



Projects

Focus on the prize

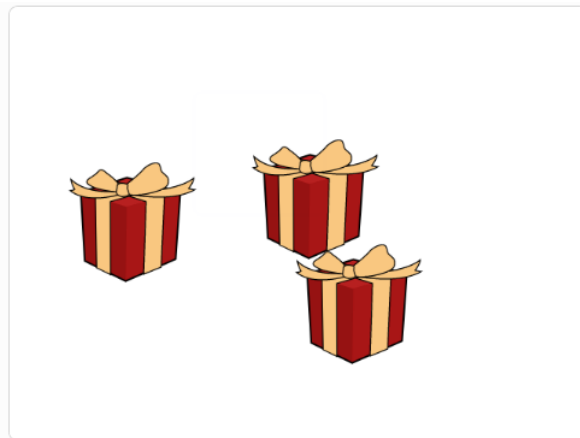
Improve your concentration by following the gift box with the diamond inside it while the other gift boxes and surprise sprites try to distract you



Step 1 Introduction

In this project, you will make a game that will help you to improve your concentration. You will have to watch really carefully to try to follow the gift box with the diamond inside it, while the other boxes and sprites try to distract you. Playing computer games can be a good way to relax and learn new skills – just make sure that you balance gaming with other activities.

What you will make



What you will need

Hardware

- A computer or tablet capable of running Scratch

Software

- Scratch 3 (either online (<https://rpf.io/scratchon>) or off line (<https://rpf.io/scratchoff>),.)

Step 2 Add a gift in a box

In this step, you will add a gift box that will briefly show what is hidden inside it.

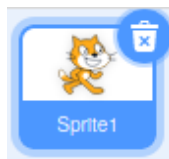
Open a new Scratch project.



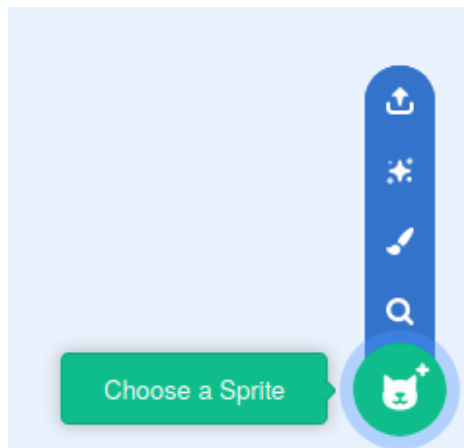
Online: open a new online Scratch project at rpf.io/scratch-new (<http://rpf.io/scratch-new>).

Offline: open a new project in the Scratch offline editor. If you need to, you can download and install Scratch here (<http://rpf.io/scratchoff>).

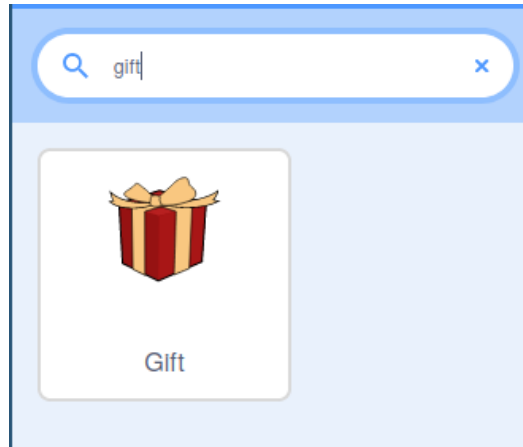
Delete the Scratch cat sprite. To do this, click on the Rubbish bin icon in the corner of the image in the Sprite list.



Click on Choose a Sprite to search for a new sprite to add to your game.



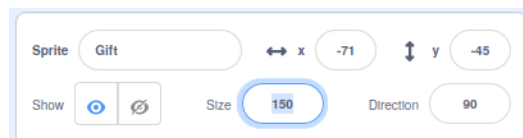
Search for the Gift sprite, then add it to your game.




