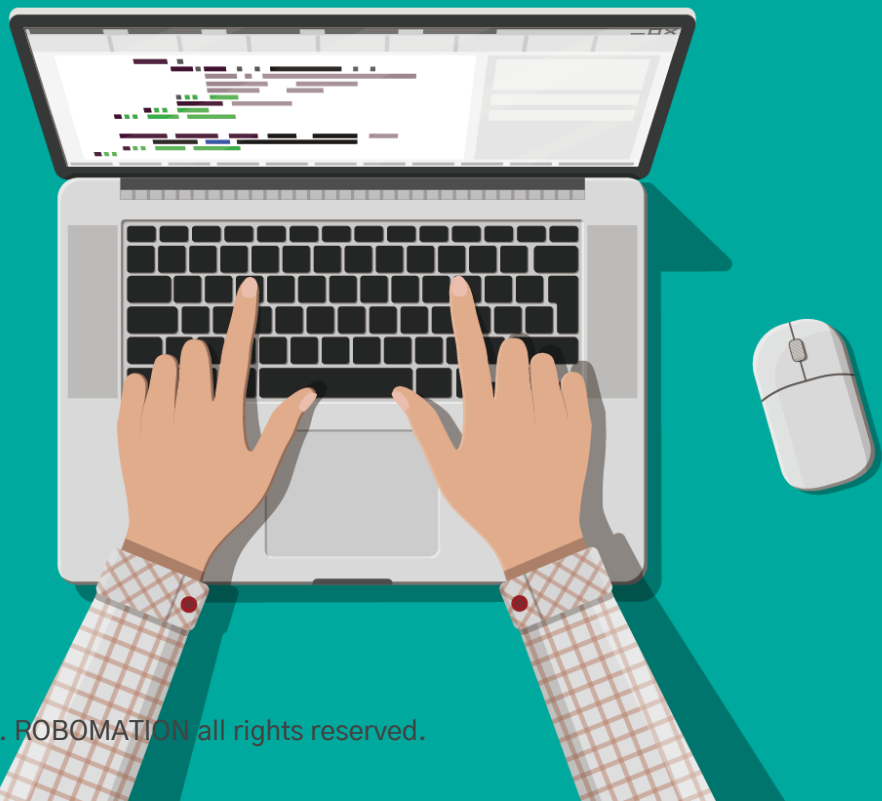
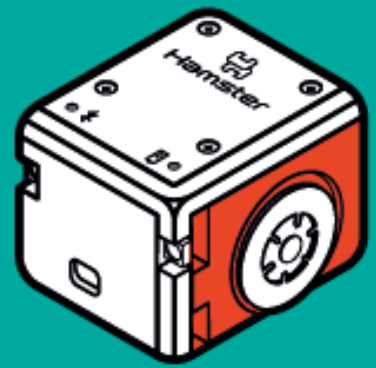
e-book

Hamster Coding

Scratch 4

Written by ConceptOn





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ROBOMATION
MAKE THINGS ALIVE

How to Use

This manual is designed for the educational utilization of the Hamster robot.

- Please use this manual as on-screen instructions when teaching the Hamster class.
- The contents are easy to understand. Just read them before the class.
- Worksheets can be downloaded from the Robomation website.
- This manual can be used to ensure the best lesson plan.
- For more information, contact us at 7concepton@daum.net.

Hamster Coding Scratch 4

Let’s get started with Hamster coding with the Scratch program!

The use of the Scratch programs will make coding more interesting!

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Today's Activity

Division	Description	Time
Introduction	**Explore the problem.** Why not try writing the code to turn on the LED lights with bright colors?	5min
Development	**Find out a solution.** Let's learn about the blocks that allow LED lights to turn on and off. **Solve the problem.** Let's try Scratch Coding to solve a given problem.	30min
Conclusion	**Review today's activities.** Let's talk about what you have learned and enjoyed.	5min

Shall we try writing the code to turn on the LED lights with bright colors?

