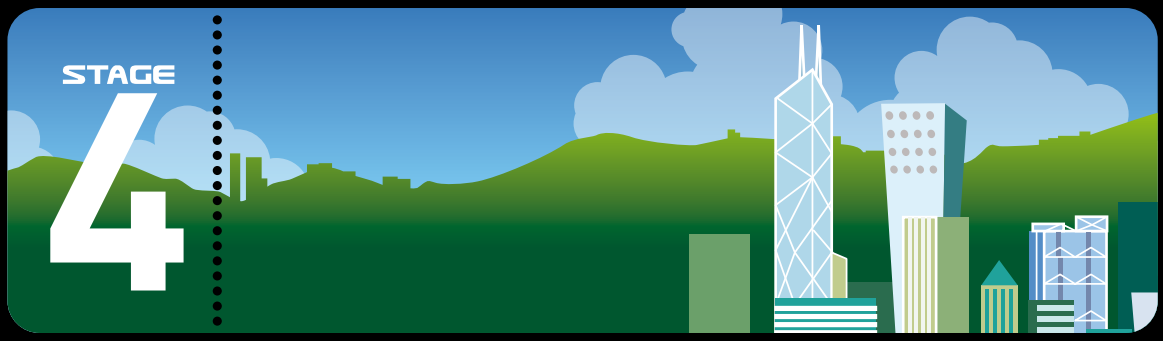
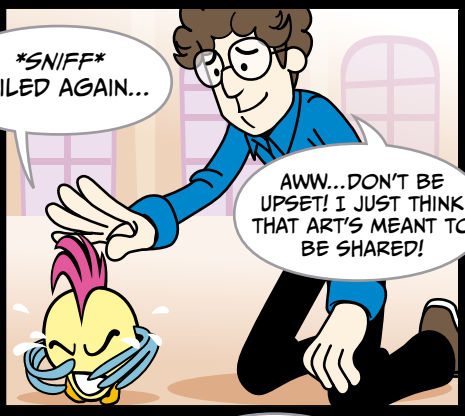
DEFEND HONG KONG'S TECHNOCORE

STAGE 4

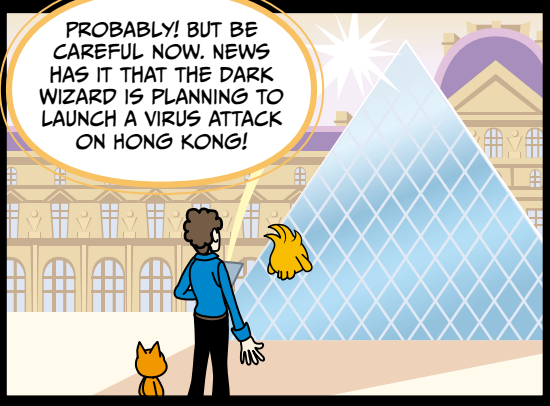

STAGE
4


MISSION COMPLETED!


FABU'S FREE AGAIN!


SNIFF FOILED AGAIN...
AWW...DON'T BE UPSET! I JUST THINK THAT ART'S MEANT TO BE SHARED!

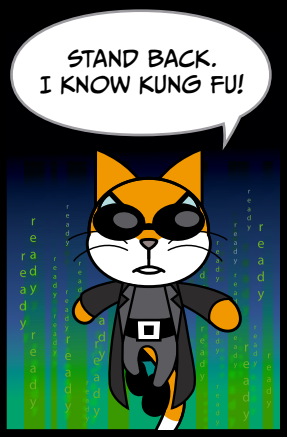

DO YOU THINK THE COSMIC DEFENDERS WOULD TAKE ME BACK... OR JUST FORGIVE ME... IF I APOLOGIZED?

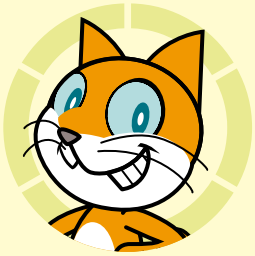

PROBABLY! BUT BE CAREFUL NOW. NEWS HAS IT THAT THE DARK WIZARD IS PLANNING TO LAUNCH A VIRUS ATTACK ON HONG KONG!


OH NO! BUT IF THAT HAPPENS, THE WHOLE DIGITAL WORLD COULD BE DESTROYED!


FABU'S RIGHT! WE HAVE TO DESTROY THE VIRUS RIGHT AWAY!


HONG KONG
HERE IT COMES!


STAND BACK. I KNOW KUNG FU!