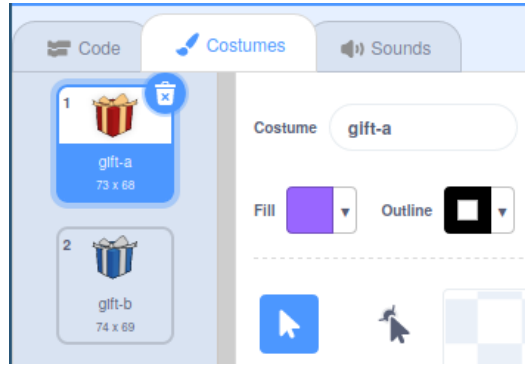
The sprite is a little small at the moment. To increase the sprite's size, you can either use the **set size to** block, as you may have done in other projects, or you can change the sprite's properties.



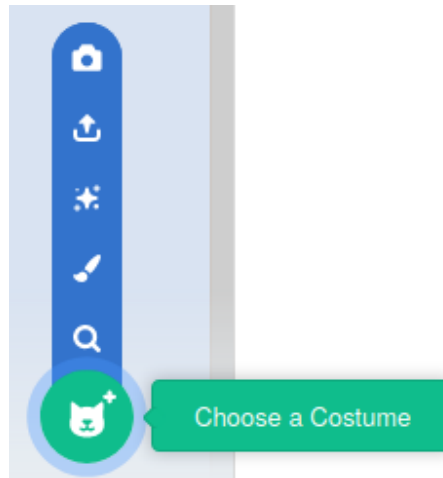
Set the sprite's size to **150** (percent).




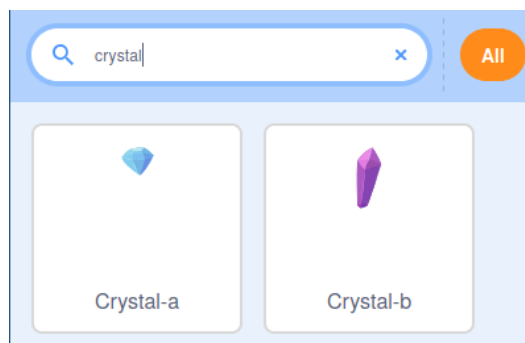
Go to the Costumes tab to look at the costumes for the Gift sprite. You will see two costumes called gift-a and gift-b. 



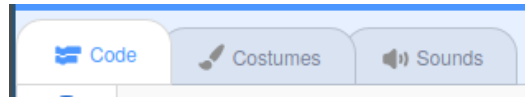
Click on the Choose a Costume icon to add a new costume to the sprite.



Choose the gift that you would like to put inside the gift box. In this example, we will use the Crystal-a costume. 

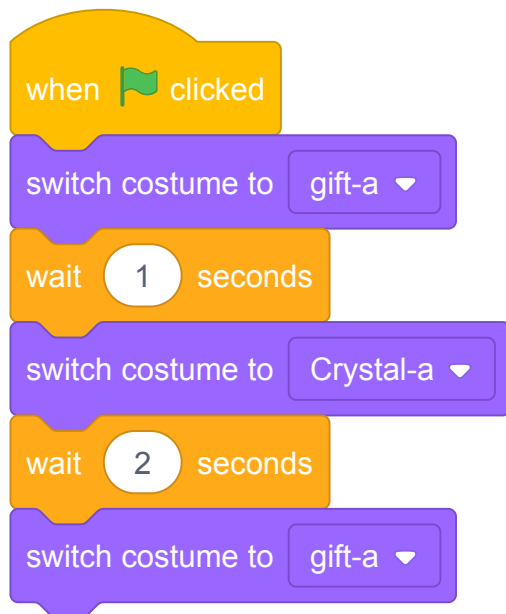


Switch back to the Code tab so that you can begin to work on the program.



Add some blocks to make the starting costume for the Gift sprite **switch** to **Crystal-a** and then back to **gift-a** again. Use **wait** blocks in between the costume changes.

The **wait** blocks give the player a chance to see the costume changes.



Click on the green flag, and make sure that your gift box changes costumes.



Save your project

Step 3 Move the gift box

Now that you have a box with a gift inside it, you need to make it move around the screen.

First, use a **go to x: y:** block to give the gift a starting position to the left of the Stage.



```
when green flag clicked
  go to x: -150 y: 0
  switch costume to gift-a
  wait 1 seconds
  switch costume to Crystal-a
  wait 2 seconds
  switch costume to gift-a
```

Broadcasts are messages that are sent by a sprite for some or all other sprites to receive.