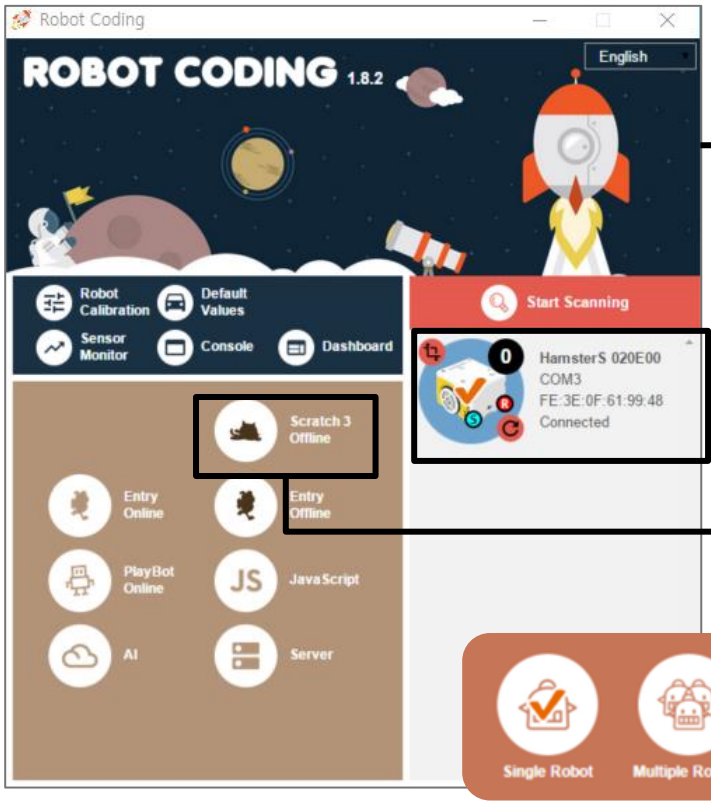
Get ready

First, let’s find out what is needed for Hamster coding.

1. Hamster
2. Bluetooth Dongle
3. PC
4. Worksheet
5. Writing supplies (pen and paper)
6. Charging cable

Open the program

When opening the program, turn on Hamster and plug the Bluetooth Dongle into the USB port of your PC.



Open the program

1. Run the Robot Coding program.

2. Check if your Hamster robot is connected with the Bluetooth Dongle (through its LED light colors).

3. Click on Scratch 3 Offline.

4. Click on “Single Robot” and then “New File.”

Let's think

Let's talk about how the Hamster robot displays colors by turning on its LED lights.

How can you turn on the LED lights?

Did you see the LED lights turn on at the front of Hamster when Hamster was paired with your PC?

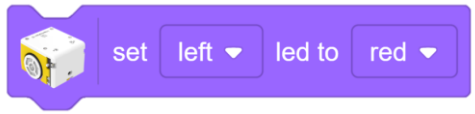
Hamster has two LED lights at its front.

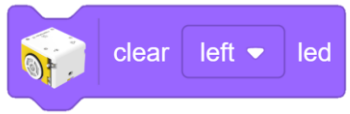
Guess how?

Let’s write the code to turn on the LED lights in different colors.

1 Red
2 Yello
3 Green
4 Sky Blue
5 Blue
6 Purple
7 White

Code hints





Read and express

Let’s write and execute the code that turns on the LED lights repeatedly.

1. Let the left LED light flicker **4 times** in green!
2. Let the right LED light flicker alternately in red and sky blue **3 times**!
3. Let both LED lights flicker consecutively in yellow, purple, and white **5 times**!
4. Let both LED lights flicker consecutively in the order of **green, yellow, white, green, yellow, white, green, yellow, and white.**
5. Let both LED lights **keep** flickering in green and purple!

Turning Hamster into a chameleon

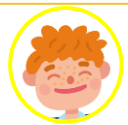
Challenge 1 Let's write the code that turns on the LED lights with the same color as the floor.

