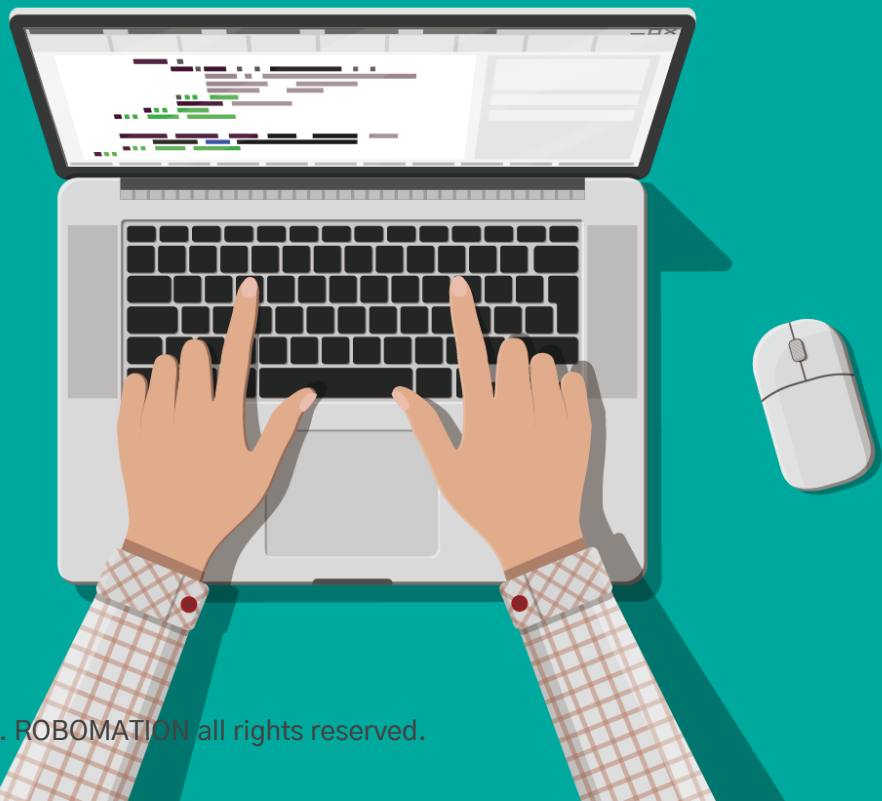
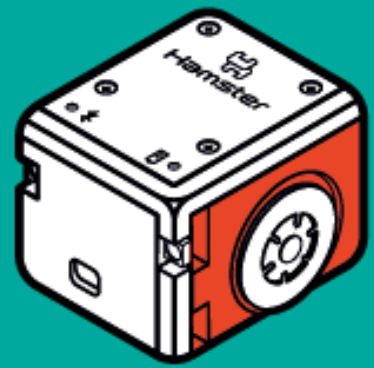
e-book

Hamster Coding

Scratch 5

Written by ConceptOn





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 5

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

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

ROBOMATION
MAKE THINGS ALIVE

Today's Activity

Division	Description	Time
Introduction	**Explore the problem.** Aren't you curious about the sound Hamster makes?	5min
Development	**Find a solution.** Let's find a block that allows Hamster to make a sound. **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

Beep!

Shall we try creating the code that allows Hamster to make a sound?

