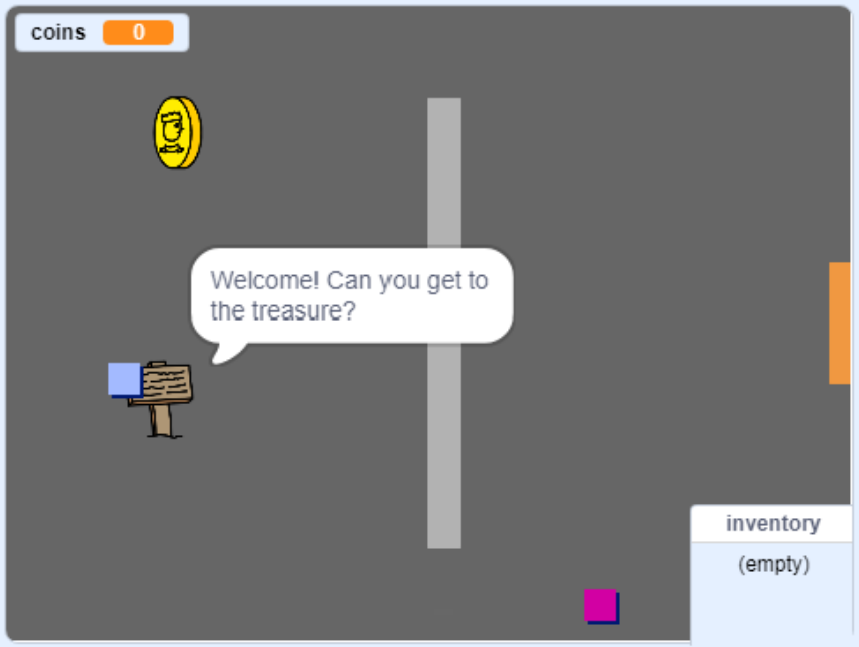
Create Your Own World

Introduction

In this project, you'll learn how to create your own adventure game world with multiple levels to explore.

What you will make

You'll use the arrow keys to move your character around in the world.



What you will need

Hardware

- A computer capable of running Scratch 3

Software

- Scratch 3 (either online or offline)

What you will learn

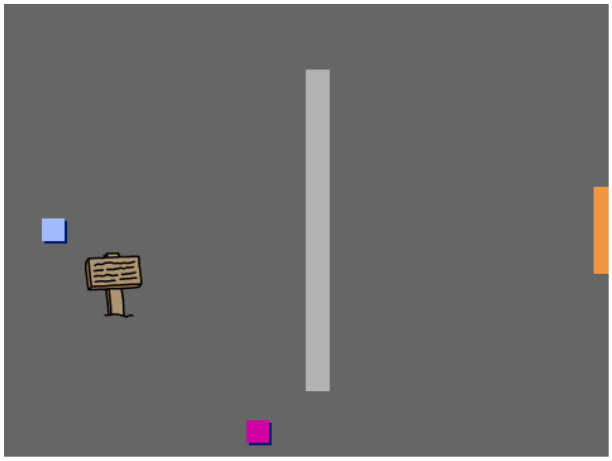
- Use conditional selection to react to key presses
- Use variables to store a game's state
- Use conditional selection based on the value of a variable
- Use lists to store data

Step 1: Move the player sprite

Start by creating a `player` sprite that can move around your world.

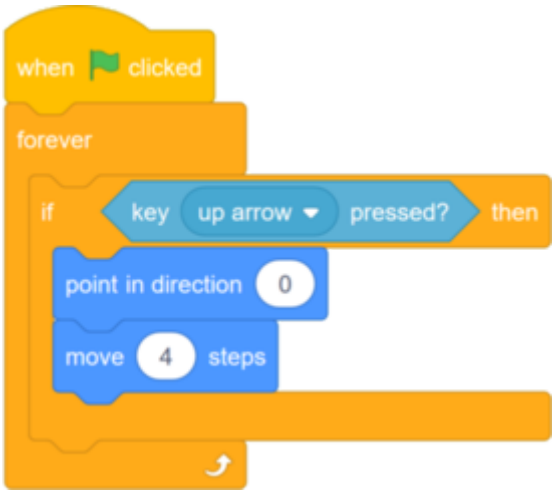
Activity Checklist

- [ ] Open the 'Create your own world' Scratch starter project.
Online: open the online starter project at rpf.io/create-your-own-world-on.
If you have a Scratch account you can make a copy by clicking **Remix**.
Offline: download the starter project rpf.io/p/en/create-your-own-world-go, and then open it using the offline editor.
If you need to download and install the Scratch offline editor, you can find it at rpf.io/scratchoff.



