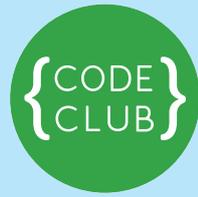


Level

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 Code – Click on the green flag to **TEST** your code



Save Your Project – Click on this to **SAVE** your work



STEP 1: Create a rocket that flies towards the mouse

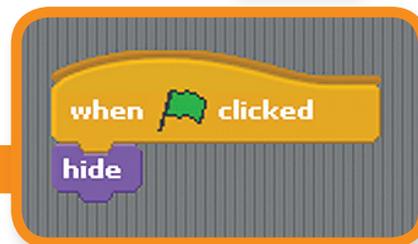
Keep track of your progress by ticking off the boxes below:

Activity Checklist

Let's import the different pictures for the game

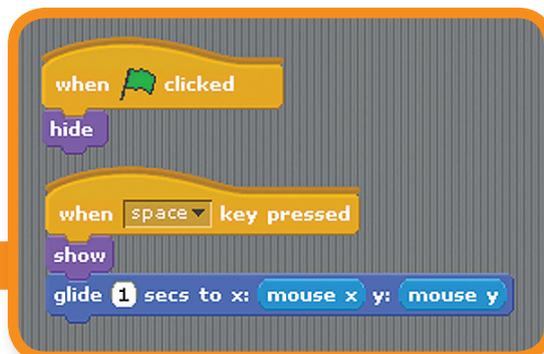
1. Start a new Scratch project. Delete the cat by **right clicking** it and clicking **Delete**
2. Replace the background with **outdoor/city-with-water**
3. Use the **new sprite from file** button to add a Rocket sprite to the project (use the **Resources/Rocket.png** costume).

4. 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.

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



Test Your Project

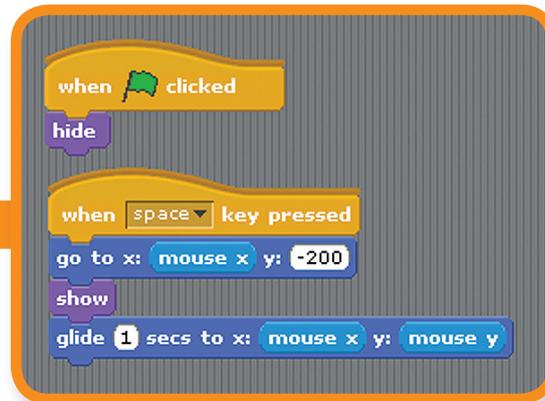
Click the green flag, place your mouse over the stage and press the space bar.

Does the rocket appear and move to the mouse?

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

Keep track of your progress by
ticking off the boxes below:

6. 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
```



Test Your Project

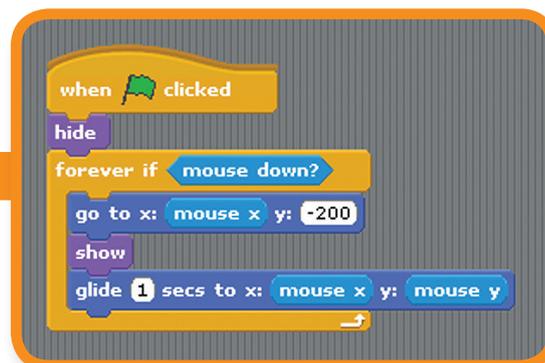
Click the green flag, place your mouse over the stage and press the space bar.



Does the rocket fly towards the mouse from the bottom of the screen?

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

7. 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** block. 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?
go to x: mouse x y: -200
show
glide 1 secs to x: mouse x y: mouse y
```



Keep track of your progress by
ticking off the boxes below:

Test Your Project

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

Things to try

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



SAVE YOUR PROJECT



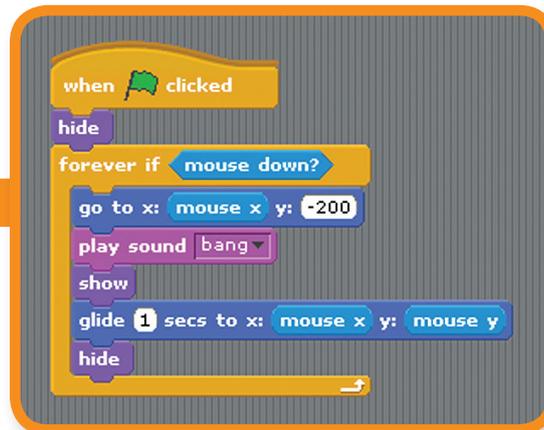
STEP 2: Make the rocket explode

Keep track of your progress by ticking off the boxes below:

 Activity Checklist

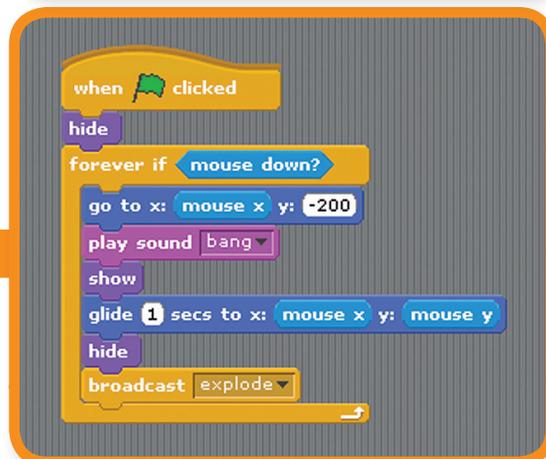
1. The first step to make the rocket explode is to make it play a **bang** sound **Resources\bang** before it starts moving, and then hide itself once it reaches the mouse. To import a sound go to the **Sounds** tab and click

import



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

2. 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 if mouse down?
  go to x: mouse x y: -200
  play sound bang
  show
  glide 1 secs to x: mouse x y: mouse y
  hide
  broadcast explode
```

 Test Your Project

Click the green flag.

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

3. **Import** a new sprite using **Resources/firework1.png**

Keep track of your progress by ticking off the boxes below:

4. 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.

```
when I receive explode
hide
go to x: x position of Rocket y: y position of Rocket
show
wait 1 secs
hide
```

**SAVE YOUR PROJECT**

STEP 3: Making each explosion unique



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).

1. 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.

```
when I receive explode
hide
set color effect to pick random 1 to 200
go to x: x position of Rocket y: y position of Rocket
show
wait 1 secs
hide
```



Test Your Project

Click the green flag.

Does each explosion have a different colour?

Keep track of your progress by ticking off the boxes below:

2. 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?

3. 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.

```

when I receive explode
hide
next costume
set color effect to pick random 1 to 200
go to x: x position of Rocket y: y position of Rocket
set size to 5 %
show
repeat 50
  change size by 2
hide
  
```

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

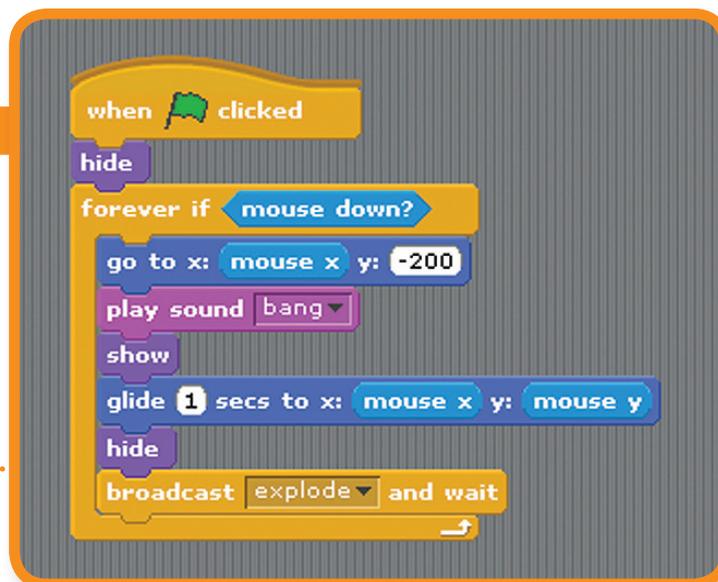
Keep track of your progress by ticking off the boxes below:

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.

 **Activity Checklist**

1. 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.



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

 **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**