

# PLAYFUL CODING TASKS: COMPUTATIONAL THINKING MAKES ITS WAY TO THE CLASSROOM



JALTCALL  
2022

*VICKY SAUMELL*



# ROADMAP

Computational thinking  
vs. Coding

1

Tools

3

Resources

5

Coding  
concepts

2

Intro+ 6  
ideas

4

Take-aways

6



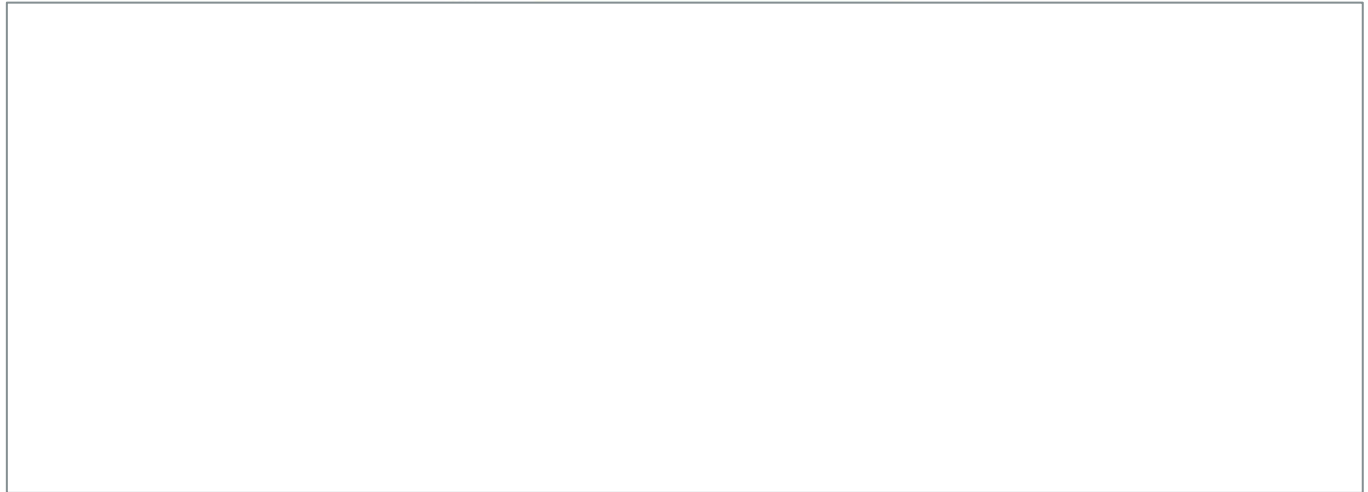
# IS IT THE SAME?