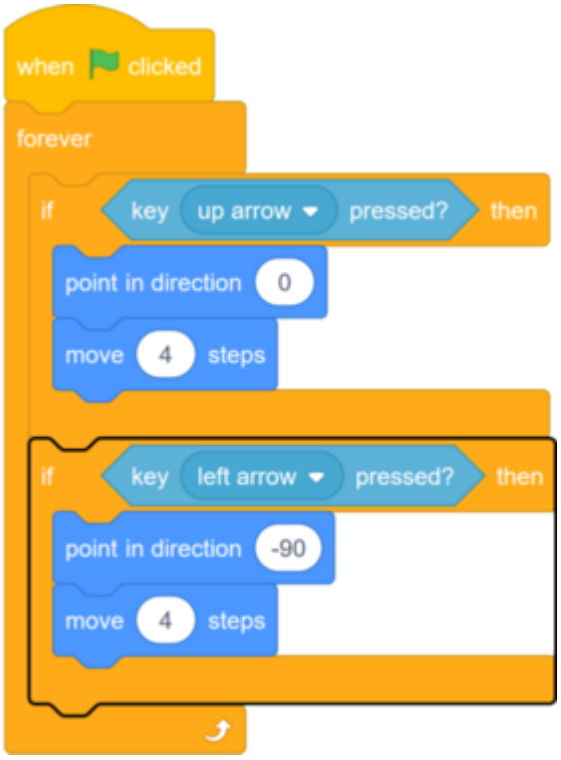
Pressing the arrow keys should move the `player` sprite around. When the up arrow is pressed, the `player` sprite should move upwards on the Stage in response.

- [ ] Add this code to the `player` sprite:

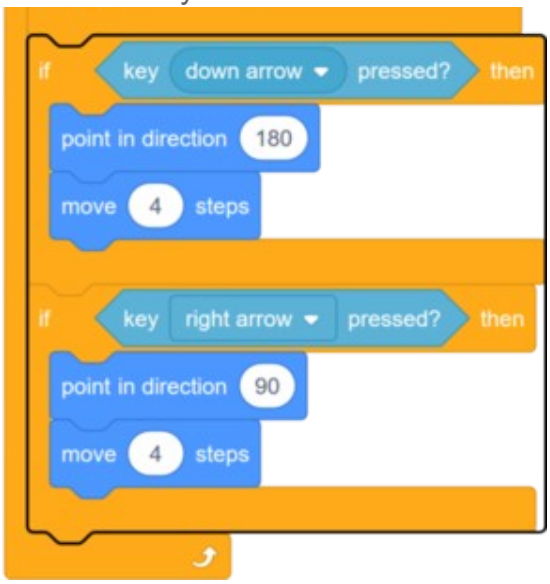


- [ ] Click the flag and then hold down the up arrow. Does the `player` sprite move up?

- [ ] To move the `player` sprite to the left, you need to add another `if` block with similar code:



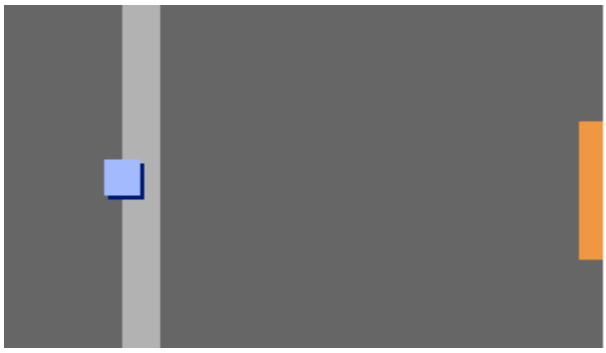
- [ ] Add more code to your `player` sprite so it can move down and to the right as well. Duplicate the code you already have to help you.
Here is how your code should look:



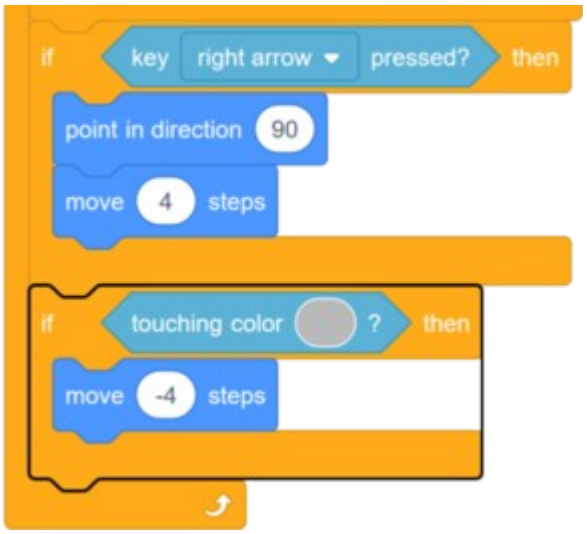
Step 2: Solid walls

Activity Checklist

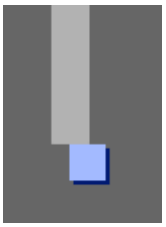
- [ ] Test your `player` sprite again. Do you see that it can walk through the light grey walls.



- [ ] To fix this, you need to make the `player` sprite move back if it touches a light grey wall. Here's the code you need to add inside your `forever` block below the direction blocks:



- [ ] Try to make the `player` sprite move through a wall. If your new code works, this shouldn't be possible.



Step 3: Move around your world

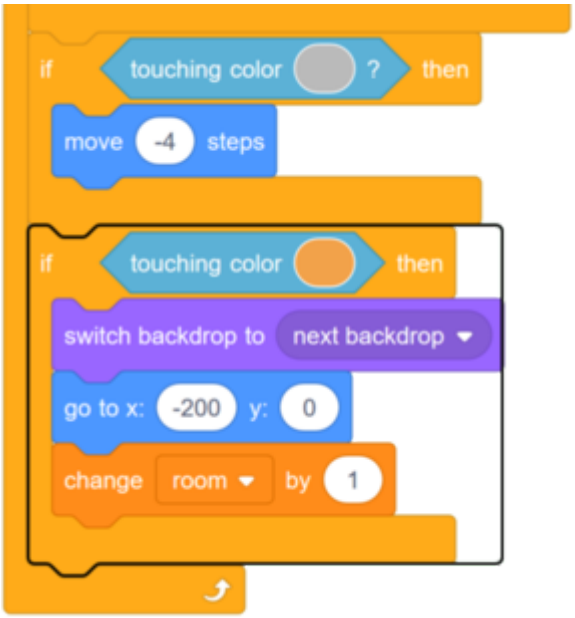
The `player` sprite should be able to walk through doors into other rooms.

Your project contains backdrops for additional rooms:

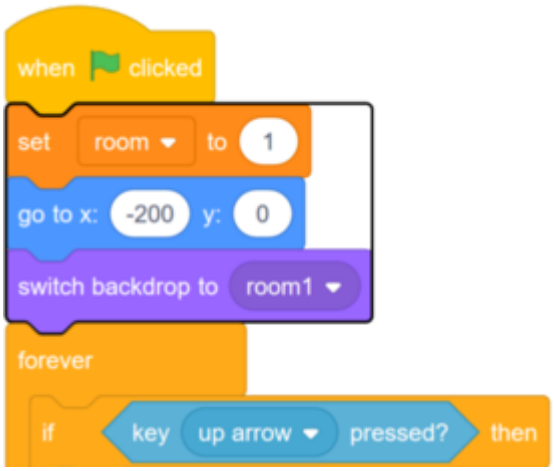
Activity Checklist

- [ ] Create a new 'for all sprites' variable called `room` to keep track of which room the `player` sprite is in.