Broadcasts are very useful for making sure that events in your program all happen simultaneously.

In the **Events** blocks menu, select the **broadcast message and wait** block.

Create a new **broadcast** to start moving. Call your new broadcast **move**.



broadcast **message1** and wait

New message
✓ **message1**

New Message

New message name:

move

Cancel OK

Add a **wait** block, then add the **broadcast move and wait** block.



```

when clicked
  go to x: -150 y: 0
  switch costume to gift-a
  wait 1 seconds
  switch costume to Crystal-a
  wait 2 seconds
  switch costume to gift-a
  wait 1 seconds
  broadcast move and wait
  
```

When the sprite **receives** the **move** broadcast, the sprite can start to **glide** in random directions. You can use a **repeat** block to make this happen **10** times.



```

when I receive move
  repeat 10
    glide 1 secs to random position
  
```


Click on the green flag, and check that your sprite starts moving randomly, after the costume changes.

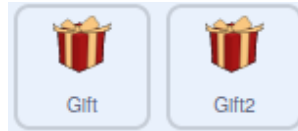


Save your project

Step 4 Create an empty box

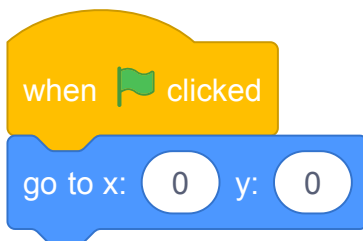
In this step, you will add another gift box, but this one will be empty! It will also move around in random directions.

Add a second Gift sprite. This one will be named Gift2 automatically. 



Remember to increase its size to **150** (percent).

Set the Gift2 sprite to start in the centre of the Stage. 



Add blocks so that when this sprite **receives move**, it also starts to **glide** in random directions. 

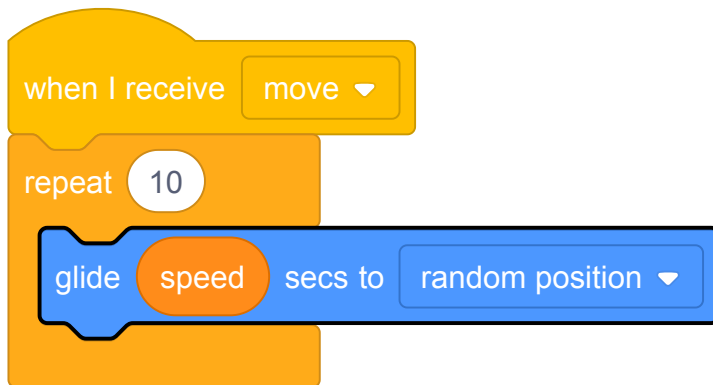


Click on the green flag, and watch the two sprites move around the Stage.



The boxes should always move at the same speed as each other. At the moment, they are set to `glide 1 secs`. To change the speed of both boxes easily, you can use a `variable`.

Create a new `variable` called `speed`, and add it to the `glide 1 secs to random position` block. Add this block to both the Gift and Gift2 sprites.



In the code for the Gift sprite, you can add code to **set** the **speed** variable. Choose any value you like.



```
when green flag clicked
  set speed to 1
  go to x: -150 y: 0
  switch costume to gift-a
  wait 1 seconds
  switch costume to Crystal-a
  wait 2 seconds
  switch costume to gift-a
  wait 1 seconds
  broadcast move and wait
```

Experiment with different values, until you find a speed you like.



Save your project

Step 5 Reveal the answers

In this step, you will add code so that the player can click on a gift box to see if it has the crystal inside it.

In the code for the Gift sprite, add code so that **when this sprite clicked**, it **says Yes!** and **switches costume to** the crystal.



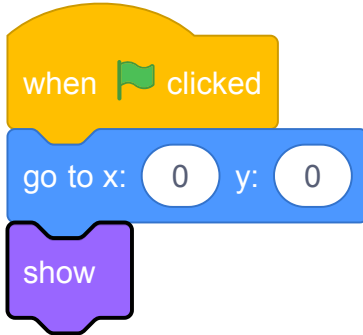
```
when this sprite clicked
say Yes!
switch costume to Crystal-a
```

Click on the Gift2 sprite and add blocks so that it **says No!**. Change the value of the **say** block to **1** second. Add a **hide** block so the sprite then disappears.



```
when this sprite clicked
say No! for 1 seconds
hide
```

As the Gift2 sprite can now be hidden, you need to add a **show** block to make sure that it is visible when the program starts.