HACK ATTACK

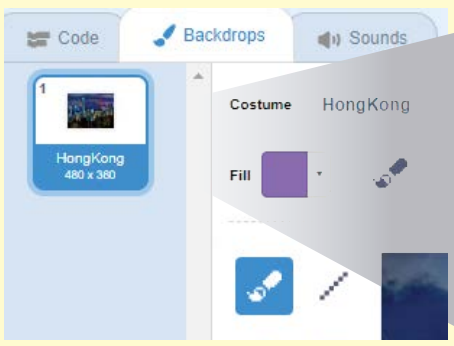
STAGE 4

Chapter Focus

Learn to control sprites with the mouse, program objects to bounce back, and start a game by pressing the spacebar.

The Game

Help Scratchy attack flying viruses and stop them from touching the server at the bottom of the screen. If you successfully block 30 viruses, you win the game!

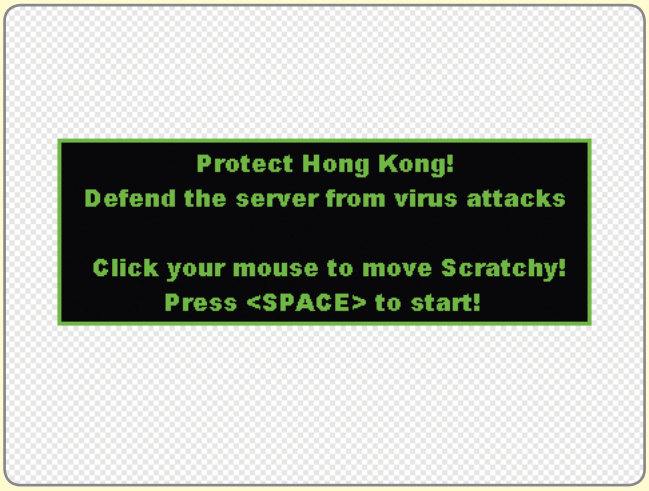


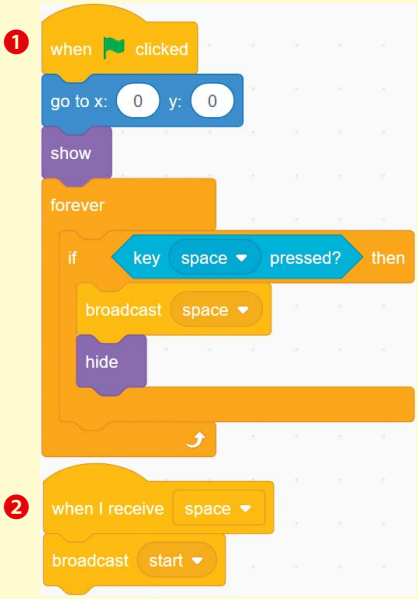
Let's start by opening the blank project ***04 - Hack Attack!.sb2*** (File ▸ Upload from your computer). I used a sparkly photo of Hong Kong's skyline as my Stage. You can use whatever you like!

Did you know you can add programs to the Stage, too? We can add this program to make our city glow!

STAGE 4

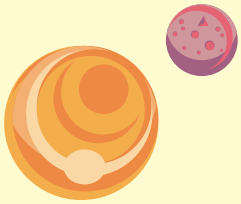
Now let's take a look at the **Instructions** sprite. It tells the player how the game works. We'll write two programs to control it.

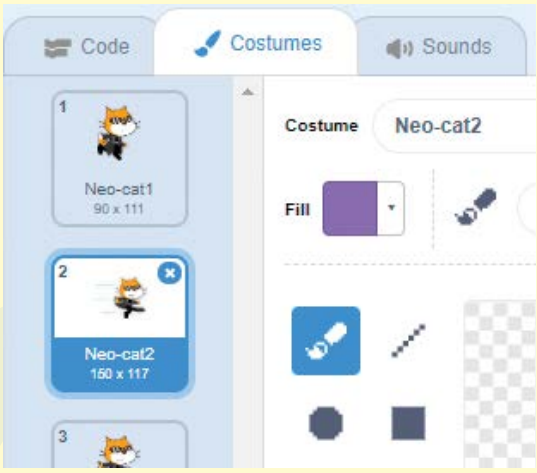




Program 1 makes the sprite show up at the start of the game and disappear when the player presses space, the spacebar on their keyboard.

