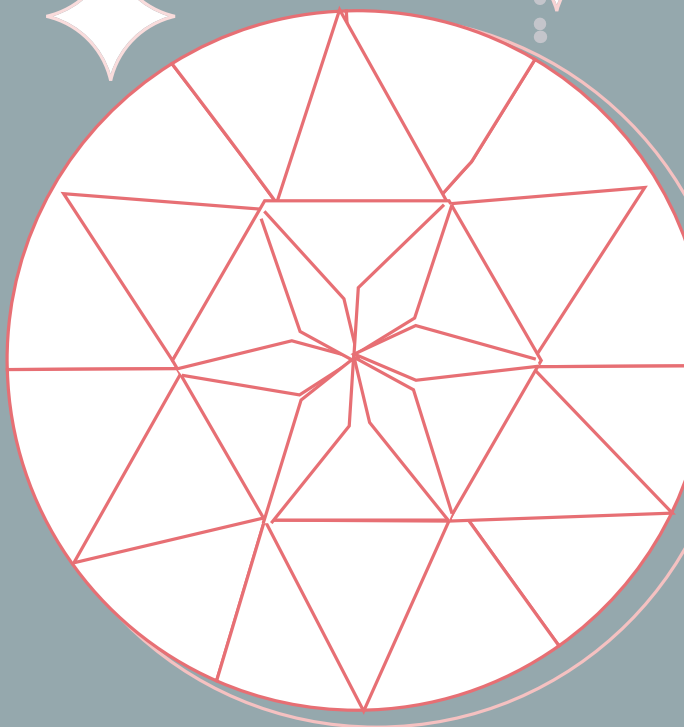


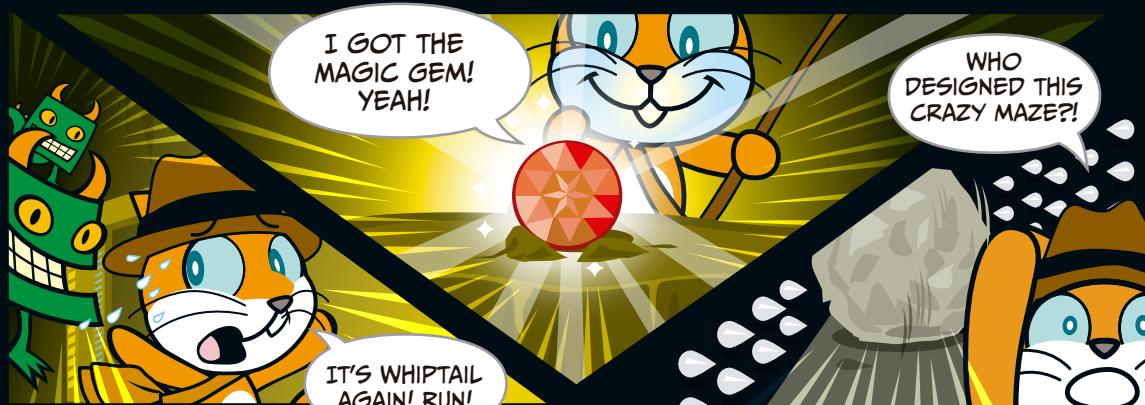
**WIZARD'S  
RACE!**

**8** STAGE

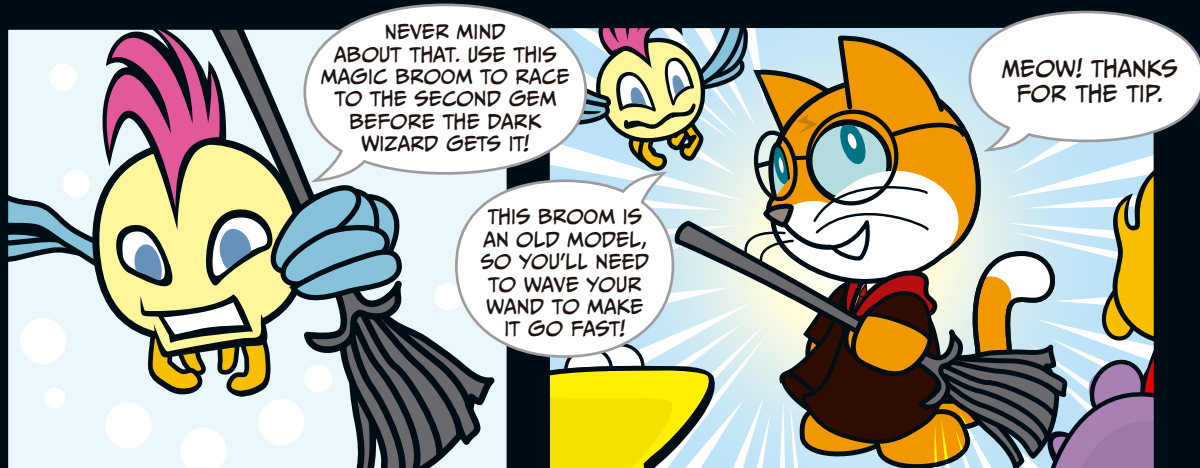


STAGE

8



MAGIC PORTAL?





## SORCEROR'S CHALLENGE

# 8 STAGE

### + Chapter Focus

Learn how to control the Stage with multiple costumes, play music with Scratch, and create other animations.

### The Game

This is a simple “button-mashing” game. Rapidly press two keys back and forth to make Scratchy fly. He needs to beat all three levels within 15 seconds to collect the second Magic Gem.

Start by opening the Scratch project *WizardsRace*. This project file has all the sprites you'll need, but it doesn't have any programs yet. We can customize how it looks later. For now, we'll focus on the programming.

First, let's take a look at the Stage. It has three backgrounds. We'll use these as levels for Scratchy's ride on the broomstick.

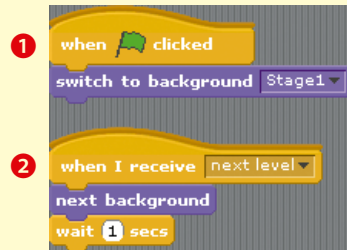


# 8 STAGE

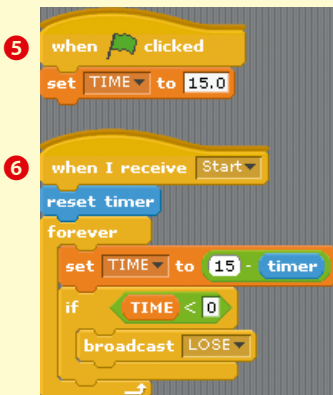


Write program **1** for the Stage to sets its first background. Program **2** changes the Stage's background when it receives the **next level** broadcast.

Tip: You'll need to choose **new...** in the dropdown menu of the **when I receive** block to create the **next level** broadcast.



Create a **LEVEL** variable, and then add programs **3** and **4**. Program **3** makes sure that we start at level 1. Program **4** listens for the **next level** broadcast from program **4** on page 116 and increases the **LEVEL** variable by 1.



Create a second variable called **TIME**, and then add program **5**, which gives you 15 seconds to complete the race. Program **6** broadcasts **LOSE** when you've run out of time.

Hint: Program **6** has a couple tricky things in it. First, you'll need to create a new **Start** broadcast in the **when I receive** block. The script also makes use of Scratch's built-in **timer** variable and uses some special commands from the **Operators**, **Sensing**, and **Variables** palettes. You need to use the **reset timer** block in program **6**, as Scratch's **timer** starts just as soon as you open the project. This command will let you try the game again after you've lost, too.

Next, we'll program the sprite for Scratchy the wizard. The sprite is called Harry-Catter and has two costumes. We'll give him two sound effects, too, in the **Sounds** tab.



Then write program 1 to set his starting costume and position. Program 2 makes him float up and down.



