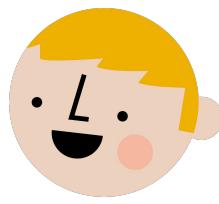


FIREWORKS WITH SCRATCH!



In this project we will create a fireworks display over a cityscape. Follow through the steps below to create your animated scene.

Create our rocket

1

Start a new Scratch project. Delete the cat by right clicking it and choosing "Delete"

Replace the background with "Outdoor / City With Water"

Use the "Choose new sprite from file" button to add a Rocket sprite to the project (use the "Desktop/Resources/Rocket.png" file)

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 is pressed" control block, and under this make the rocket appear to glide towards the mouse.

when clicked

hide

when key pressed

show

glide 1 secs to x: y:

Test Your Project

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

Fireworks don't tend to fly from side to side, so we will adjust our code to make it always fly up from the bottom of the screen. Before we show the rocket, add a "go to" block to tell it to move to below the bottom of the screen, but stay lined up with the mouse.

when clicked

hide

Test Your Project

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

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

when key pressed

go to x: y: -200

show

glide 1 secs to x: y:

Finish our rocket

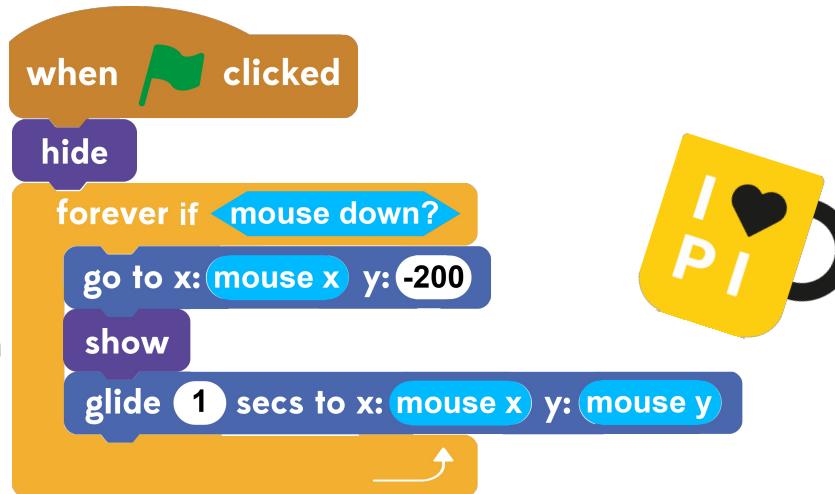
2

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.



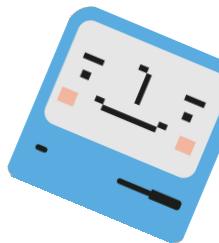
Test Your Project

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.

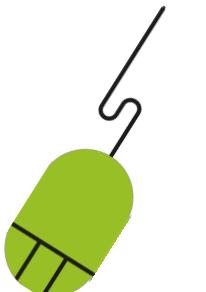
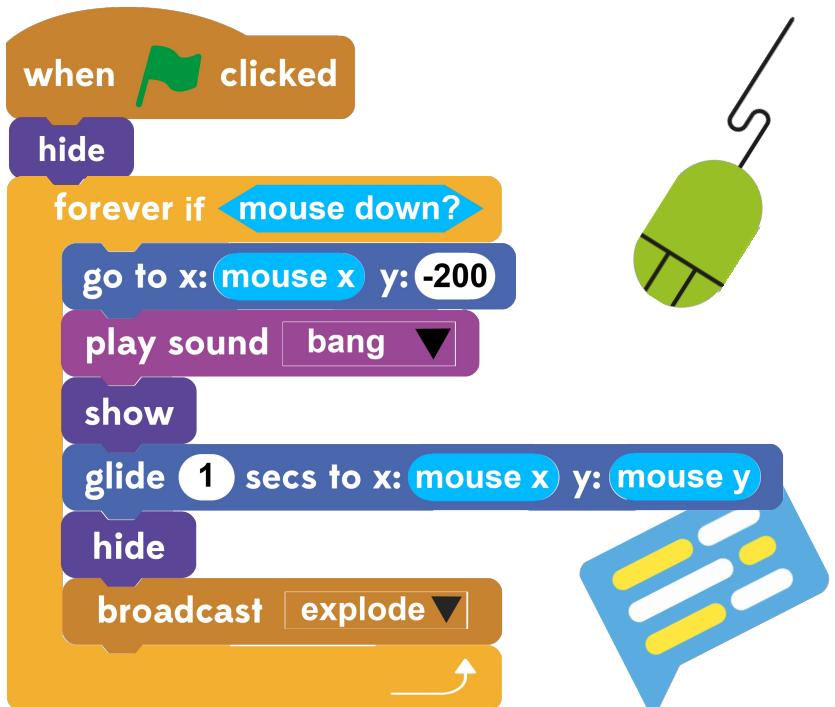


Make The Rocket Explode!

The first step to make the rocket explode is to make it play a "bang" sound (Desktop/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.

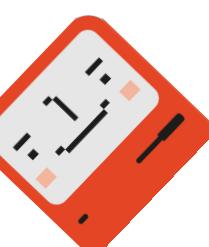


Next, make the rocket broadcast a new message when it explodes. We'll listen for this message later on.



Test Your Project

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



Add some explosions!

- 3 Create new sprite from File, (Desktop/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).



```
when I receive [explode v]
  hide
  go to [rocket v]
  show
  wait [1] secs
  hide
```

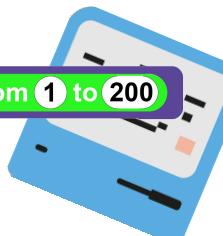
Make Each Explosion Unique

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.



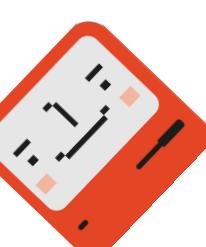
Test Your Project

Click the green flag. Does each explosion have a different colour?



```
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
```

Lets add a number of different possible explosion graphics as costumes, using "Desktop/Resources/firework2.png" and "Desktop/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?



```
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
```



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.

when I receive [explode]

hide

switch costume to [pick random 1 to 3]

set [color] effect to [pick random 1 to 200]

go to [rocket]

show

set size to [5 %]

repeat [50]

change size by [2]

hide

Fixing the Broadcast Bug

4

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.



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?

when [green flag] clicked

hide

forever if [mouse down?]

go to x: [mouse x] y: [-200]

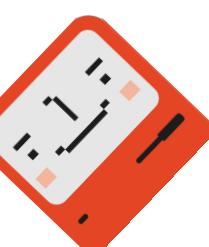
play sound [bang]

show

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

hide

broadcast [explosion] and wait



Save Your Project!

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

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