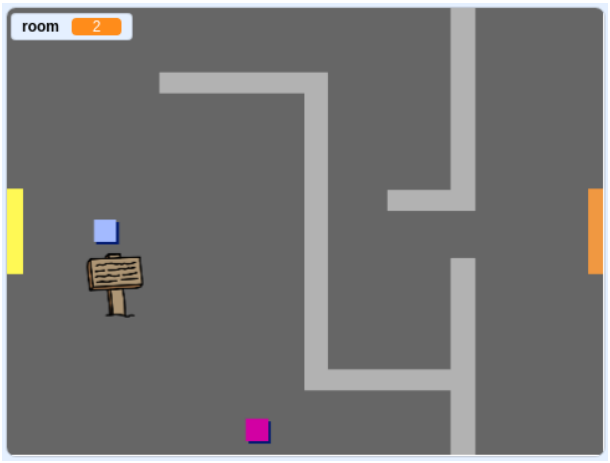
- [ ] When the `player` sprite touches the orange door in the first room, the game should display the next backdrop, and the `player` sprite should move back to the left side of the Stage. Add this code inside the `player` sprite's `forever` loop:



- [ ] Every time the game starts, the room, character position, and backdrop need to be reset.
Add code to the **start** of your `player` sprite code above the `forever` loop, to reset everything when the flag is clicked:
Here's what your finished script should look like:



- [ ] Click the flag, and then move your `player` sprite until it touches the orange door. Does the sprite move to the next screen? Does the `room` variable change to `2`?



Challenge: move back to the previous room

Can you make your `player` sprite move back to the previous room when it touches a yellow door? The code you need for this is very similar to the code you've already added to make the sprite move to the next room.

Step 4: Signs

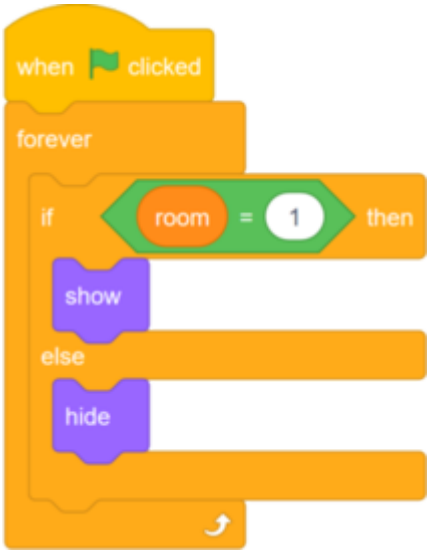
Now add signs to your world to guide players on their journey.

Your project includes a `welcome sign` sprite:

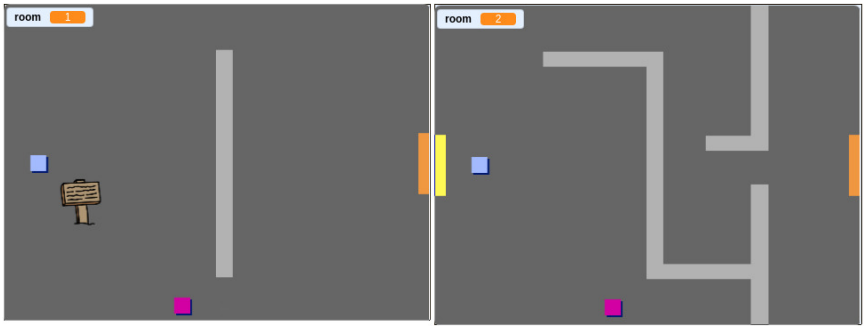
Activity Checklist

- [ ] The `welcome sign` sprite should only be visible in room 1, so add some code to the sprite to make sure that this happens:

  Here is the complete code:



- [ ] Test the code for your `welcome sign` sprite by moving between rooms. The sign should only be visible in room 1.



- [ ] A sign isn't much good if it doesn't say anything! Add some more code to display a message if the `welcome sign` sprite is touching the `player` sprite:

- [ ] Test your `welcome sign` sprite again. You should now see a message when the `player` sprite touches the `welcome sign` sprite.

Challenge: treasure!

Can you add some treasure for the player to find?
Make the `treasure chest` sprite appear only in room 3, and have this sprite say 'Well done!' when the `player` sprite touches it.