# 8 STAGE

Program 3 controls how Scratchy moves. The player will need to press the left and right arrow keys, one after another, to move Scratchy.

```

3 when I receive Start
  forever
    if key left arrow pressed? and key right arrow pressed?
      move 0 steps
    if key left arrow pressed? and not key right arrow pressed?
      switch to costume HC-2
      move 10 steps
      wait until key right arrow pressed? and not key left arrow pressed?
      switch to costume HC-4
      move 10 steps
  
```

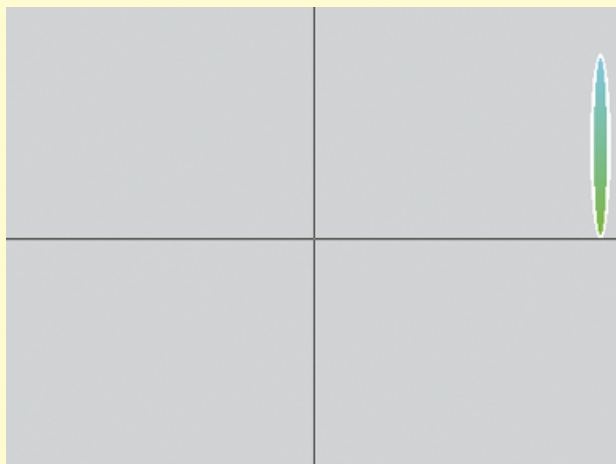
Can you see how this program works? The player can start with either the right or left arrow. The `not` block makes sure the player doesn't "cheat" by pressing both the right and left arrow keys at the same time.

```

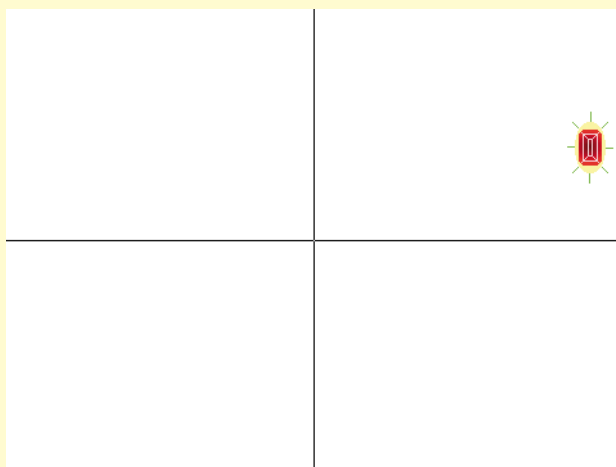
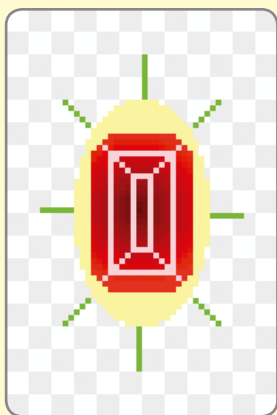
4 when I receive Start
  repeat 2
    wait until touching Magic ?
    play sound Fairydust
    play sound Zoom
    broadcast next level
    go to x: -135 y: 65
    say Next Level! for 0.5 secs
  say Get the Magic Gem! for 1 secs
  wait until touching Magic ?
  broadcast WIN
  
```

Finally, write program 4 so that once Scratchy reaches the Magic sprite, sound effects will play, `next level` is broadcast, and Scratchy says "Next Level!" Remember that the `next level` broadcast will make the Stage change backgrounds.

After that loop repeats twice, the player is on the third level. Scratchy will now say "Get the Magic Gem!" and broadcast `WIN` if he reaches the Magic sprite in time.



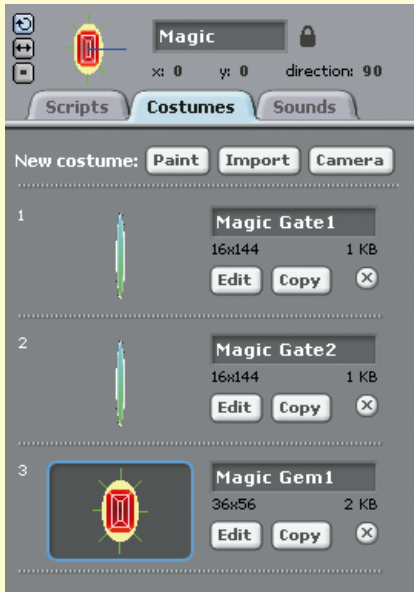
Now let's take a look at the costumes for Magic, the sprite that is our Magic Gate and the Magic Gem. The sprite will appear on the right of the Stage, and it will serve as Scratchy's goal for each of the three levels.



