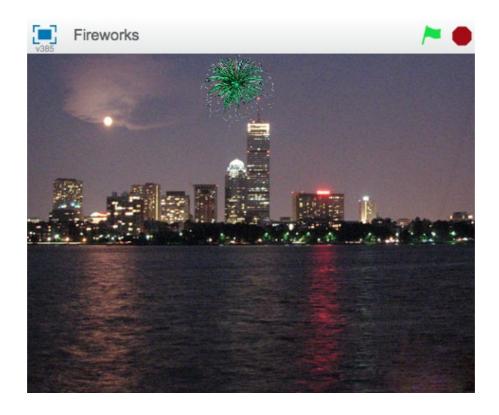


Fireworks



Introduction

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





Activity Checklist

Test your Project

Save your Project

Follow these INSTRUCTIONS one by one

Click on the green flag to TEST your code

Make sure to SAVE your work now

Step 1: Create a rocket that flies towards the mouse

Let's import the different pictures for the game

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V	Activity Checklist	
1.	Start a new Scratch project. Delete the cat by right clicking it	
	and clicking Delete.	
2.	Replace the backdrop with outdoor/city-with-water.	
3.	Use the Upload 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.	
	when / clicked	
5.	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.	
	when space ▼ key pressed	

Test Your Project

show

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

glide 1 secs to x: mouse x y: mouse y

Does the rocket appear and move to the mouse?

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



1. 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 to tell it to move to below the bottom of the screen, but stay in the same place horizontally.

```
when space v 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?

Activity Checklist

1. 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 / 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
```

Test Your Project

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

Things to try

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



Save your project

Step 2: Make the rocket explode



1. The first step to make the rocket explode is to make it play a 'bang' sound (Resources/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 clicked
hide
forever

if mouse down? then

go to x: mouse x y: -200

play sound bang v

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 clicked
hide
forever

if mouse down? then

go to x: mouse x y: -200
play sound bang v
show
glide 1 secs to x: mouse x y: mouse y
hide
broadcast explode v
```

Test Your Project

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

Activity Checklist

- 1. Create new sprite from File, Resources/firework1.png
- 2. 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.

```
when I receive explode v
hide

set color v effect to pick random 1 to 200

go to rocket v

show

wait 1 secs
hide
```

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.

```
when I receive explode v
hide
switch costume to pick random 1 to 3

set color v effect to pick random 1 to 200

go to rocket v
show
wait 1 secs
hide
```

Test Your Project

Click the green flag.

Does each rocket have a different explosion graphic?

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Activity Checklist

1. 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.

```
when I receive explode v
hide

switch costume to pick random 1 to 3

set color v effect to pick random 1 to 200

go to rocket v
show

set size to 5 %

repeat 50

change size by 2
```

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

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 clicked

hide

forever

if mouse down? then

go to x: mouse x y: -200

play sound bang v

show

glide 1 secs to x: mouse x y: mouse y

hide

broadcast explode v 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?



Well done, you've finished! Now you can enjoy your game!

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