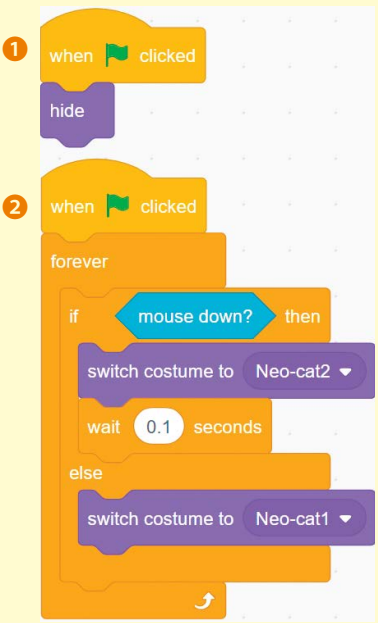
Program 2 makes the Instructions sprite broadcast `start` when it receives the space broadcast from program 1. This will start the game!

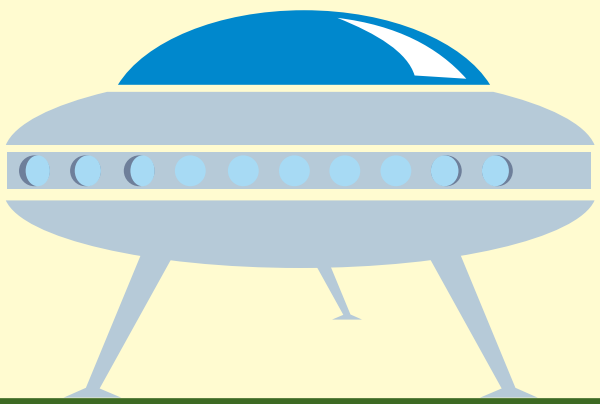


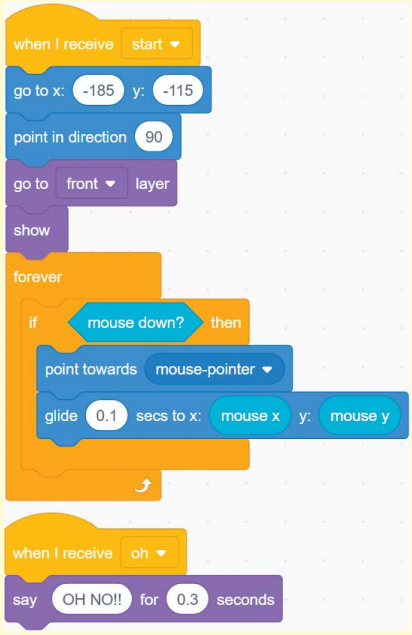


Next, let's write some programs for Scratchy. Notice that he has two costumes already: one where he's just standing and another where he's jumping.

So let's add some programs to control how Scratchy looks. In program ❶, we `hide` him before the `start` broadcast is received. In program ❷, we control how Scratchy switches costumes. Whenever the player's mouse is clicked—that is, whenever `mouse down?`—Scratchy looks like he's jumping.





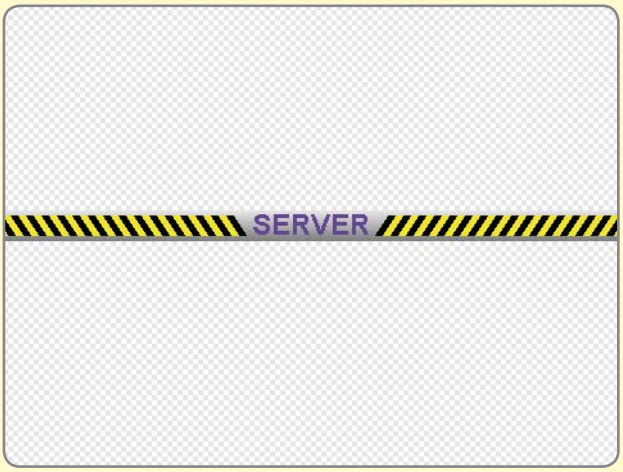


But how does the player control Scratchy? Program 3 lets you control Scratchy with the mouse, showing him only when the `start` broadcast is received.

Program 4 makes a speech bubble saying "OH NO!!" appear whenever the Scratchy sprite receives the `Oh` signal. We'll broadcast `Oh` whenever a virus manages to hit the server.