Click on the green flag to run your code, and test what happens when you click on the boxes.

You may notice that you can click on the boxes while they are moving around. You can use a **variable** to stop players cheating like this.

Create a new **variable** called **finished**. Add blocks to **set** the **finished** variable to **false** when the gifts start moving, and then to **true** when the gifts stop moving.



```
when green flag clicked
  set speed to 1
  set finished to false
  go to x: -150 y: 0
  switch costume to gift-a
  wait 1 seconds
  switch costume to Crystal-a
  wait 2 seconds
  switch costume to gift-a
  wait 1 seconds
  broadcast move and wait
  set finished to true
```

Now, you can use an **if ... then** block to check if **finished** is true or false. Add an **Operators** block so that the clicking only has any effect if **finished** = true.



```
when this sprite clicked
  if finished = true then
    say Yes!
    switch costume to Crystal-a
```

Add the same **if** condition to the Gift2 sprite.



```
when this sprite clicked
  if finished = true then
    say No! for 1 seconds
    hide
```

Test your program, and you should see that you can only click on the sprites when they have finished moving around.





Save your project

Step 6 Add more gifts

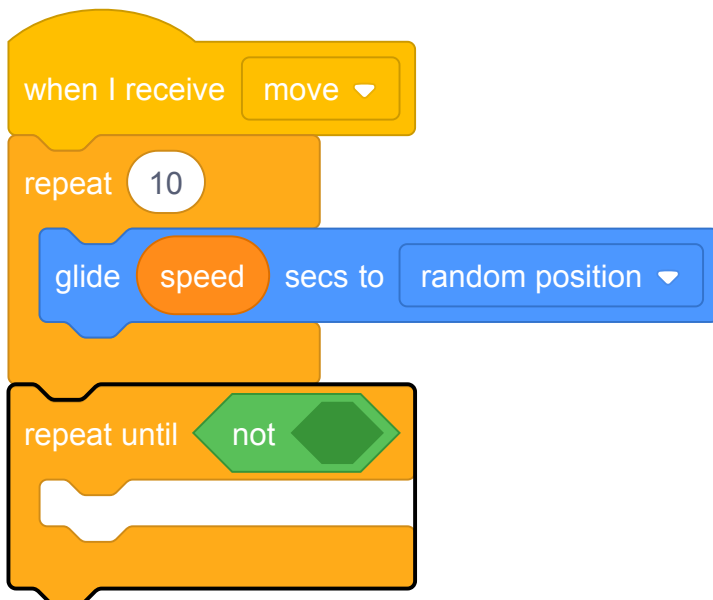
In this step, you will make sure that the gifts are not touching each other, or the edge of the screen, when they stop moving. Then, you will add a third gift.

It is possible that the gift boxes will stop on top of each other, which might make it difficult to see which gift box is which. To stop this from happening, you can detect if they are touching. The colour of the gift box's ribbon can be used to detect if two boxes are touching each other.

You need to add the scripts shown below to both the Gift and Gift2 sprites.

You can use the **not** operator to turn true into false, or false into true. 

Add a **repeat until** block to the bottom of your script, and place a **not** block inside it.