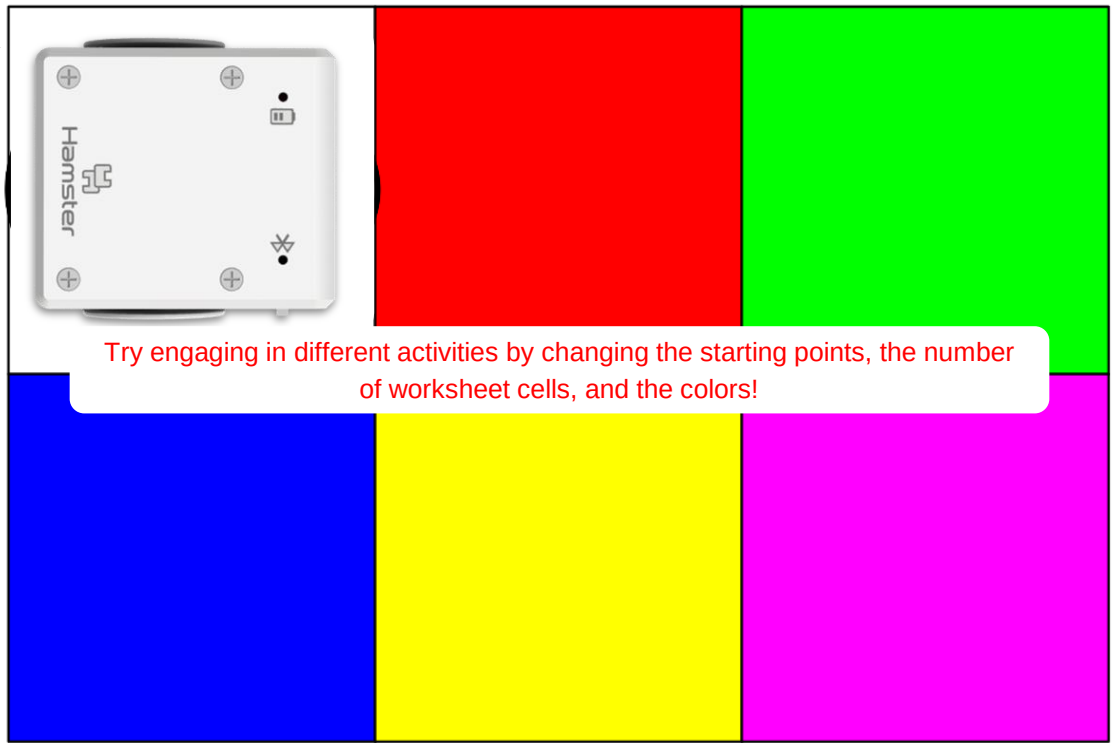
Preparations: Hamster, Worksheet(cells)

♦ One person reads a mission and the other writes the code to operate Hamster accordingly.

Let the LED lights flicker in white twice, and then move Hamster 2 cells forward!

Let the LED light turn on in the same color as that of the cell each time Hamster moves to one.





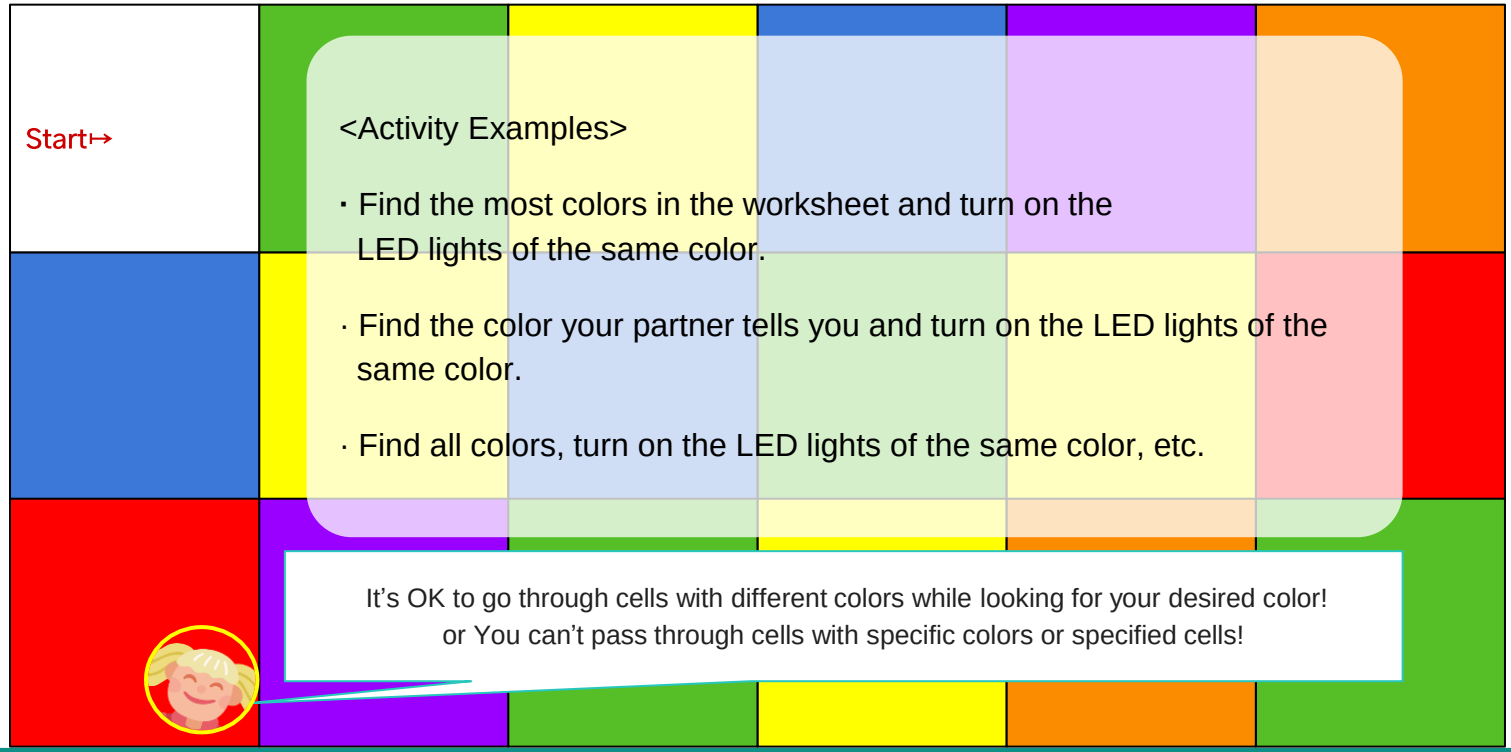
Try engaging in different activities by changing the starting points, the number of worksheet cells, and the colors!