**COMPUTATIONAL THINKING**

**CODING**



**Problem  
to solve**





# IS IT THE SAME?

## COMPUTATIONAL THINKING



Problem  
to solve

Develop a  
step-by-  
step  
approach



## CODING





# IS IT THE SAME?

## COMPUTATIONAL THINKING

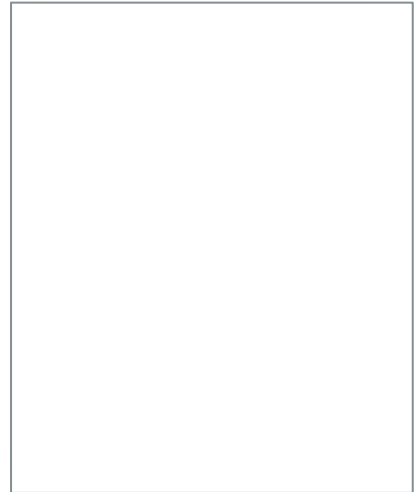


Problem  
to solve

Develop a  
step-by-  
step  
approach

## CODING

Give  
instructions  
to computer





# IS IT THE SAME?

## COMPUTATIONAL THINKING



Problem  
to solve

Develop a  
step-by-  
step  
approach

## CODING

Give  
instructions  
to computer

Solution

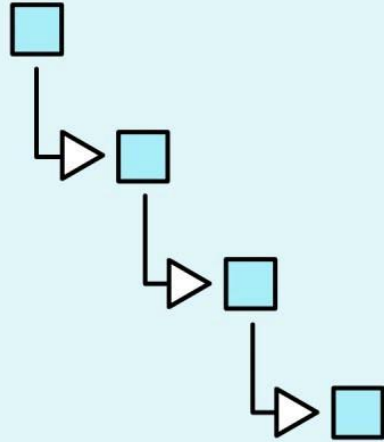




# CODING CONCEPTS:

- MOVE
- TURN
- IF/THEN
- REPEAT

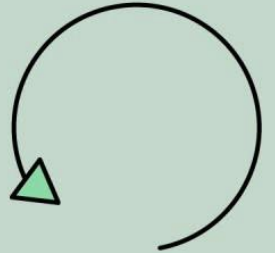
## SEQUENCES



## SELECTIONS



## LOOPS



lightbōt™



Kodable

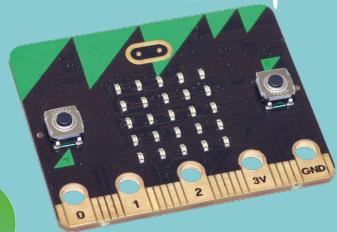
SCRATCH



BBC



micro:bit







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# INTRO: CODING GAMES

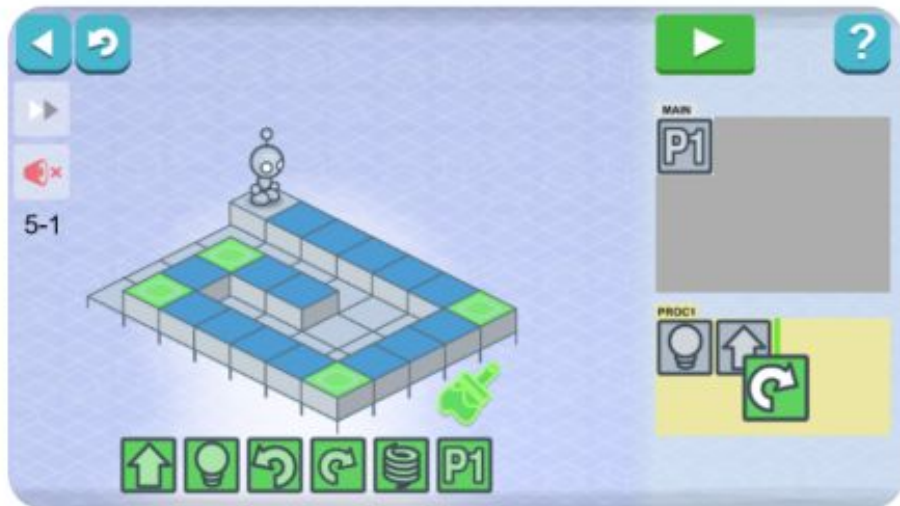
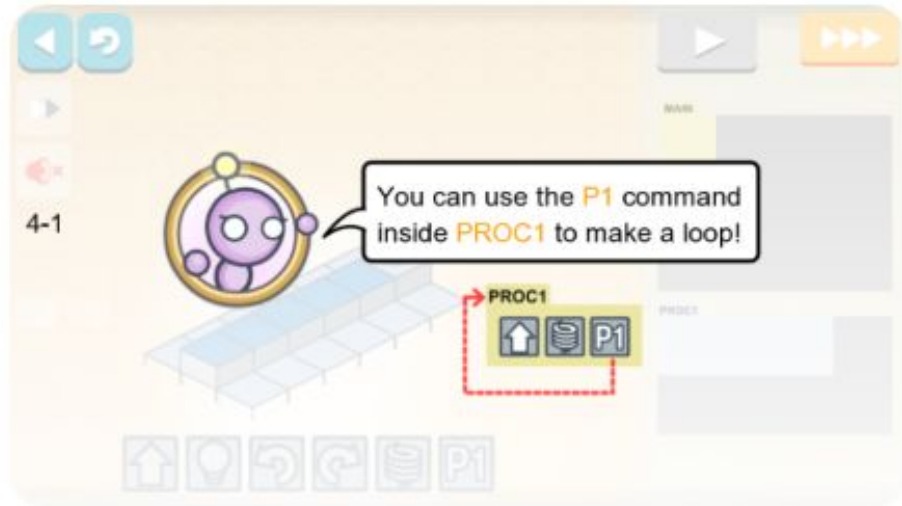
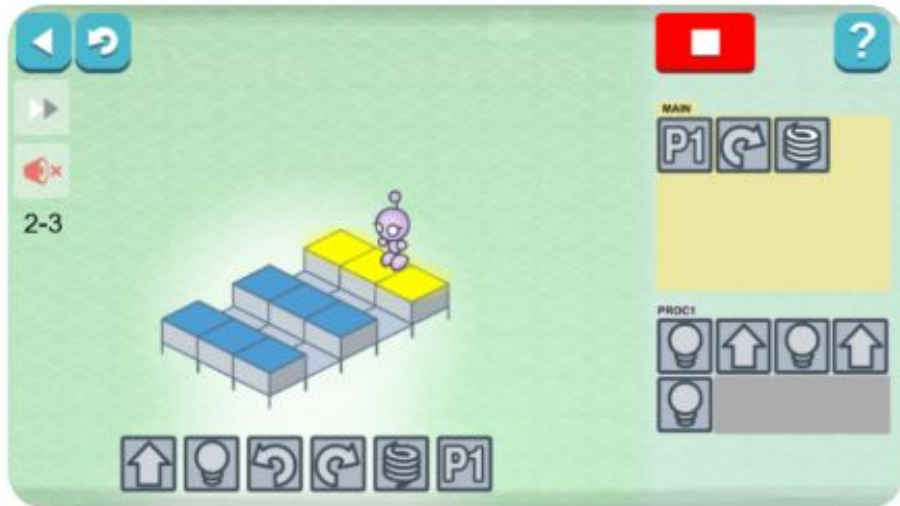
lightbot™

<https://lightbot.com/>

Kodable

[https://game.kodable.com/  
hour-of-code#self-guided](https://game.kodable.com/hour-of-code#self-guided)





## What You'll Learn

- Sequencing
- Overloading
- Procedures
- Recursive Loops
- Conditionals

# Intro to Programming (Pre-readers welcome)

Play online ▶



Download on the  
App Store

## About the Lesson *Recommended grades K-5*

Kodable is a self-guided game that introduces kids 5+ to programming basics. Having a teacher or parent nearby is optimal, but not necessary. Happy coding!

Students will be guided to the world of the Fuzzes and can choose from four coding games in Kodable.

Lesson plans for each grade:

K

1

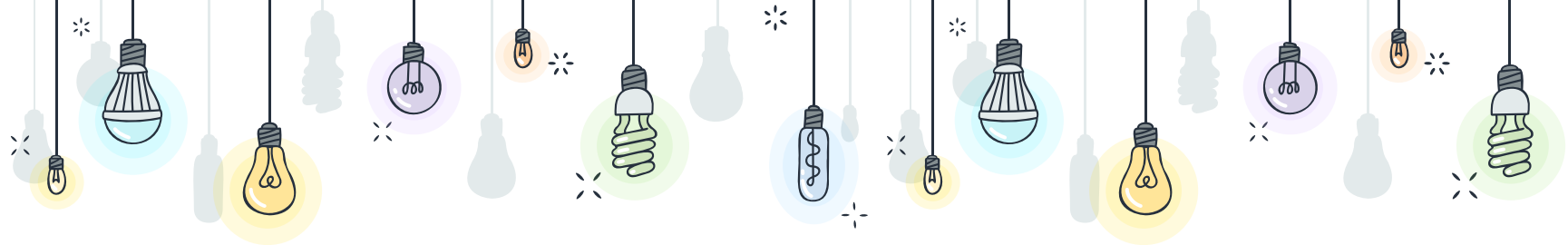
2

3

4

5







1

# ANIMATED CHARACTERS

**Energy Sources** using **Scratch**





**energy valen juani A**  
by vickys16



**Energy Mia and Jazmin...**  
by vickys16



**Energy Matías 4thC**  
by vickys16



**Energy Manu and Juan...**  
by vickys16



**Energy Lola and Matild...**  
by vickys16



**Energy Julián and Baut...**  
by vickys16



**Energy Juanto 4thC**  
by vickys16



**ENERGY FRANCO and ...**  
by vickys16



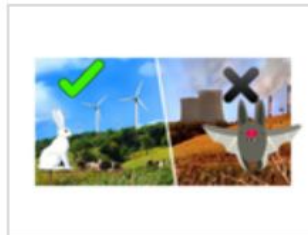
**Energy FAUSTI y VITO ...**  
by vickys16