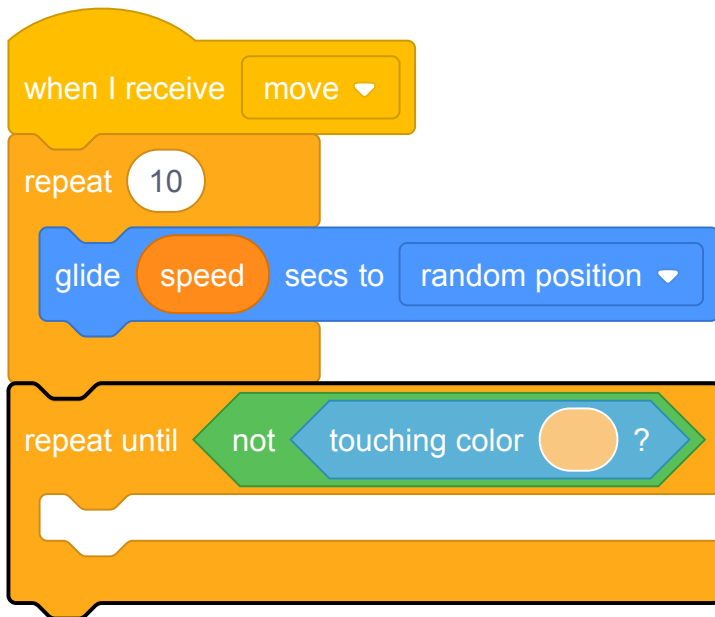




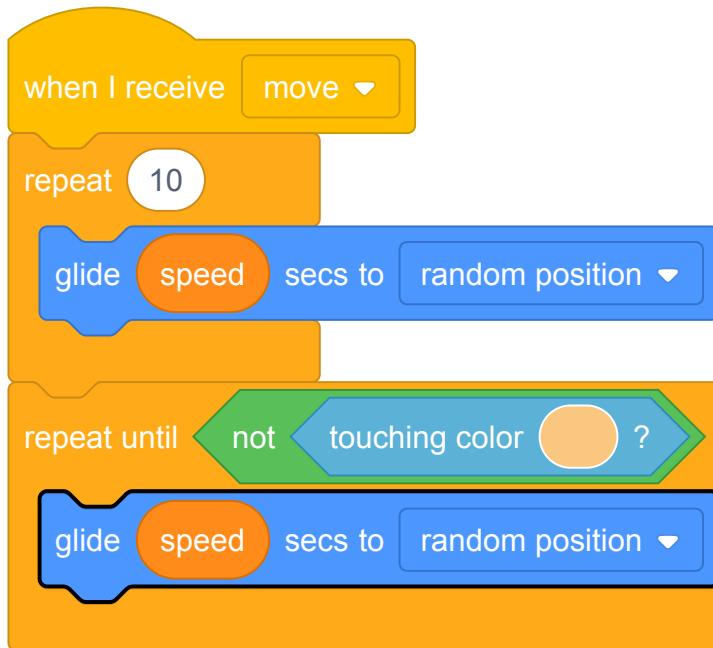
A **Sensing** block that detects if a sprite is touching a particular colour would return true when the sprite touches that colour.

You can use the **not** operator to detect if a sprite is **not touching** a particular colour.

Add in a **touching color** block, and use the Colour picker tool to select the colour of the ribbon.



Within the **repeat until** block, add another block to keep the box moving to a random position. ✓



Click on the green flag a few times, and make sure that the boxes always move to an empty area of the Stage before they stop moving. ✓

It would also be nice if the boxes did not stop when they are off the edge of the Stage. You can use an **and** operator to test for two different conditions.

Add an **and** block into the **repeat until** condition. Then, add in a **not** block and a **touching edge** block to go with the **not touching color** blocks. ✓



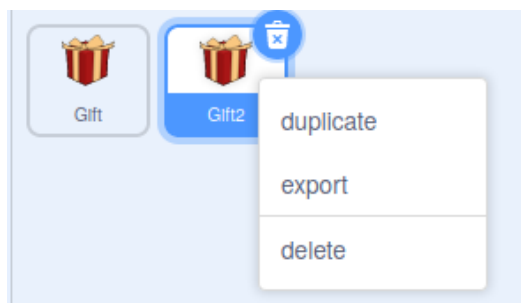
```


when I receive move
repeat 10
  glide speed secs to random position
repeat until
  not touching color [orange] ? and not touching edge ?
  glide speed secs to random position
  
```

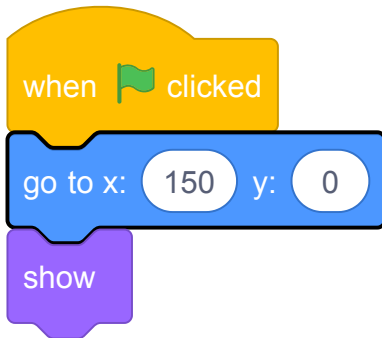
Test your code again, to make sure that the boxes now do not stop at the edge of the Stage. ✓


Now that the code for the Gift and Gift2 sprites is complete, you can duplicate the Gift2 sprite to add a third box to the game.