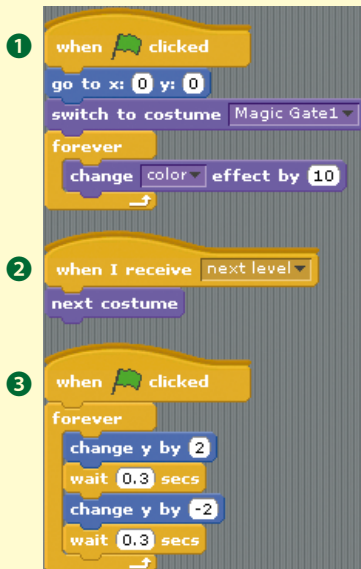


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## STAGE



Here are those costumes for this sprite. We'll change costumes with each level, with the Magic Gem as Scratchy's goal for the third level. (That's why we need two Magic Gate costumes and one Magic Gem costume—we have three levels.)



Program ① sets the sprite's position and its first costume and creates a **change color** animation. Program ② changes the costume with each **next level** broadcast, and program ③ makes the sprite float up and down.





Now we can add some magical visual effects to our game. There is a sprite called Terrain that has these three costumes.

Next, write program ① to continuously change the Terrain sprite's costumes and set its starting position. This gives a neat animated effect to the ground. Program ② makes the Terrain change colors magically!



## STAGE

Now it's time for the text for our game. The Titles sprite has a bunch of instructions for the player. We'll use its Countdown\_3, Countdown\_2, Countdown\_1, and Go costumes to create a countdown to start this race!



Add some sound effects to the Titles sprite in the **Sounds** tab.



Write program **1** to set the order of each costume. We use the `play note` and `play sound` blocks to add fun noises to the game.



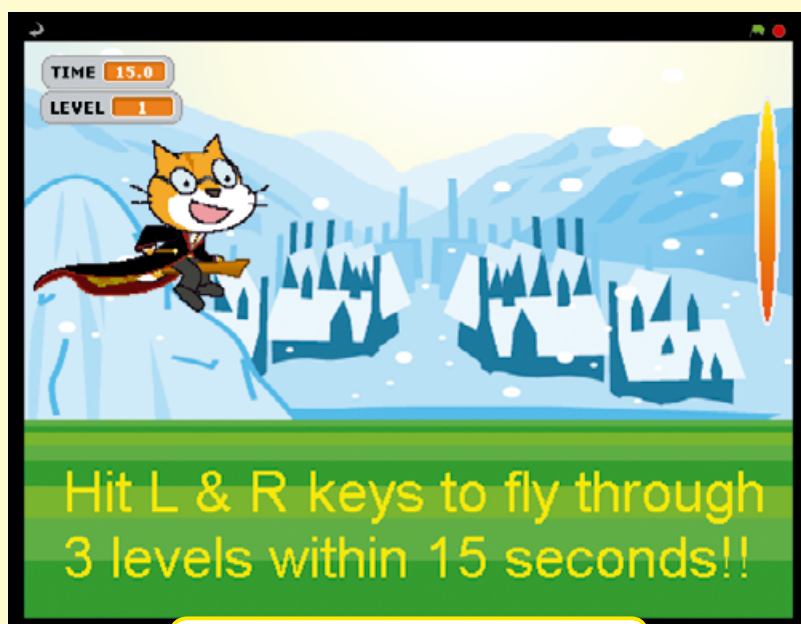
Here's that **Start** broadcast at long last. Remember that this is what the Stage and Scratchy are waiting for!




Finally, add programs **2** and **3** for the winning and losing screens, depending on whether the Titles sprite receives the **WIN** or **LOSE** broadcast. And now our game is complete!

# 8

STAGE



Save your project, and get ready for a race!  
Click , put your fingers on the keys, and  
get ready to set a speed record.



## Scratchy's Challenge!!

Can you edit this game to make it a two-player race? How about a two-person watermelon-eating contest? Give it a try!