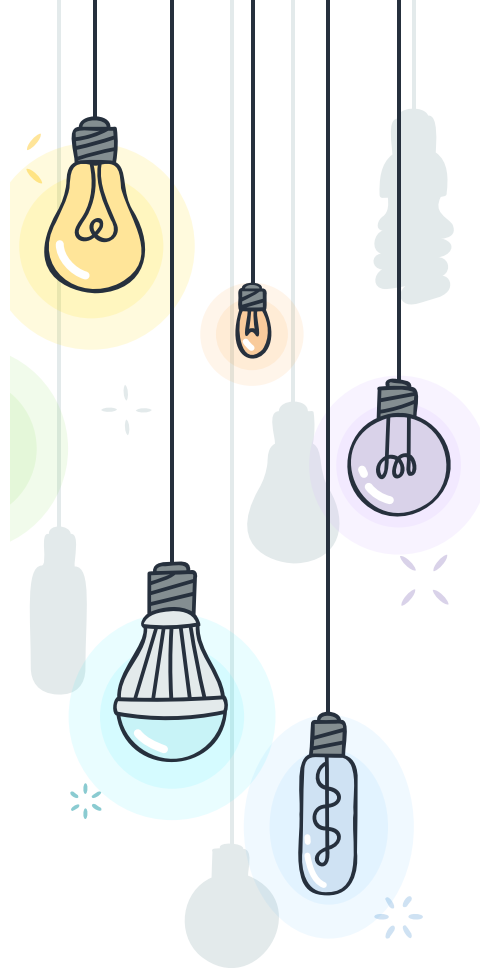
**Energy Eze Z 4thC**  
by vickys16



**Energy MORENA GAR...**  
by vickys16



**4thC pc11**  
by vickys16





2

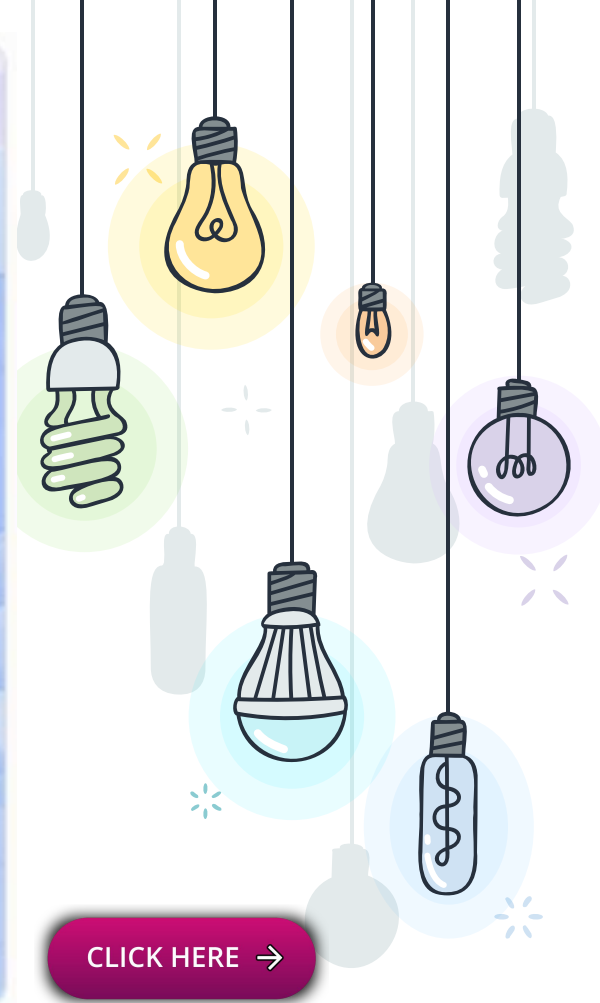
# ANIMATED TEXT

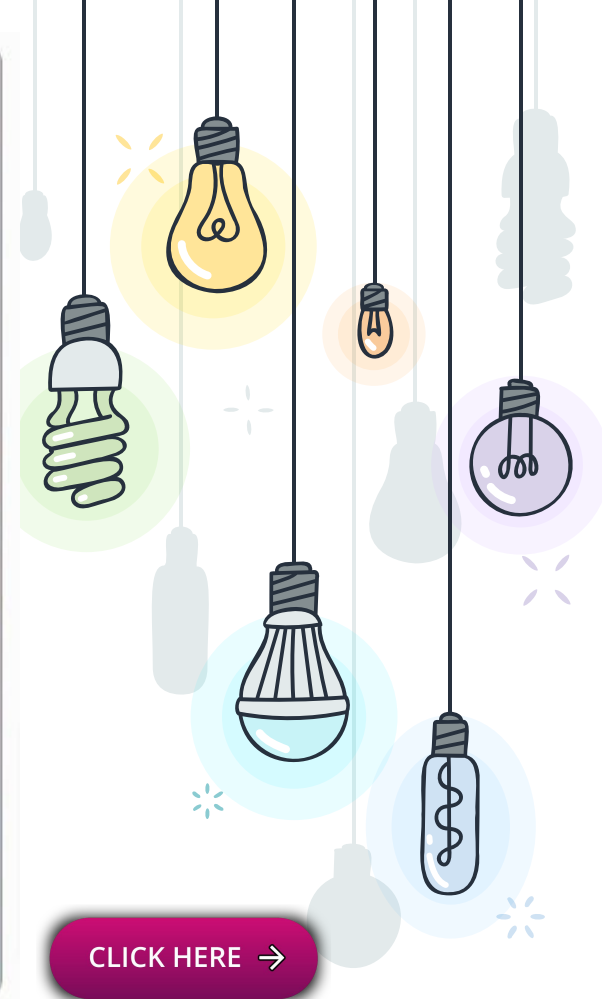
**SDGs** using **Scratch**

Tt









3

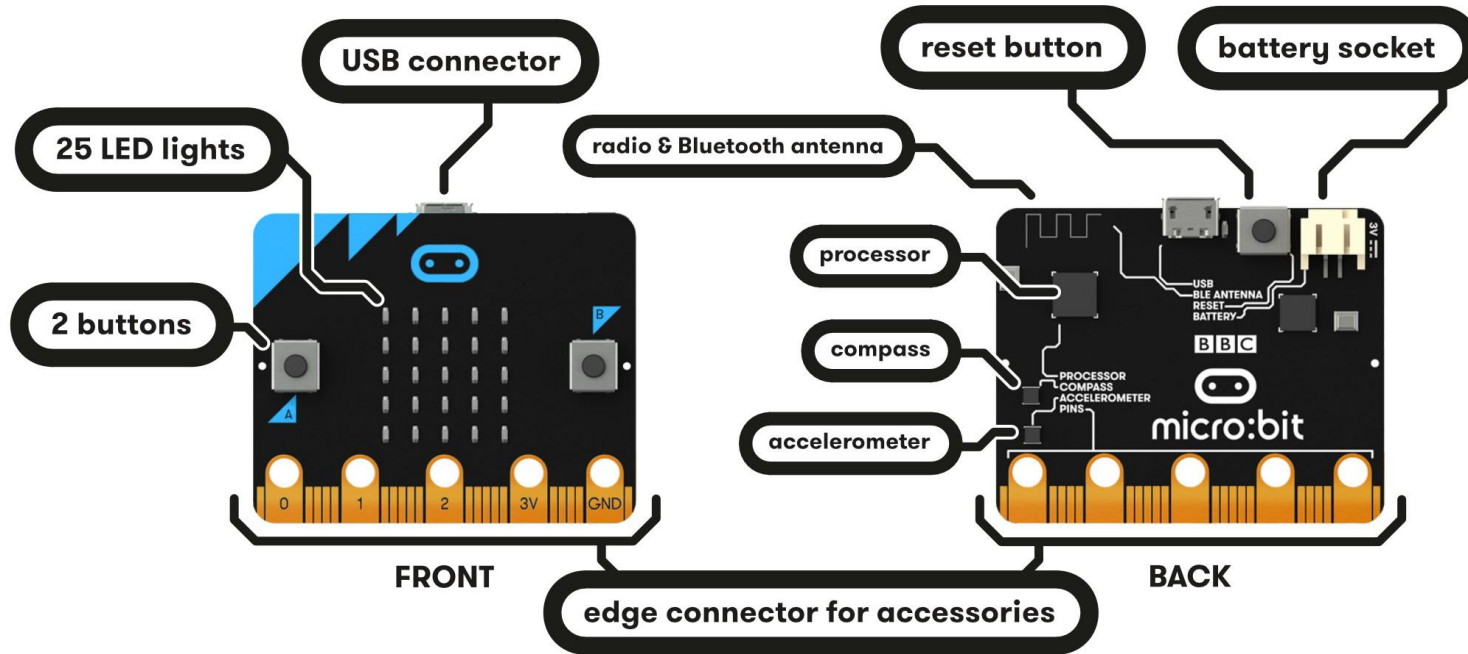
# CODING STORIES

**SDGs** using **Scratch**



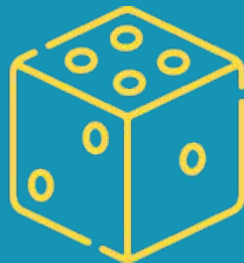


# MICRO:BIT FEATURES



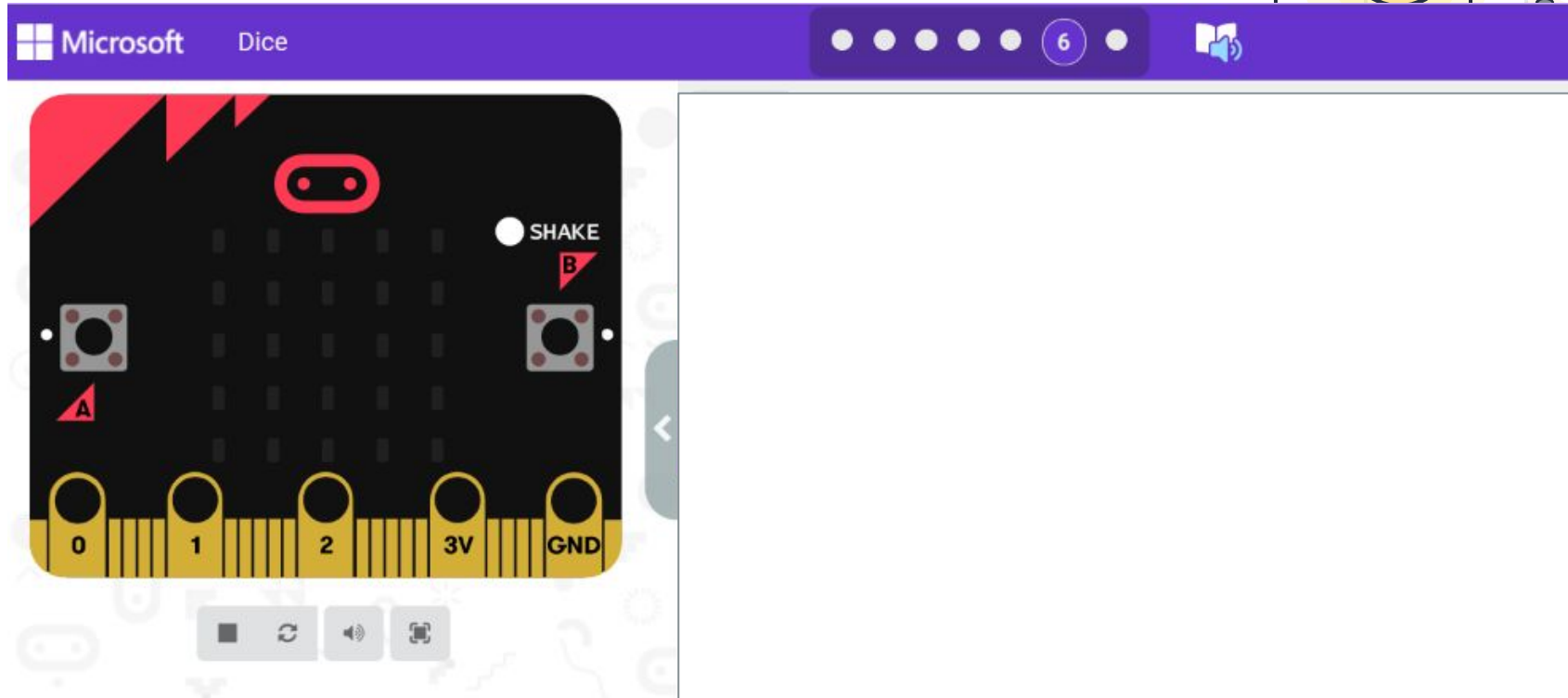
4

# CODING A DICE AND A RIGHT/WRONG SOUND WARNING SDGs using **Micro:bit**





# \* MICRO:BIT DICE

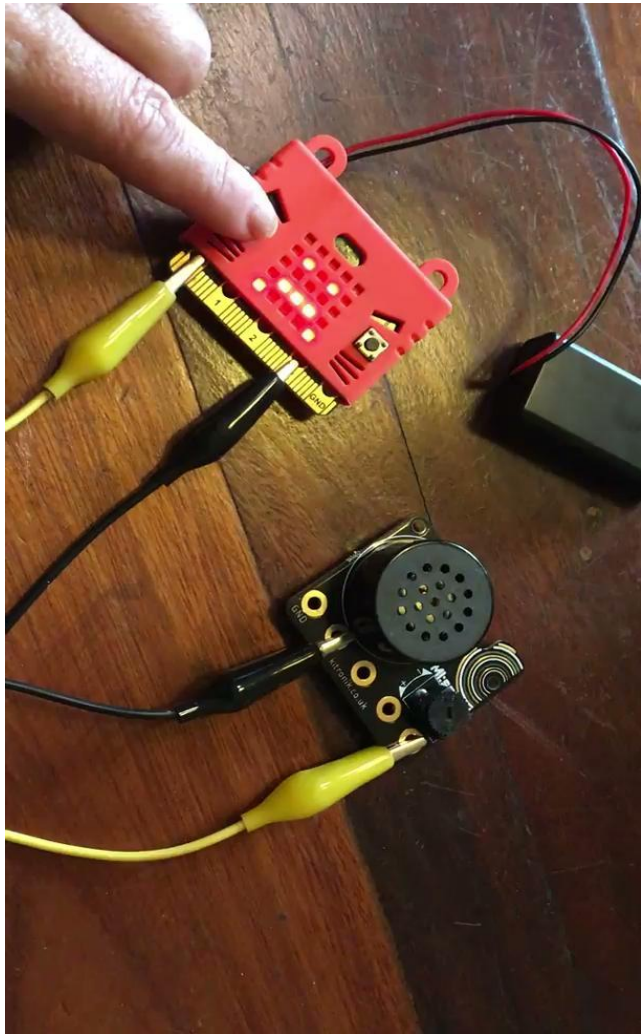


# \* MICRO:BIT DICE

The screenshot displays the Microsoft MakeCode Micro:BIT simulator interface. The top bar is purple and contains the Microsoft logo, the text "Dice", a progress indicator with six dots (the sixth dot is highlighted), and a speaker icon. The main workspace is divided into three sections:

- Left Panel:** A visual representation of the Micro:BIT board. It features a red LED display at the top showing the number "6". Below the display are two square buttons labeled "A" and "B". At the bottom, there are five pins labeled "0", "1", "2", "3V", and "GND".
- Middle Panel:** A sidebar with a "Back" button and a category menu. The menu includes "Basic" (selected), "Input", and "Math".
- Right Panel:** The code editor area. It contains a single block: "on shake" (a pink block) containing a "show number" block (a blue block) which is further connected to a "pick random" block (a purple block) with the range "1 to 6".

Below the workspace, there are four small icons: a square, a refresh/circular arrow, a speaker, and a camera. The background of the simulator is light gray with faint, repeating Micro:BIT logos.



## MICRO:BIT RIGHT/WRONG SOUND WARNING





# SUSTAINABLE DEVELOPMENT GOALS

The purpose of the GO GOALS! game is to help you understand the Sustainable Development Goals, how they impact your life and what you can do every day to help achieve the 17 Goals by 2030. Let's play together to make the world a better place! [sdg-goals.org](http://sdg-goals.org)

Created and designed by the United Nations Regional Information Centre (UNRIC), in partnership with: [sdg-goals.org](http://sdg-goals.org)







