Learning to program with SCRATCH

Scratch is a programming language that makes it easy to create your own interactive stories, animations, games, music, and art! These challenges will help you to learn Scratch and use the same concepts that programmers use every day.

If you need help, you can ask a librarian. You can also try a Google search (like *"how to do _____ in Scratch"* - if you ask a computer programmer, they will tell you that Googling things is a big part of their job!)

If you are really stuck, you can check out the answer keys here: https://scratch.mit.edu/users/ThisIsHackeryou/. These show a way to solve the problem, but there is always more than one option. If you can think of a different way to get to the same solution, that's great!

If this is your first time using Scratch, sign up for an account at https://scratch.mit.edu and then do this tutorial video: https://goo.gl/kZ5IHn

Level 1

Challenge: Walk The Walk

Pick a sprite! You can use the default cat (Scratch!) or pick a new one. Can you make the character move across the screen 10 steps at a time?

Challenge: Click And Move

When you click on Scratch, can you make him glide to X: 100 and Y: 0 and then say something?

Challenge: Square Dancing

Scratch the cat wants to dance! Can you make him dance in a square? Have Scratch move for 50 steps, wait 1 second, turn 90 degrees, and then wait 1 second. Repeat 4 times! **Bonus:** can you make the cat dance in a hexagon? What would you need to change?

Level 2

Challenge: I Love Cheesy Puffs!

You will need 2 sprites: one character to walk around the room, and a bowl of cheesy puffs. Can you make your character move around the space when you press the arrow keys (up, down, left, right) and, if they touch the bowl of cheesy puffs, say "I love cheesy puffs!"? The character shouldn't say anything unless they are actually touching the bowl.

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Challenge: Sneezing Cat

Scratch the cat has to sneeze! When the S key is pressed, Make the cat say "ahhh" and grow 5 bigger 20 times. then, have the cat say "chew" and shrink the cat by 5 (repeat that 20 times too!)

Challenge: Decorate The Room!

Scratch wants to decorate the room for you, but first he wants to find out how old you are! Can you make Scratch the cat ask you how old you are? Depending on what you answer, Scratch will decorate the room differently. Make one room for kids that are younger than 5, one for kids that are between 5 and 10, and one for kids that are older than 10. Use whatever backdrop and other sprites you like - and have some fun with what happens in the room!

Level 3

Challenge: Devin And The Ghoul

Devin does not like ghouls. Oh no - there is one flying above him! Can you make a game with two sprites, Devin and a Ghoul or ghost? Make Devin move left and right with the arrow keys. Using a forever loop, make the ghoul move 10 steps and bounce when it hits the edge. **Hint**: rotate the ghoul at first to get them moving all over the screen. If you have multiple sprites, clicking on one of them will show you all of the scripts for that particular sprite.

Challenge: Spirograph

Use a sprite to draw a square. **Hint:** if you completed "Square Dancing", you've already done most of the work - now you just need to look into the pen tool to see if you can make the sprite draw! Once this is working, can you get your sprite to shift slightly and draw more squares in a circular pattern like a spirograph? Don't know what a spirograph is? Remember you can always use Google!

Challenge: Pong

Make a classic pong game. You have a paddle that can be controlled by the arrow keys and a ball bouncing around the screen. If the ball hits the red part of the screen, you lose! First, make the red line by clicking on the stage and switching to the backdrops tab. You will need to make your own paddle in the sprites menu by clicking on the paintbrush and drawing it. You'll also need a ball - you can either make your own or find one from the available sprites. Now, make the paddle follow your mouse on the X axis and make the ball move, bouncing off the walls and paddle. If the ball hits the red line, the game is over.