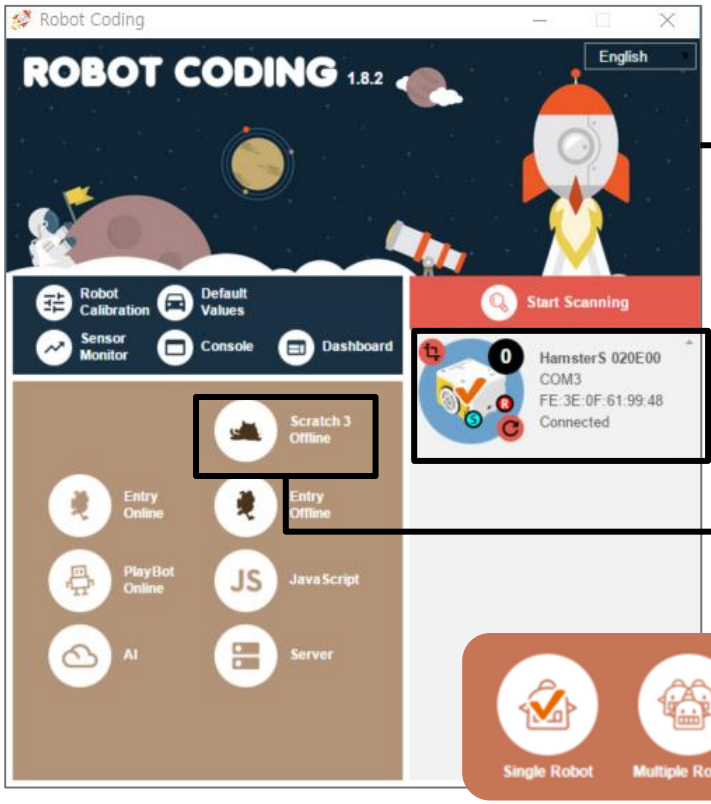
Get ready

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.

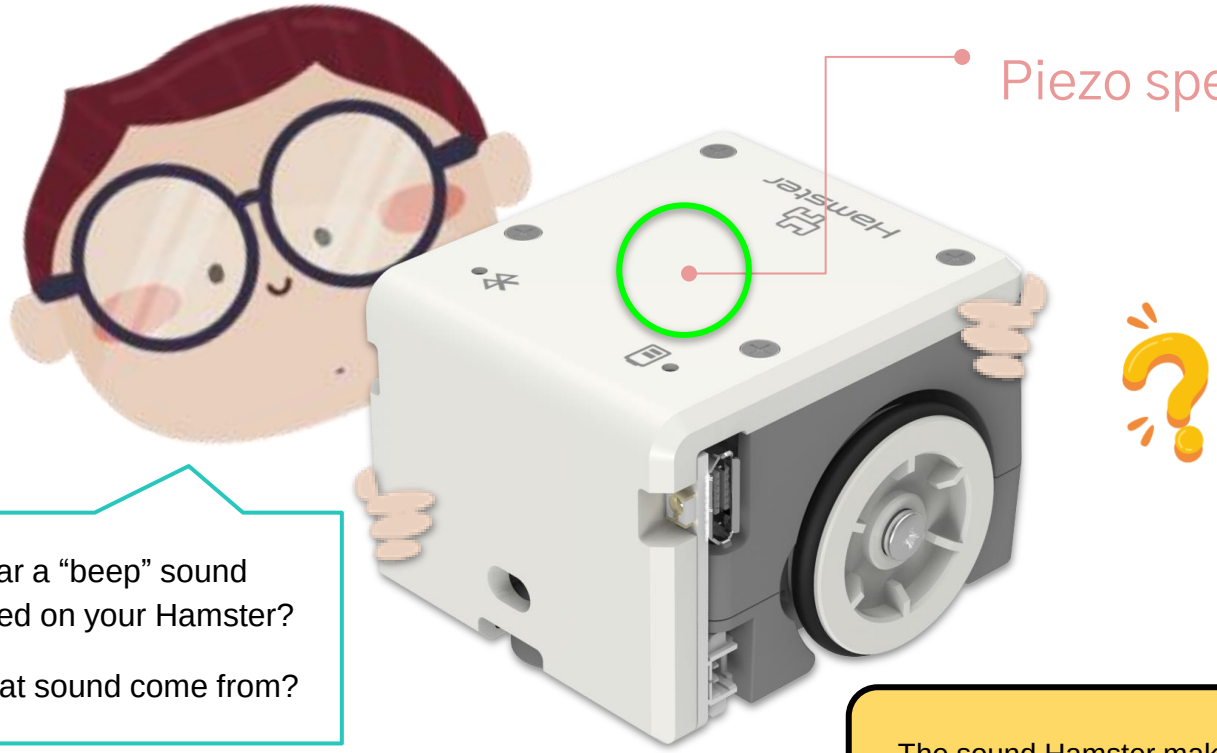
2. Check if your Hamster robot is connected with the Bluetooth Dongle (through its LED light colors).