Step 5: People

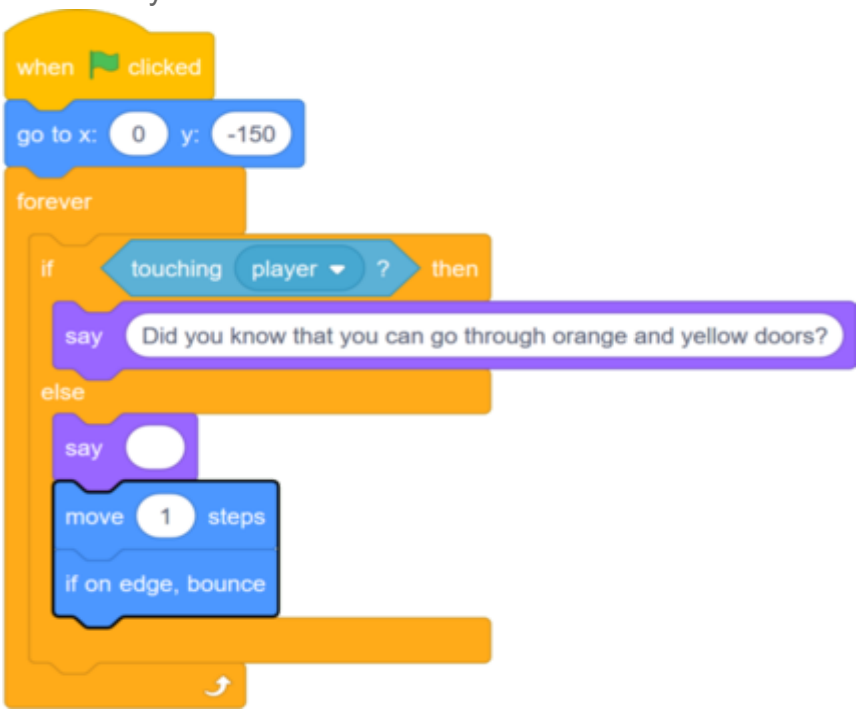
Add other people to your world who your `player` sprite can interact with.

Activity Checklist

- [ ] Switch to the `person` sprite.

- [ ] Add some code to the `person` sprite so that the person talks to the `player` sprite. This code is very similar to the code you added to your `sign` sprite:

- [ ] Allow your `person` sprite to move by adding these two blocks in the `else` section of your code:



Your `person` sprite will now move, but will stop to talk to the `player` sprite.

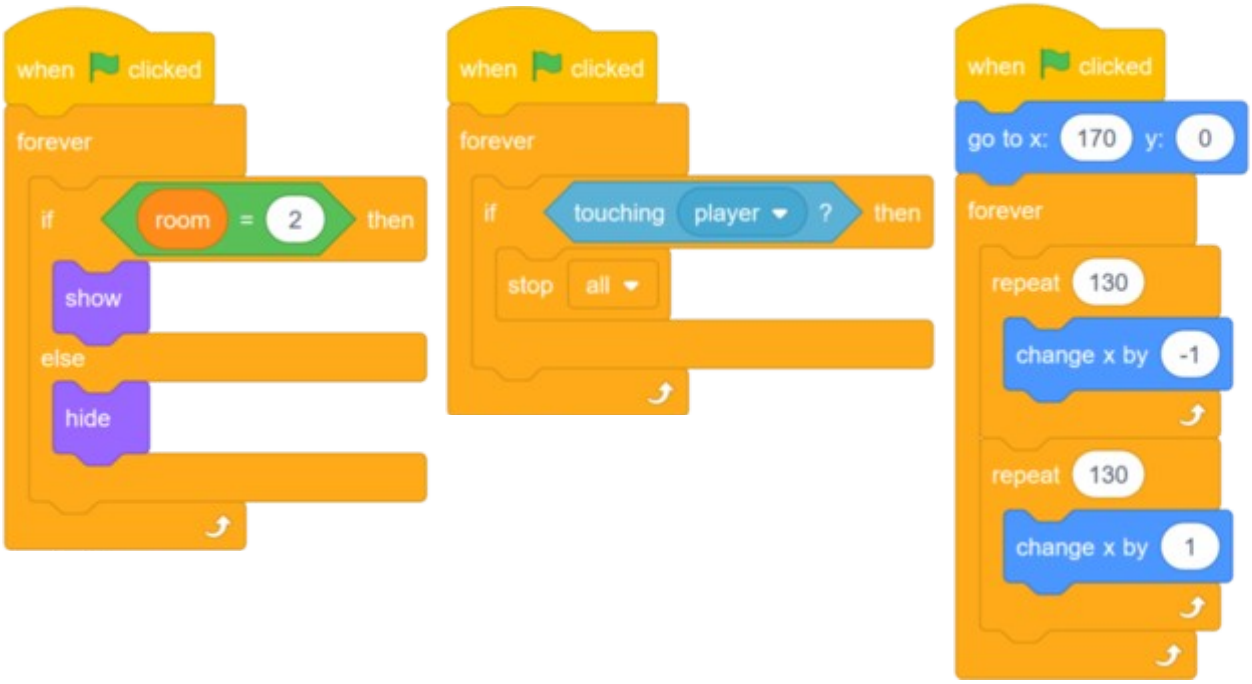
- [ ] Add code to your new `person` sprite so that the sprite only appears in room 1.
The code you need is exactly the same as the code that makes the `sign` sprite only visible in room 1.
Make sure you test out your new code.