Right-click on the Gift2 sprite in the Sprite list and select duplicate in the drop-down menu. ✓



All the code has been duplicated as well, but you need to give the Gift3 sprite a different starting position. 




To test your game again, click on the green flag. 



Save your project

Step 7 Make a distraction

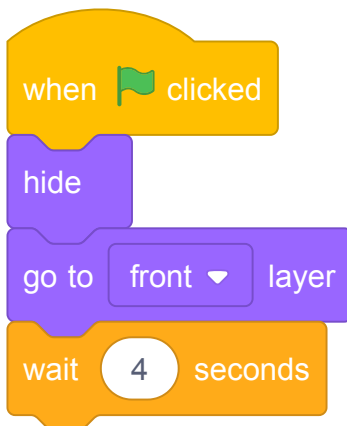
To finish the game, you can add a distraction, to try to stop the player keeping their eyes on the gift box.

Add a new sprite to your game. You can choose any sprite you like, but in this example, we will use the Duck sprite. 



When the game begins, the duck should be hidden, and it should only start to move after the boxes have started moving. It is also useful to bring the duck to the front layer, so that it moves over the top of the boxes.

Add the following blocks to the Duck sprite. 



Next, the Duck sprite should **wait** a **random** number of seconds, then **glide** across the Stage and **hide**. This can keep happening until the game has finished.



```
when clicked clicked
hide
go to front layer
wait 4 seconds
repeat until finished = true
  wait pick random 1 to 5 seconds
  go to x: -280 y: -140
  show
  glide 2 secs to x: 280 y: 140
  hide
```

Test your game and see if you can keep track of the gift box with a distracting duck flying across the Stage.



Save your project

Step 8 Add more

Can you add more distractions to your game to make it even harder to keep your eye on the correct gift box?

Think about some of the things that you have learned in other Scratch projects that might make the game even harder, such as changing costumes, adding graphic effects, changing sizes, and moving and turning.

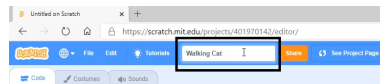
Step 9 Share

You can share your completed Scratch project with your friends and family. To do this, follow the instructions below:

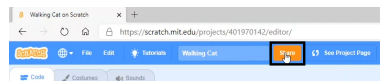
Share your Scratch project

Please make sure that you do not share any personal information about yourself when sharing your Scratch projects.

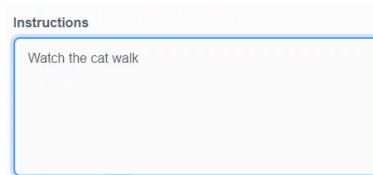
- Give your Scratch project a name.



- Click the Share button to make the project public.



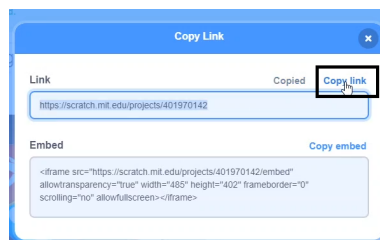
- If you like, you can add instructions in the Instructions box, to tell other people how to use your project.



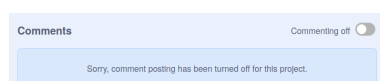
- You can also fill in the Notes and Credits box: if you have made an original project, you can write some short comments, or if you have remixed a project, you can credit the original creator.



- Click the Copy Link button to get the link to your project. You can send this link to other people by email or text, or on social media.



Scratch provides the ability to comment on your own and other people's projects. If you do not want to allow people to comment on your project, you should turn off commenting. To turn off commenting, set the slider above the Comments box to Commenting off.



If you are in a club, why not demonstrate your project to friends and peers?

Step 10 What next?

In this project, you have:

- Used a **not** block to move gift boxes until they are **not touching** each other or the edge of the Stage
- Used a **repeat** loop to move gift boxes a set number of times
- Used a **broadcast** block to tell all the gift boxes when to move

If you have been following the Look after yourself (<https://projects.raspberrypi.org/en/pathways/look-after-yourself>) pathway, you might like to explore Scratch some more. Try out any of these projects (<https://projects.raspberrypi.org/en/projects?software%5B%5D=scratch>).

Did you enjoy the project? Have you spotted a mistake? Please click the Send feedback button below and let us know!

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