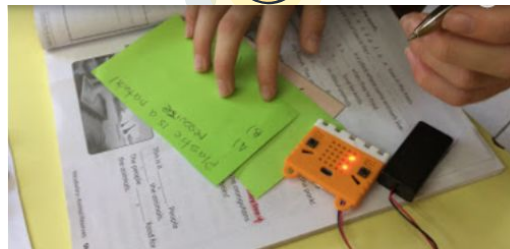
5

# CODING A 2-OPTION POLL

**SDGs** using **Micro:bit**









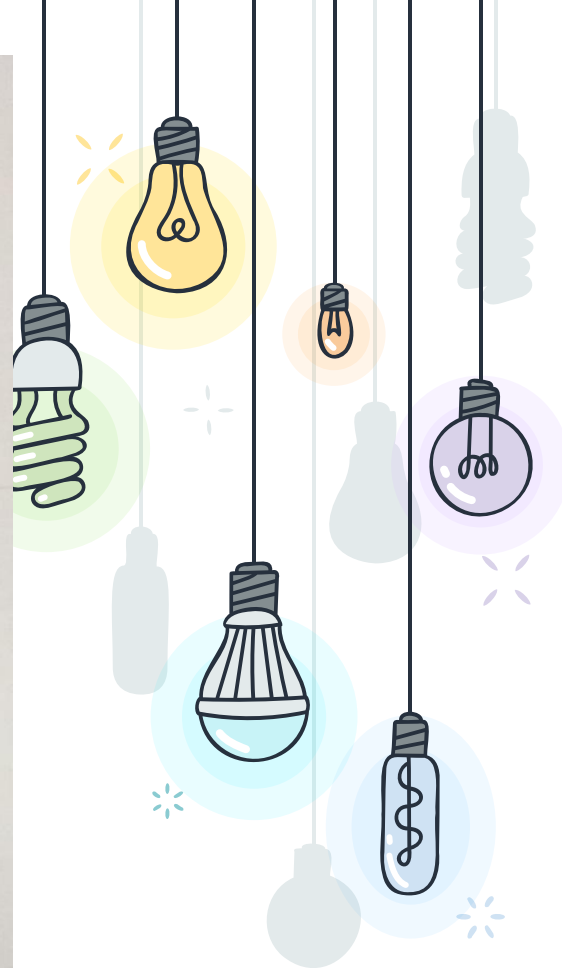