Challenge: add an enemy

If you want, you can also add patrolling enemies to your game. If the `player` sprite touches an enemy, the game ends.

- Your game already contains an `enemy` sprite. Add code to the `enemy` sprite so that it only appears in room 2.
- Add code to move the `enemy` sprite and to end the game if the `enemy` sprite touches the `player` sprite. It's easier to do this in separate code blocks.

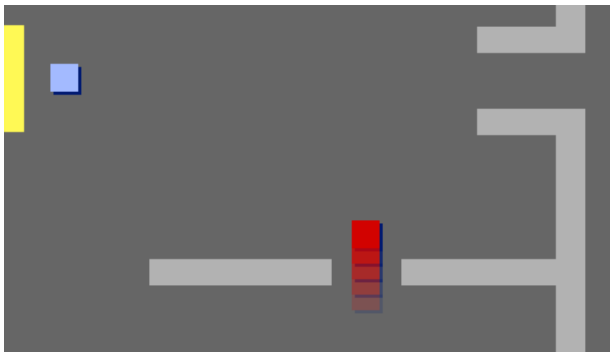
Here's how your `enemy` sprite code might look:



Test out your new code to make sure that:

- The `enemy` sprite is only visible in room 2
- The `enemy` sprite patrols the room
- The game ends if the `player` sprite touches the `enemy` sprite

Can you create another `enemy` sprite in room 3 that patrols up and down through the gap in the wall?

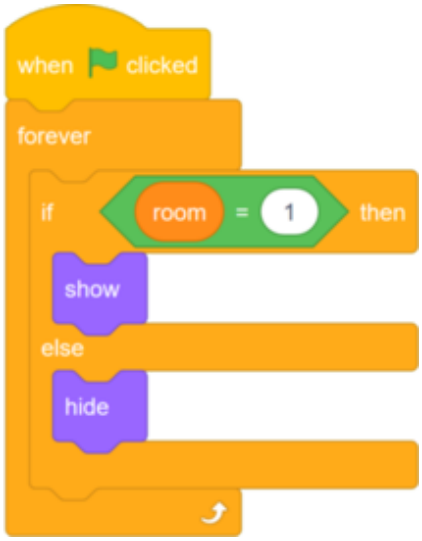


Step 6: Collect coins

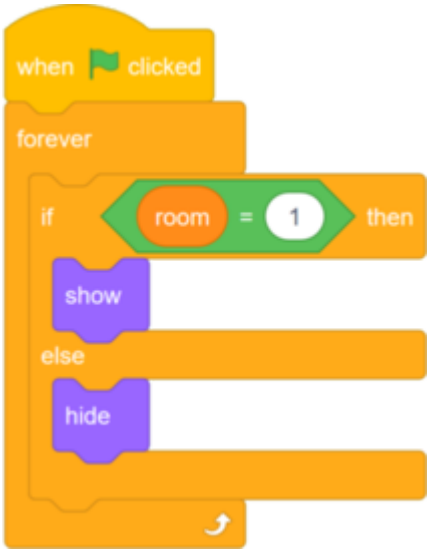
Your `player` sprite should have be able to collect coins as it moves through the world.

Activity Checklist

- [ ] Add a new variable valled `coins` to your project.
- [ ] Select the `coin` sprite and click **show**.
- [ ] Add code to your `coin` sprite so that it only appears in room 1.

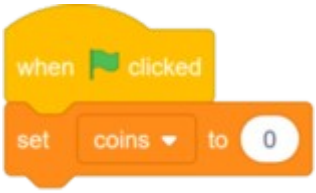


- [ ] Add code to your `coin` sprite so that the sprite `hides` and `1` is added to the `coins` variable once the `player` sprite touches the `coin` sprite to 'pick it up'.



