Level 1

Fireworks

Introduction

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

Activity Checklist - Follow these **Instructions** one by one.

Test Your Project - Click on the green flag to **Test** your code.

Save your work - Click this to **Save** your work.

Level 1 **Fireworks**

Step1: Create a rocket that flies towards the mouse

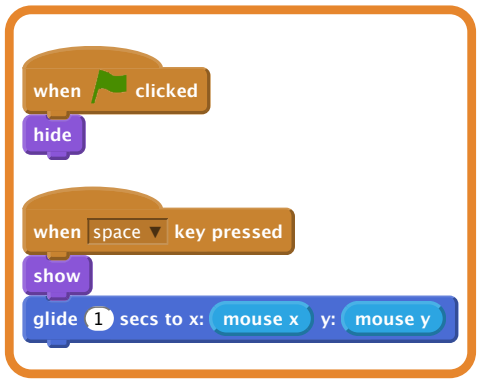
Activity Checklist

Let's import the different pictures for the game

- Start a new Scratch project. Delete the cat by right clicking it and clicking Delete ☐
- Replace the background with outdoor/city-with-water ☐
- Use the new sprite from file button to add a Rocket sprite to the project (use the Resources/Rocket.png costume). ☐
- Make the rocket hide when the green flag is clicked. ☐

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 ☐



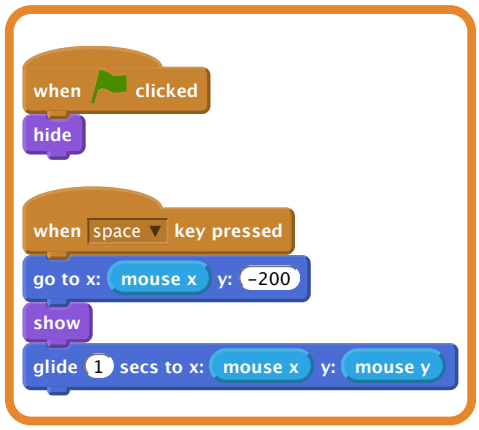
Test your project

- 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 lets make sure it always glides towards the mouse from the bottom of the screen.

- Before we show the rocket, use the go to block tell it to move to below the bottom of the screen, but stay in the same place horizontally.



Test your project

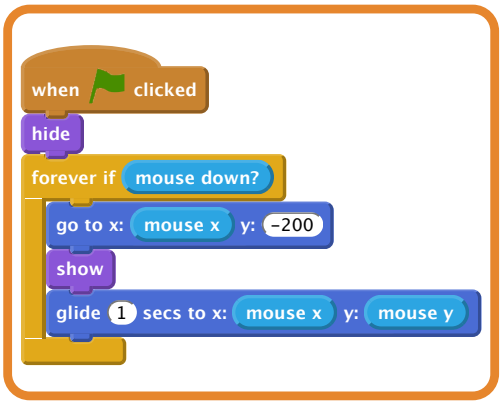
Click the green flag, place your mouse over the stage and press the space bar.

- 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, lets 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.



Test your project

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

Things to try out

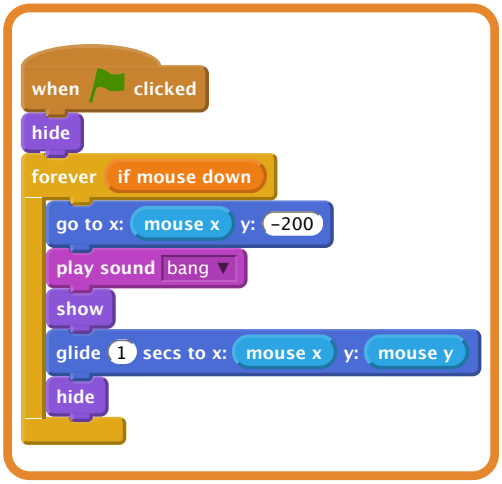
1. Try changing where the rocket moves to before gliding towards the mouse to make it arc a little.
2. Try making some rockets a little slower or faster than others.

Save your project

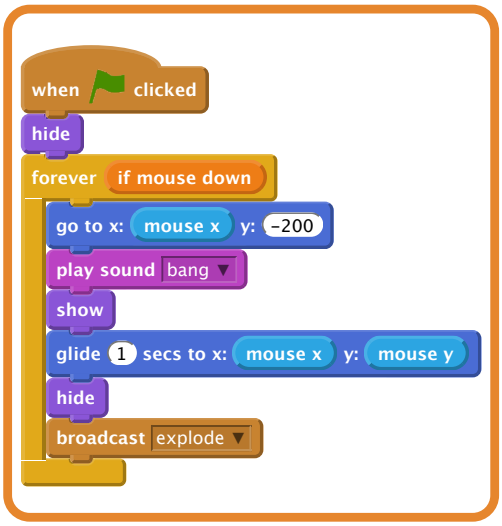
Step2: Make the rocket explode

Activity Checklist

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



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



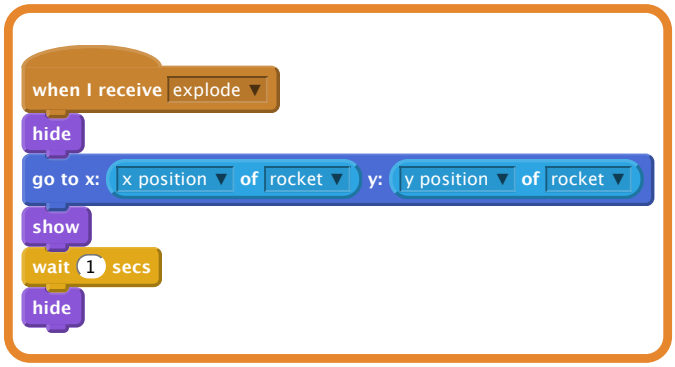
Test your project

Click the green flag.