Expanding territories with the same colors

Challenge 2

Let’s write the code that makes Hamster move to the cells with the same color, turning its LED lights on.

Preparations: Hamster, Worksheet (cells)



Glowing LED artwork

Challenge 3

Let’s write the code that turns on the LED lights like traffic lights.
Why not try with your friends?

LED traffic light

Each of three Hamster robots turns on one light among the red, yellow, and green lights in turn for 5 s.

My LED light is yellow!

When the other Hamster’s red LED light is turned off, I must turn it on!

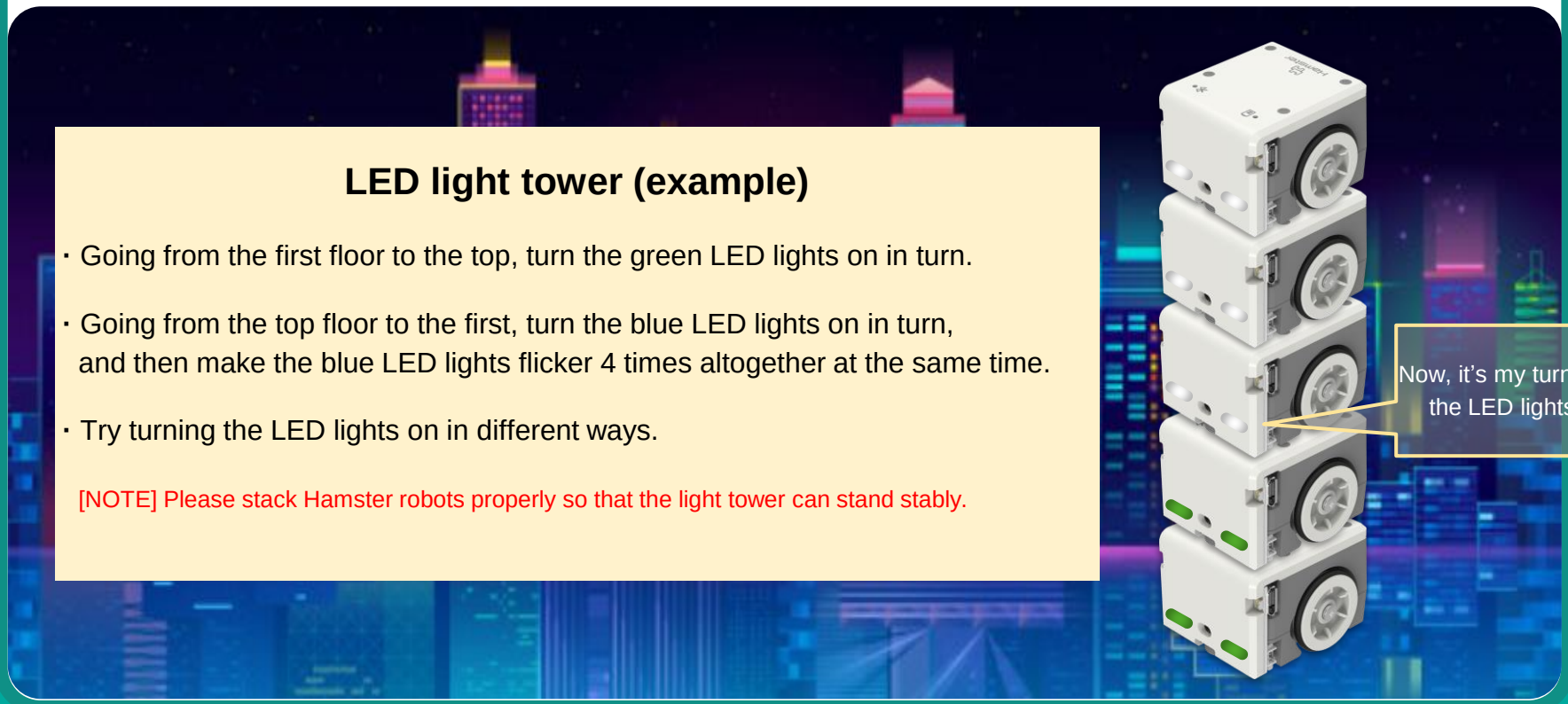
My LED light is red.