The code `stop other scripts in sprite` is needed so that the `coin` sprite stops being displayed in room 1 once it's been collected.

- [ ] Now add code to the Stage to set your `coins` variable to `0` at the start of the game.



- [ ] Test your game. Collecting a coin should change your `coins` score to `1`.

Step 7: Doors and keys

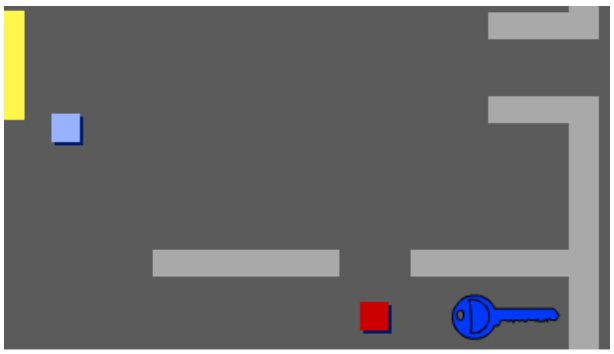
Now you are going to add code so that some of the doors in your game world are locked, and the player must find the key to open them and get to the next room.

Activity Checklist

- [ ] Switch to the `key` sprite. Click on `show` in the Scripts menu so that the sprite appears on the Stage.

- [ ] Edit the `key` sprite's costume so that it is blue.

- [ ] Switch your Stage backdrop to room 3, and place the `key` sprite somewhere difficult to reach!



- [ ] Add code to the `key` sprite to make it only visible in room 3.

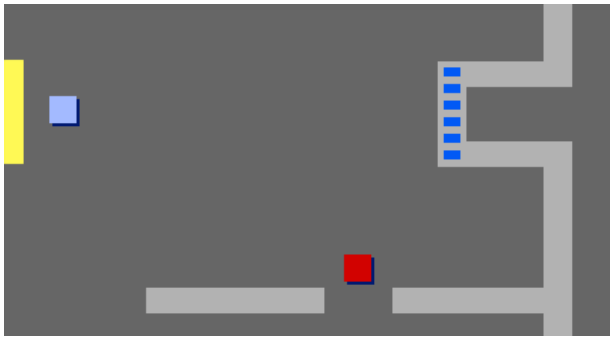
- [ ] Create a new list called `inventory` to store the items your `player` sprite collects.

- [ ] The code you need to add for collecting the key is very similar to the code for collecting coins. The difference is that you add the key to the `inventory`.

- [ ] Add code to your Stage to empty your inventory at the start of the game.

- [ ] Test out your game to check whether you can collect the `key` sprite and add it to your inventory.

- [ ] Now add the locked door. Select the `door-blue` sprite and click on `show` in the Scripts menu, and then position the sprite across the gap between the two walls.



- [ ] Add code to the `door-blue` sprite so that it is only visible in room 3.

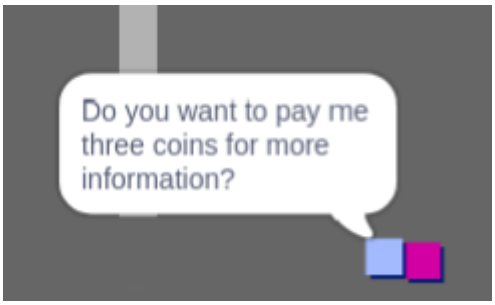
- [ ] Add code to the `door-blue` sprite so that, when the key is in the `inventory`, the sprite `hides` to allow your `player` sprite to pass.

- [ ] Test out your game and see if you can collect the blue key to open the door!

Challenge: extend your world

You can now continue creating your own world! Here are some ideas:

- Add more coins to your game in different rooms. Can you let some coins be guarded by patrolling enemies?
- Change your game's backdrops
- Add sound and music to your game
- Add more people, enemies, and signs
- Add red and yellow doors, and special keys to open them
- Add more rooms to your world
- Add other useful items to your game
- Use coins to get information from other people:



- You could even add doors in the north and south walls of room 1, so that the player can move between rooms in all four directions. For example, your game can have nine rooms in a 3×3 grid. You can then add `3` to the room number to move down one level.