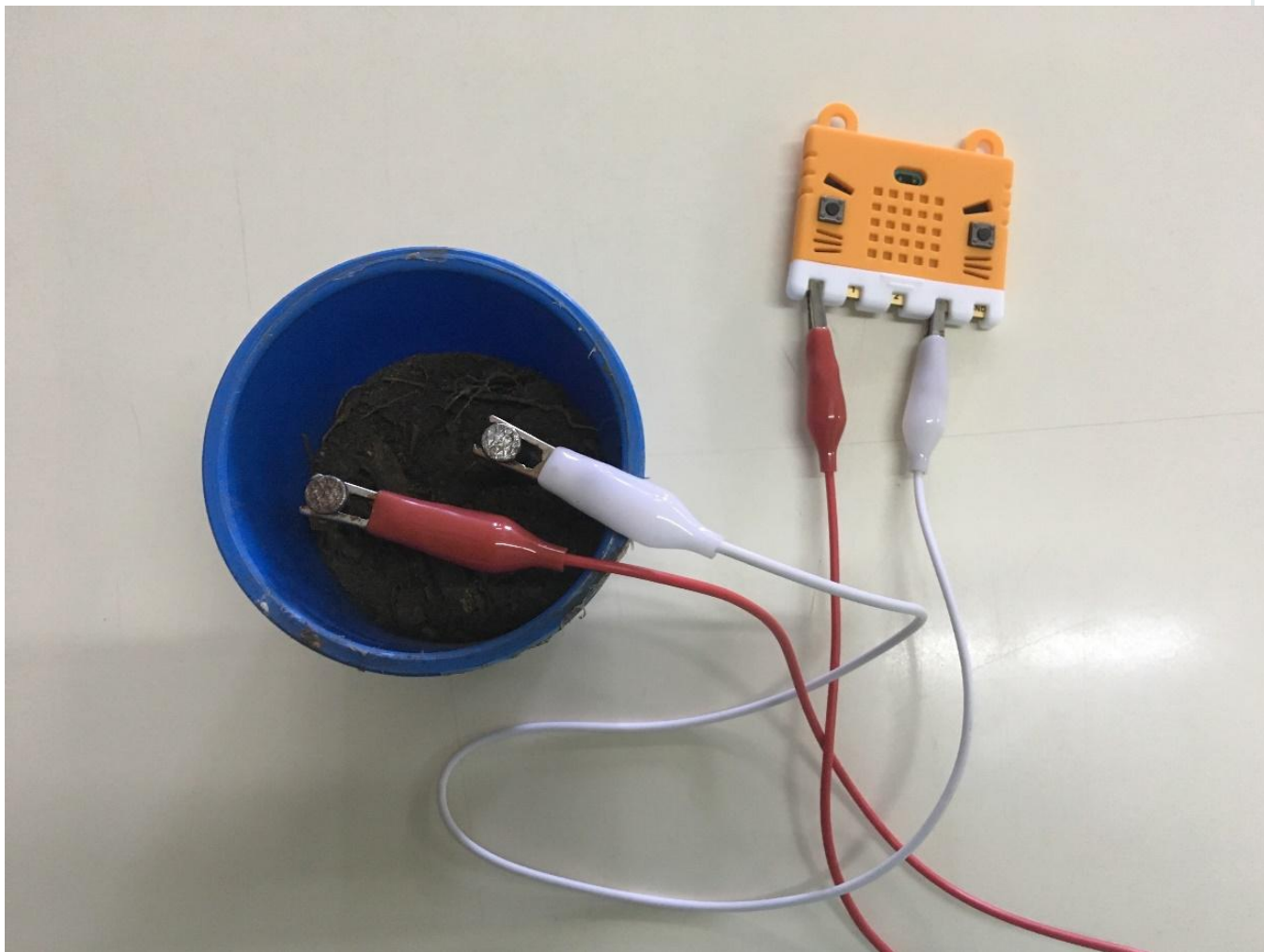
# 6

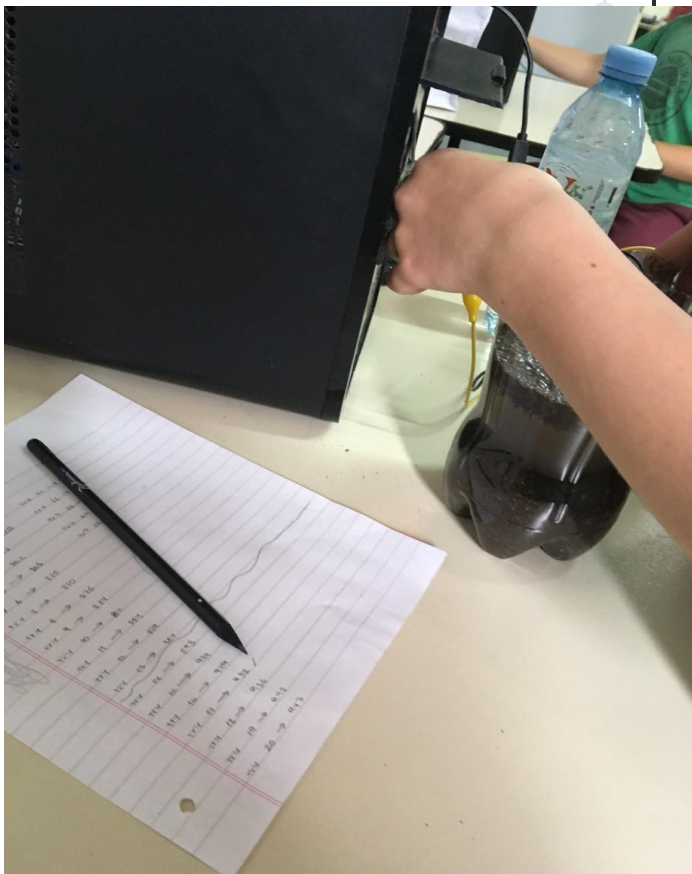
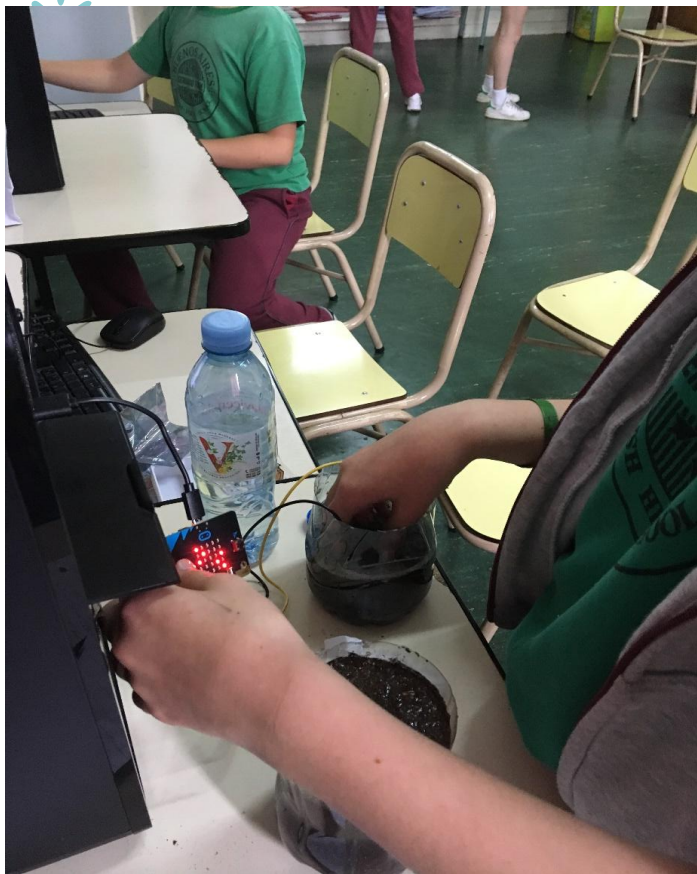
## CODING A MOISTURE SENSOR