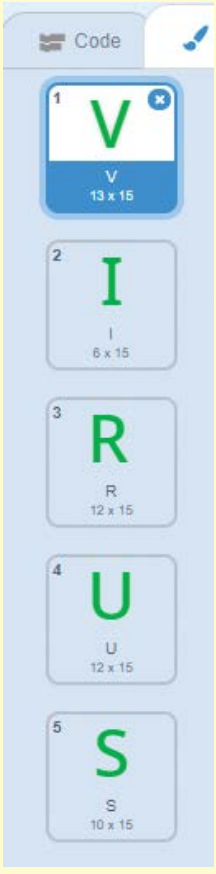
Tip: By using the mouse instead of the keyboard, the player has a lot of control over Scratchy, who will move very quickly for this game. But remember—every game is different! Sometimes the keyboard works well, too.

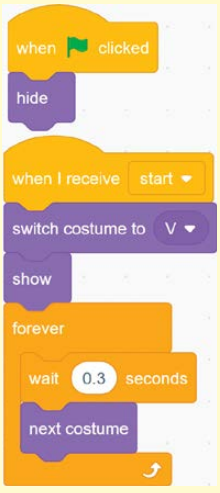
Time to program a new sprite! Switch to the **Server**. It should look like the image below, but we want it centered and at the bottom of the screen. Add this simple program so that the Server appears in the correct place.



Next, we'll program our computer opponent! The sprite called **Virus** has a set of costumes of letters spelling V-I-R-U-S.

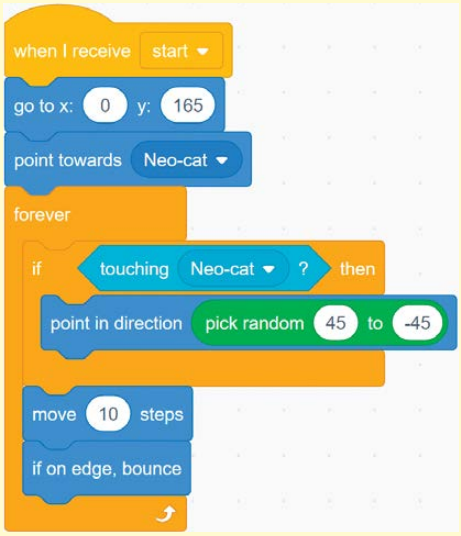
Program ❶ hides the Virus until the game starts. Program ❷ makes the Virus switch costumes as it flies around.



❶


❷

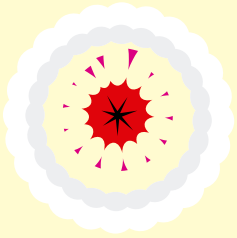
Program ❸ for the Virus makes it fly around. It bounces whenever it bumps into Scratchy or the edges of the screen.

❸


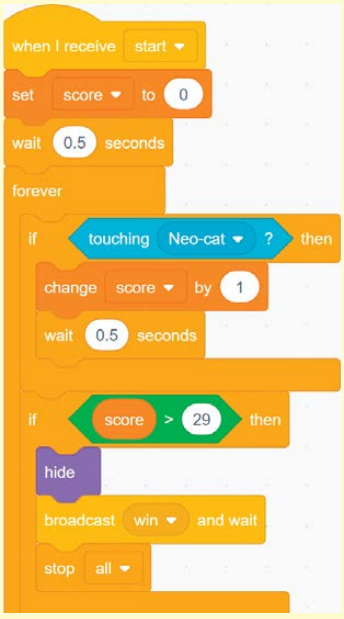
STAGE 4

Now we'll add more programs to the Virus to keep score. These programs use blocks from the **Control**, **Events**, and **Data** palettes to record and signal the conditions for winning and losing.

Program 4 creates a new variable called `score` and the conditions we need to meet for the script to broadcast `win`. Your score will now appear on the Stage.

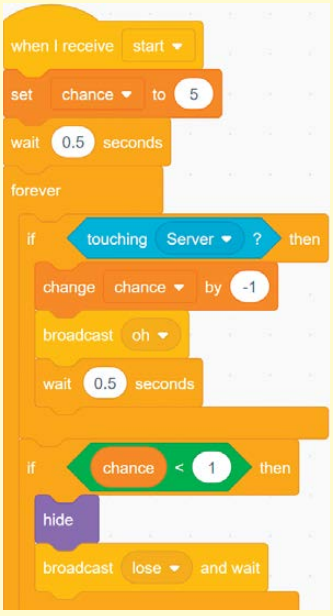


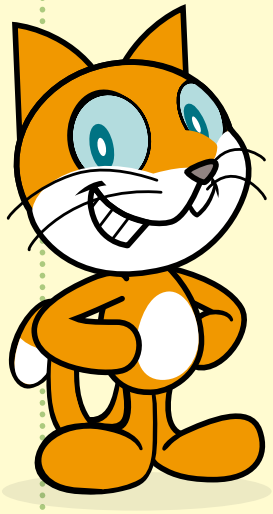
4



Program 5 creates a variable called chance, which keeps track of how many times the Virus is allowed to touch the Server sprite before the player loses. We'll give Scratchy five chances to start. When you're out of chances, the program broadcasts `lose`. Just like the player's `score`, the number of tries the player has left is displayed on the Stage as chance.