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 makes a sound.



Did you hear a "beep" sound when you turned on your Hamster?

Where does that sound come from?

The sound Hamster makes comes from its piezo speaker.

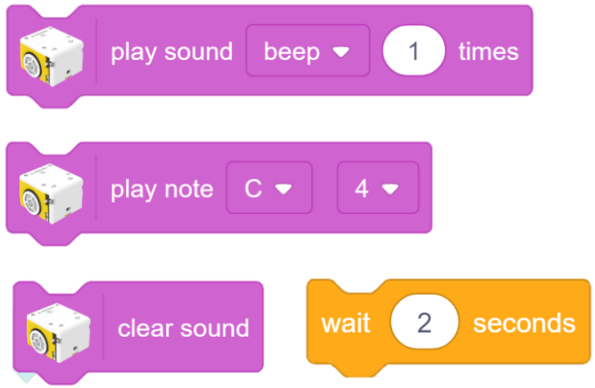
Guess how?

Let’s find a block that makes your Hamster produce a sound for coding.

1. Make a beep sound.

2. Make musical sounds with the notes: *do, re,* and *mi.*

Code hints



Read express

Let’s write and execute the code that produces a sound repeatedly.

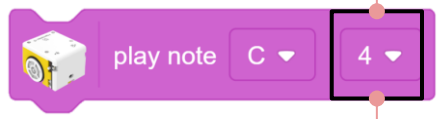
1. Make a beep sound four times repeatedly!

2. Keep making a beep sound!

3. Play the notes sol, sol, la, la, sol, sol, and mi twice repeatedly!

4. Play the note of do in the 4th and 6th octave for 5 s, respectively.
How do they sound?

5. Play the note of sol in the 7th and 1st octave for 5 s, respectively.
How do they sound?

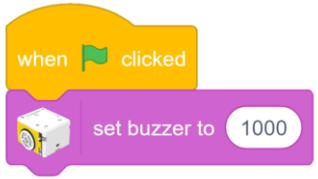


The larger the number, the higher the pitch of the sound.
In addition, the smaller the number, the lower the pitch of the sound.

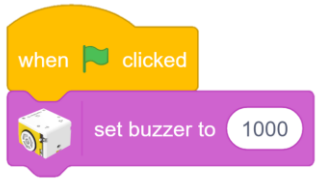
Adjust the pitch of the sound

Let’s write the code to adjust the pitch of the buzzer.

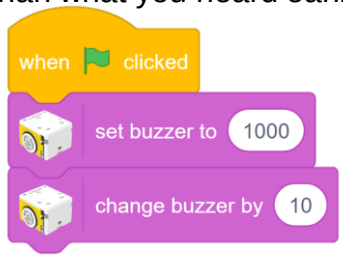
1. Write the code as follows and listen to your Hamster.



2. Write the code so that the pitch is lower than what you heard earlier.
Then, try writing the code to make it higher than what you heard earlier.



Enter a number larger or smaller than the first one and listen to the sound.



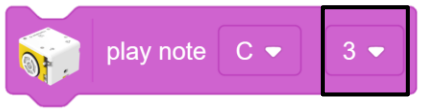
Adjust the pitch of the buzzer by using the code “change buzzer by ().”

Adjust the pitch of the notes.

Let’s write the code designed to play a scale by adjusting the pitch of the notes.

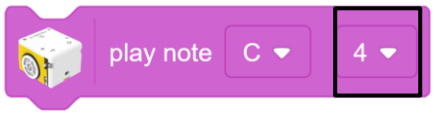
Try playing the notes of the scale: do, re, mi, fa, sol, la, ti, and do (in a normal, low, or high octave).

Low

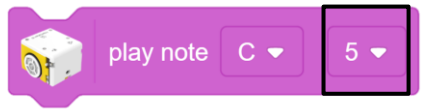


The 4th octave is normal.