I have to wait for my turn while each of the red and yellow lights is turned on!

Glowing LED artwork

Challenge 4

Let’s build a light tower by stacking Hamster robots and writing the code to turn their LED lights on.



LED light tower (example)

- Going from the first floor to the top, turn the green LED lights on in turn.
- Going from the top floor to the first, turn the blue LED lights on in turn, and then make the blue LED lights flicker 4 times altogether at the same time.
- Try turning the LED lights on in different ways.

[NOTE] Please stack Hamster robots properly so that the light tower can stand stably.

Glowing LED artwork

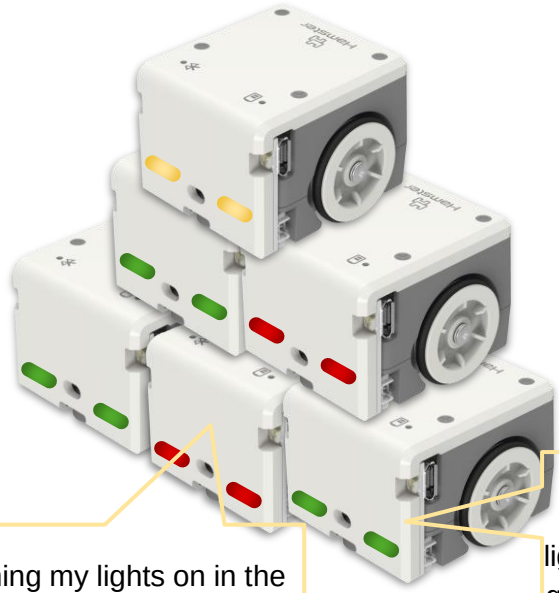
Challenge 5

Let’s write the code to turn the LED lights on like a Christmas tree.

Christmas tree

· Let Hamster robots keep turning the red, green, and yellow lights on alternately.

· Why not turn the LED lights on with other colors to create a stylish look?



I’ll keep turning my lights on in the order of red, green, and then yellow!

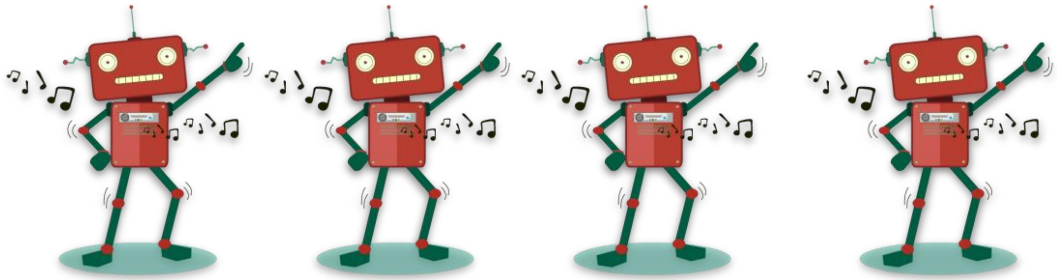
I’ll keep turning my lights on in the order of green and then yellow!

Our LED artwork

Challenge 6

Let’s create a cool Hamster LED artwork with friends and introduce it.

If several Hamster robots move like they are dancing while flickering their LED lights, it will look even more wonderful!



Let's Review

- What did you learn today?
- Did you encounter any difficulties?
- What interested you the most about Hamster robot?