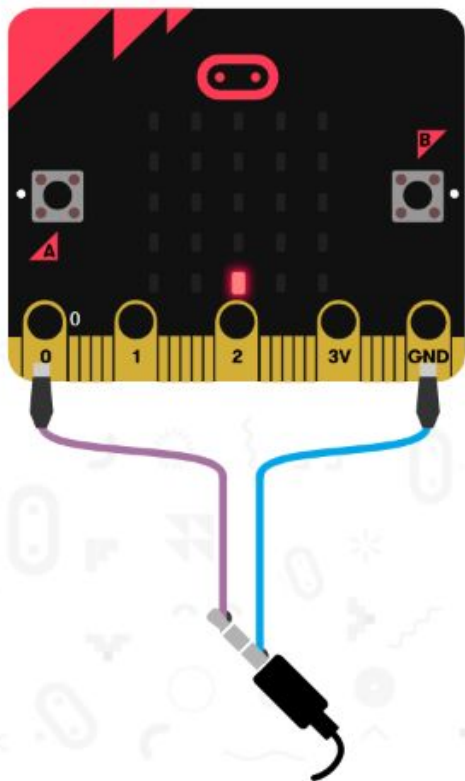
**SDGs** using **Micro:bit**











Search...



Basic

Input

Music

Led

Radio

Loops

Logic

Variables

Math

Advanced

forever

plot bar graph of analog read pin P0

up to 1023

if button A is pressed then

show number analog read pin P0

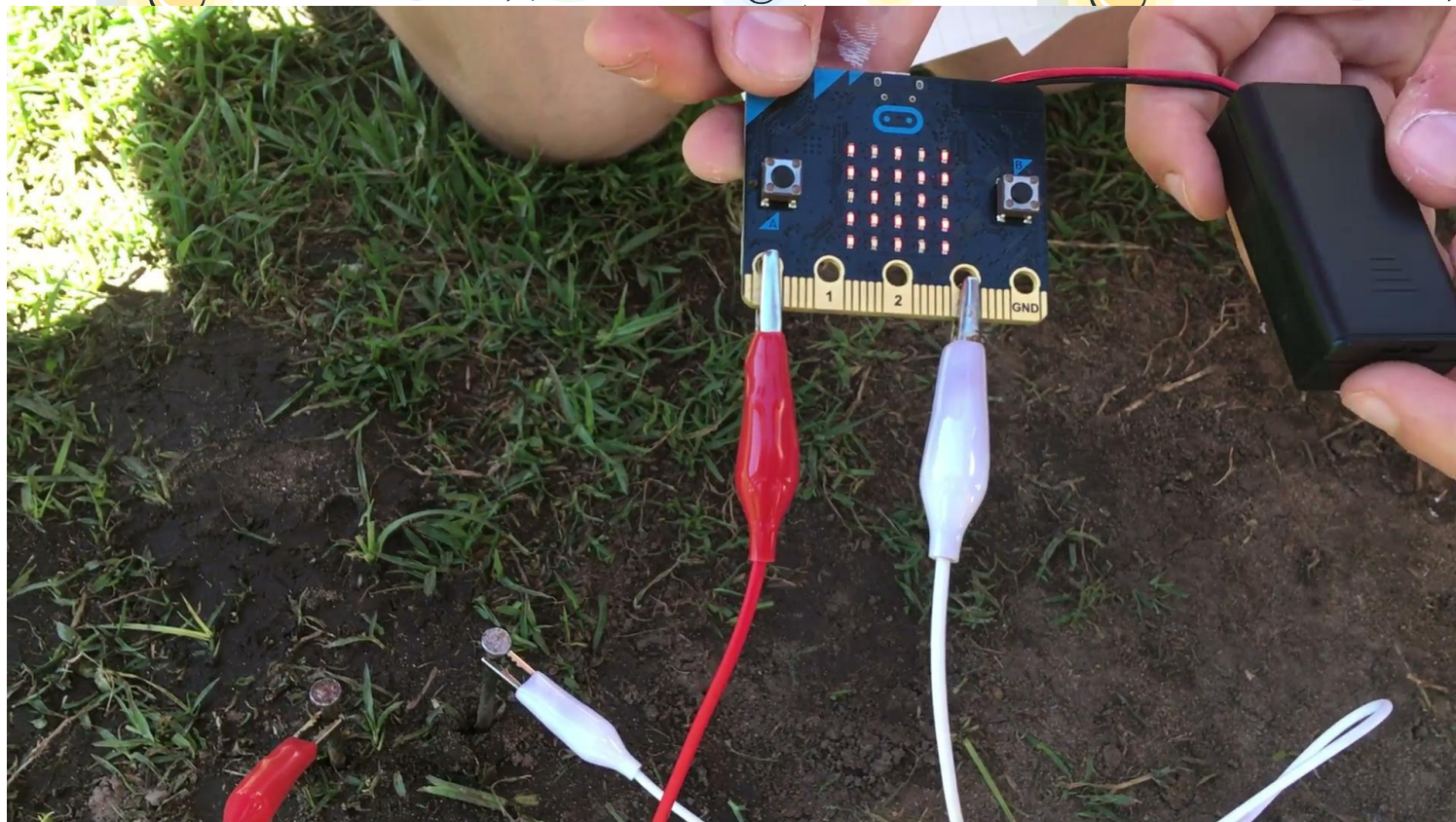
if analog read pin P0 < 300 then

play tone Low C for 1 beat

if analog read pin P0 > 900 then

play tone High B for 1 beat





# MICRO:BIT TUTORIALS

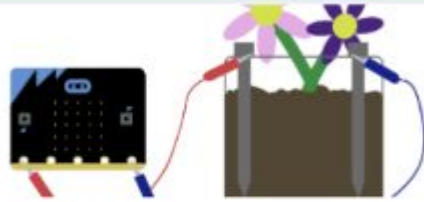


Dice

[https://makecode  
.microbit.org/](https://makecode.microbit.org/)



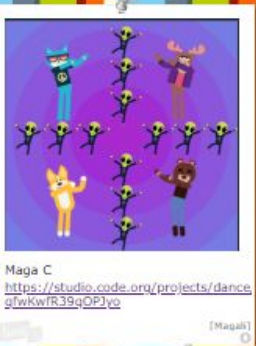
Voting Machine



Soil Moisture



Welcome to our many dance parties coded by BAEHS Year 7 students! Click on the links to see them.