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

Activity Checklist

- Import a new sprite using Resources/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

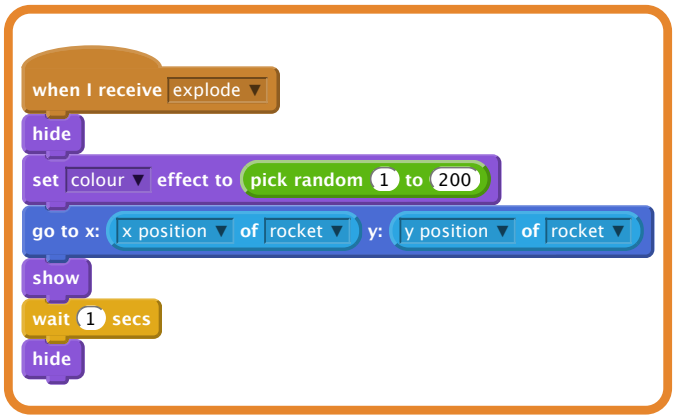
- Does it get replaced with the explosion graphic when it explodes?
- What happens if you hold the mouse button down whilst moving the mouse? (Don't worry, we'll fix this later on).

Save your project

Step3: Make each explosion unique

Activity Checklist

- 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.



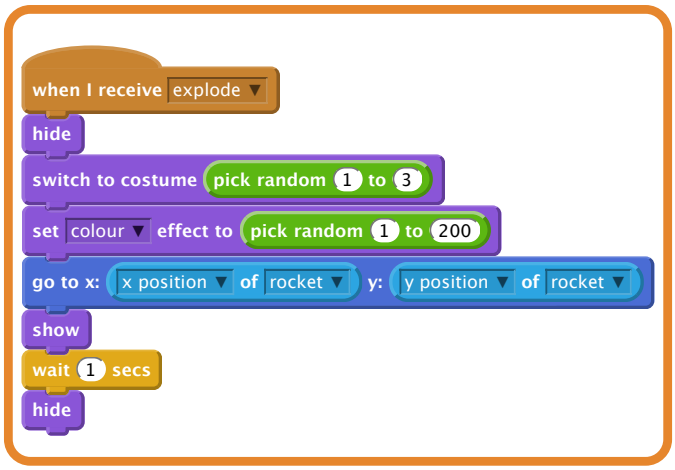
Test your project

Click the green flag.

- Does each explosion have a different colour?

Activity Checklist

- Lets add a number of different possible explosion graphics as costumes, using Resources/firework2.png and Resources/firework3.png, and switch between them for each rocket, again before showing it.



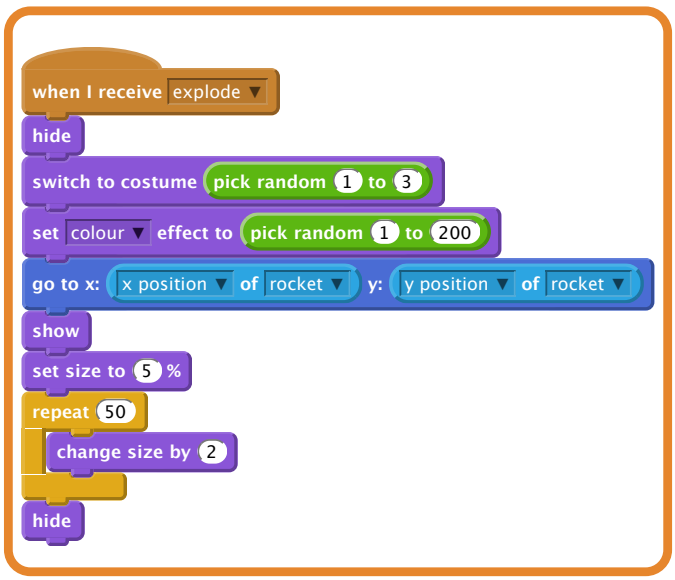
Test your project

Click the green flag.

- Does each rocket have a different explosion graphic? ☐

Activity Checklist

- Finally, lets make the explosion grow over time as opposed to simply appearing. 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 out

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

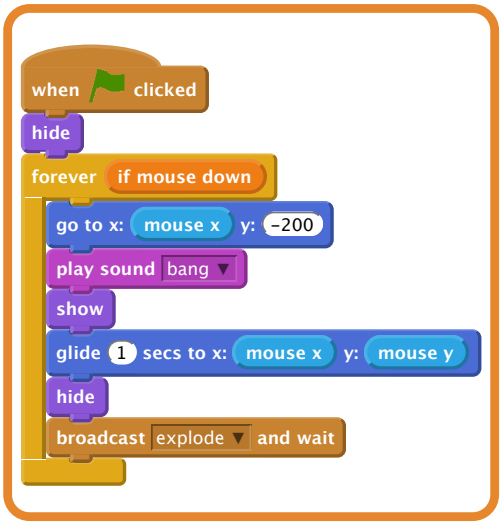
Save your project

Step4: Fixing the Broadcast Bug

Activity Checklist

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 send out another explosion message, before the last one has finished displaying.

- 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