Normal



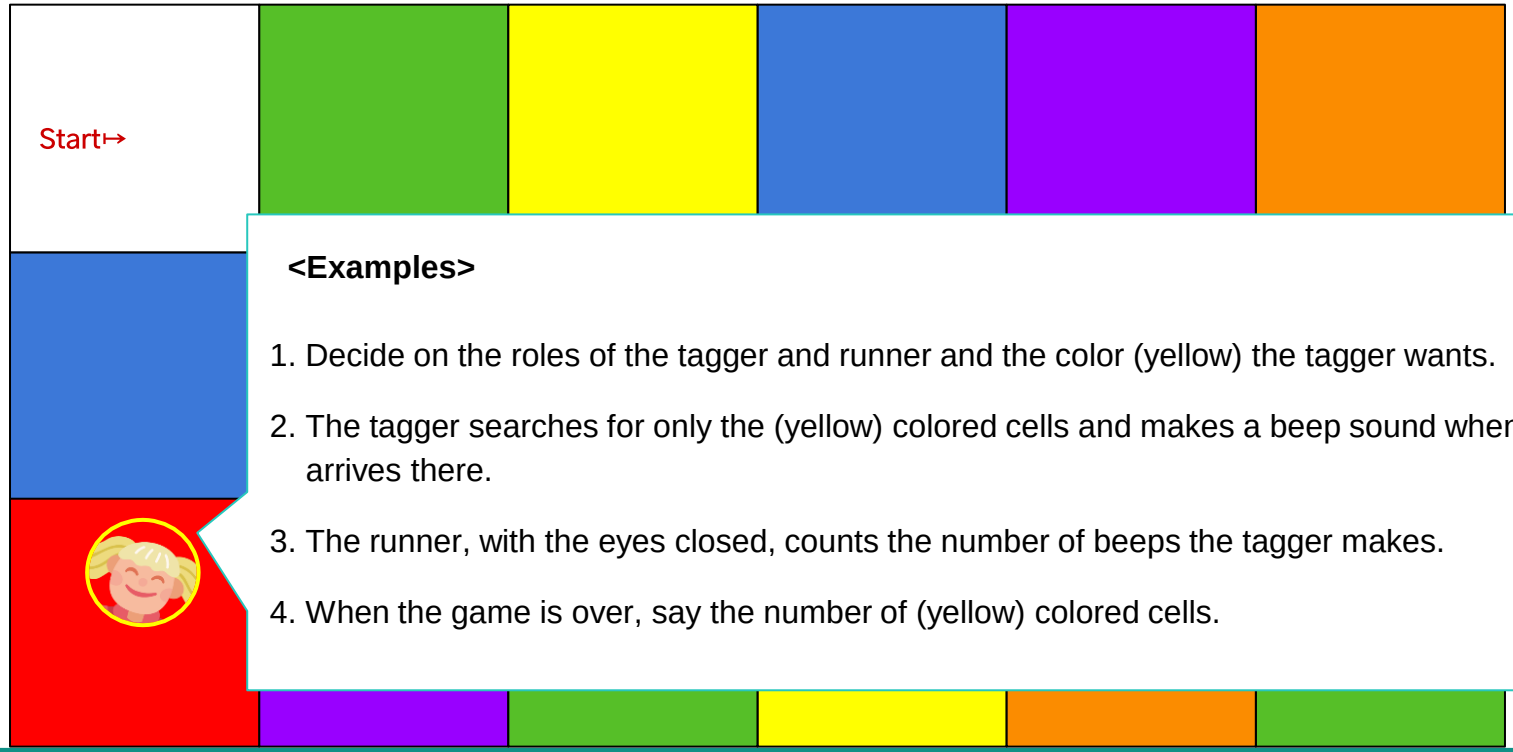
High



Check the colors by sound

Let’s write the code that causes the buzzer to sound whenever your Hamster passes through cells of the desired color.

Preparations: Hamster, Worksheet



<Examples>

1. Decide on the roles of the tagger and runner and the color (yellow) the tagger wants.
2. The tagger searches for only the (yellow) colored cells and makes a beep sound when it arrives there.
3. The runner, with the eyes closed, counts the number of beeps the tagger makes.
4. When the game is over, say the number of (yellow) colored cells.

Let's Review

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