5





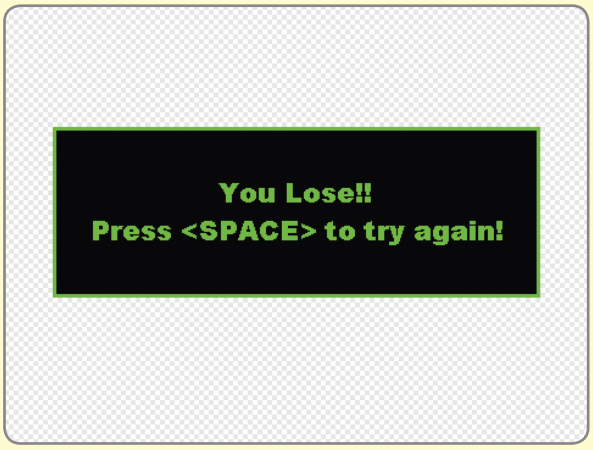
Tip: When setting the rules for winning and losing in your games, use the greater-than symbol (>) or the less-than symbol (<) instead of the equal sign (=) , as we do in programs 4 and 5. This will prevent the game from breaking when a variable changes too quickly!

Why might the variable change too fast in this game? Scratchy might touch the Virus a few times in quick succession, and the program won't realize that you've won the game.

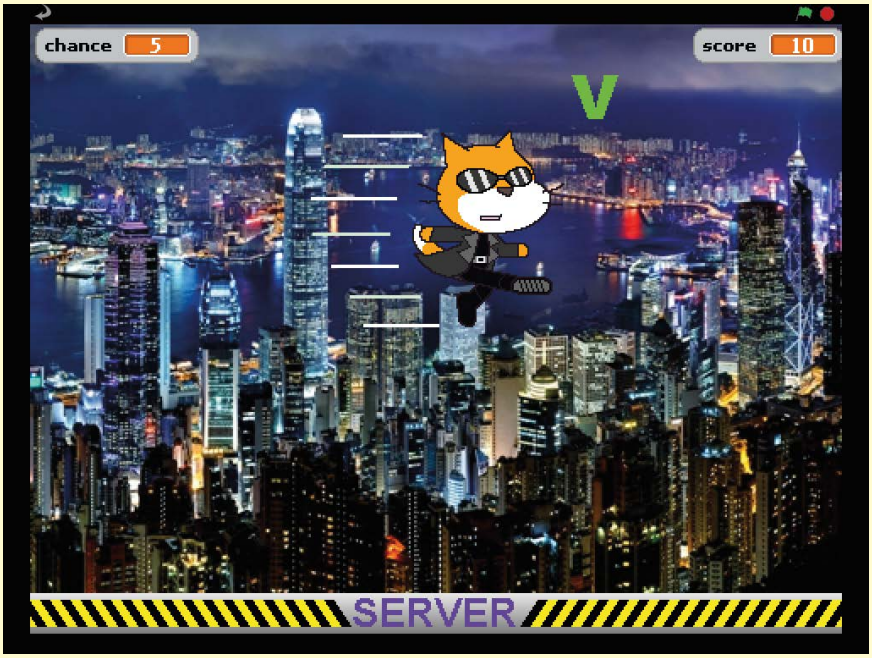
Now let's look at the sprite for the winning screen. Programs 1 and 2 keep it hidden. Then program 3 makes it appear when the `win` broadcast is received from the Virus sprite.

The losing screen is pretty similar to the winning screen. To save time, we can select the **Duplicate** tool and click the winning screen to copy both the image and the programming!

All we need to do now is change the costume and the last program a bit.



STAGE 4



We're finished! After you save the file, hurry and help Scratchy the hacker defend the network from the virus attack!

Scratchy's Challenge!!

How would you make this game harder for the player? How about adding different kinds of viruses? What about turning this game into a two-player Ping-Pong match? Give it a try!