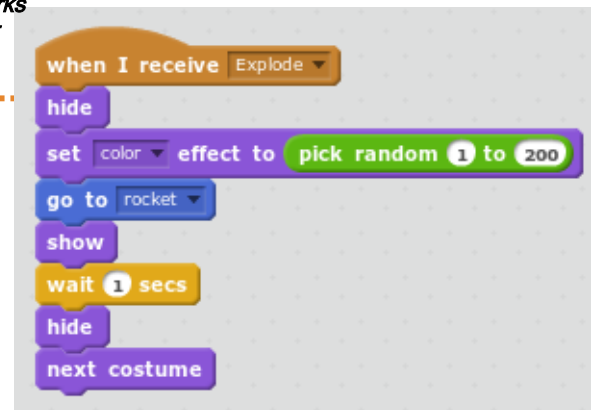
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Test Your Project

Click the green flag.

Does each rocket have a different explosion graphic?



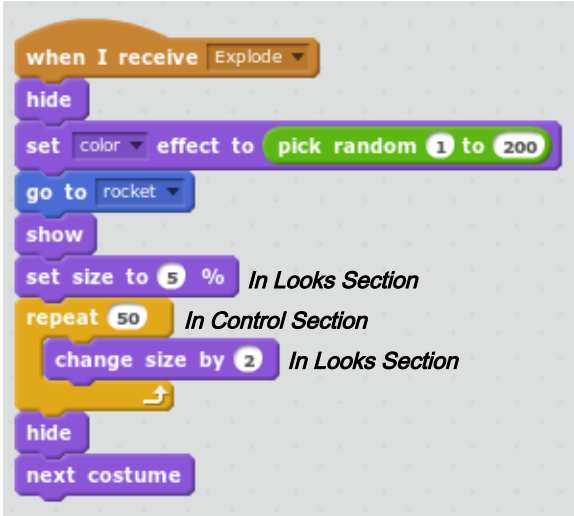
The image shows a sequence of Scratch code blocks: `when I receive Explode`, `hide`, `set color effect to pick random 1 to 200`, `go to rocket`, `show`, `wait 1 secs`, `hide`, and `next costume`. An arrow points from the `next costume` block to the 'Import' icon in the 'New costume:' dialog from the previous image.



Activity Checklist



Finally, Let's make the explosion get bigger after the rocket explodes! Instead of waiting a second, set the size of the sprite to 5% before we show it, and then once it's shown, increase the size by 2 fifty times, using a **repeat** block.



Test Your Project

Click the green flag.

Does the explosion graphic spread out from the centre of the rocket and slowly grow?

Things to try



Why not try making each explosion more unique by altering the size and speed of growth for the explosion.



Save your project

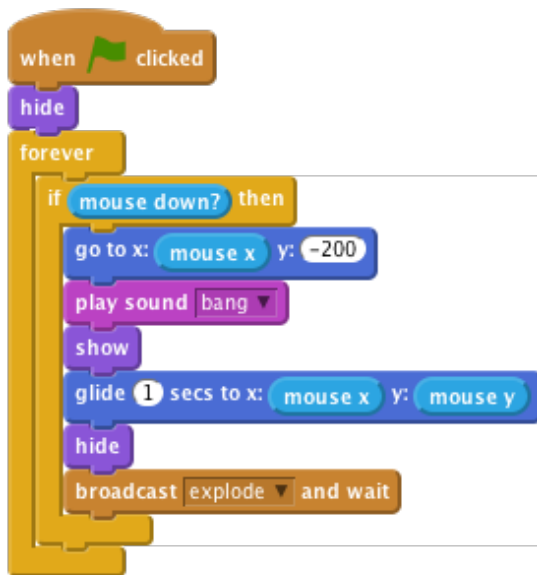
Step 4: Fixing the Broadcast Bug

Remember earlier we had a bug involving holding down the mouse button?

This occurs because when the rocket broadcasts its explosion, it will immediately repeat the if loop and move the rocket back to the bottom of the stage. This happens before the explosion has moved to the position of the rocket.

Activity Checklist

- To fix this, we can replace the broadcast block with a broadcast and wait block. This way, the loop will not repeat until the explosion finishes exploding.



Test Your Project

Click the green flag, hold down the mouse button and move the mouse around the stage.

Does the explosion graphic appear in the right place and at the right time?

Save your project

Well done you've finished, now you can enjoy the game!

Don't forget you can share your game with all your friends and family by clicking on Share on the menu bar!