[Magalhães]



[Manuela]



[Lucia]  
O



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# BONUS TRACK

## Dance parties



# BONUS TRACK

## Star Wars: Building a galaxy





# RESOURCES



**Code.org** > <https://code.org/>

**Hour of Code** >

<https://hourofcode.com/es/gb/learn>

**Scratch** > <https://scratch.mit.edu/>

**Micro:bit** > <https://makecode.microbit.org/>



# RESOURCES

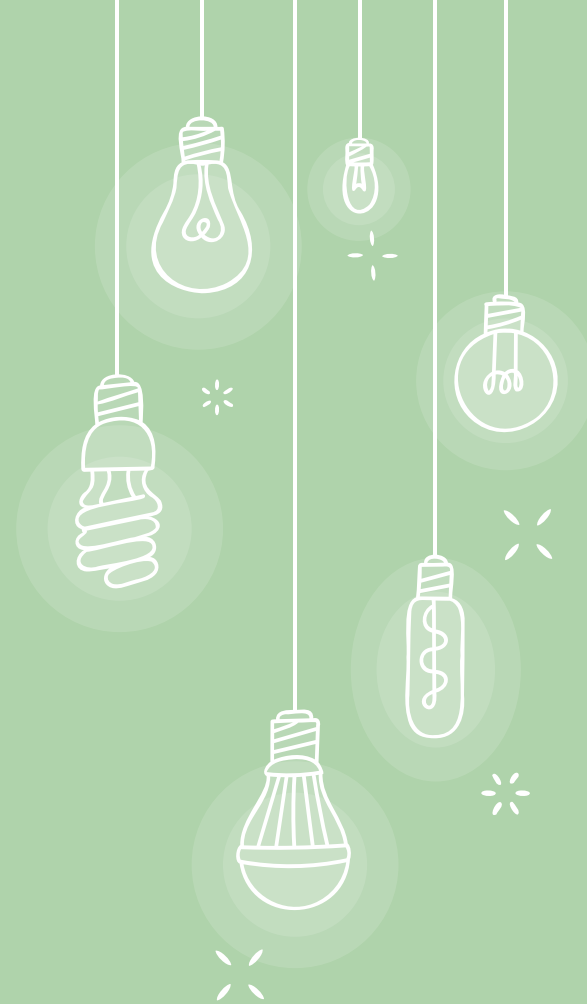


**Dance parties tutorial >**

<https://code.org/dance>

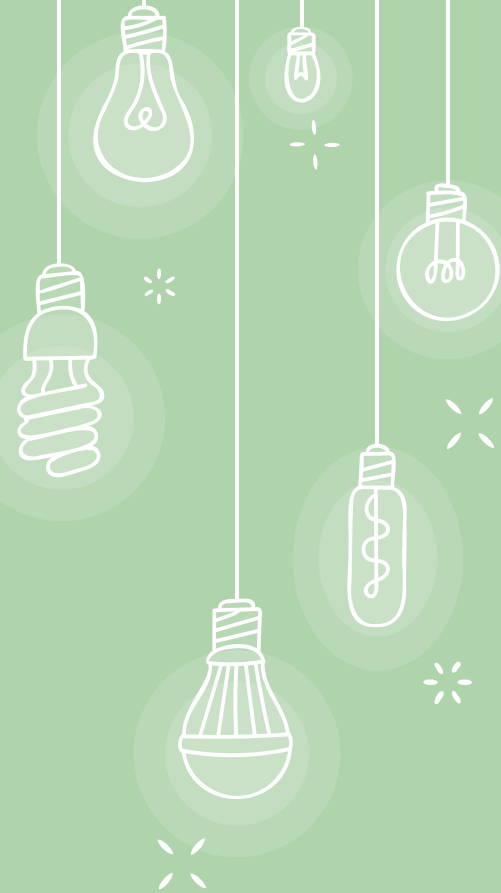
**Star Wars game tutorial >**

<https://code.org/starwars>





*What questions  
do you have?*



# VICKY SAUMELL



VICKYSAUMELL



@VICKYSAUMELL



@VICKYS16



VICKYSAUMELLELT



WWW.VICKYSAUMELL.COM



*Thank  
You!*

Slides Carnival