OurKidsCode
FAMILY CODING CLUBS

STEAM TEAM

1. Setup
2. Warm up
3. Create
4. Share
5. Reflect
6. Plan

Workshop Guide

MICRO:BIT

ROBOT

COLLECT A BIG STICKER HERE

When you complete the Project!



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

comhairle chontae na mí
meath county council

Taighde Éireann
Research Ireland

BEFORE WE START

Be positive & read the words below together as a family.



BE POLITE AND SAFE

Use kind words, be patient and respectful of others



BE FRIENDLY

Make friends, ask questions and share learning.



BE CURIOUS

Show interest, share ideas, there's no such thing as "bad questions or wrong answers."



TAKE ACTION

Make decisions, note results and enjoy the activity.



RECOGNISE EFFORT & ACHIEVEMENT

Cheer your own and other's successes alike.

Write some kind words or draw pictures.

Write or draw one good thing each of you has done recently.

Think about how you had a good time in last week's workshop. What made it good for you?

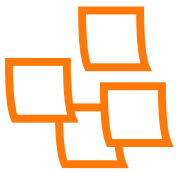
1 SETUP

SELECT YOUR ROLE IN YOUR TEAM:



ORGANISER

- ❑ Write a simple plan with the team
- ❑ Make sure the team starts and stops on time
- ❑ Collect stickers for finishing each step



DESIGNER

- ❑ Turn ideas into a picture for the team
- ❑ Show what the project will look like
- ❑ Partner with maker and coder



CODER

- ❑ Build the brain of the project
- ❑ Operate the laptop/tablet/phone
- ❑ Connect the coding blocks on MakeCode website
- ❑ Test the code and fix mistakes



MAKER

- ❑ Build the body of the project
- ❑ Cut and prepare material
- ❑ Partner with the designer on how to decorate it



REVIEWER

- ❑ In the end, check and review the project
- ❑ Is it working? Does it look right?
- ❑ Any steps missing?

Collect the following for this project:

- ❑ Micro:bit
- ❑ Laptop/Tablet
- ❑ Paper Cup
- ❑ 2 LEDs
- ❑ 4 Crocodile Clips
- ❑ Art/craft materials

2 WARM UP

ORGANISER TASK



LET'S HAVE SOME FUN!

Get on your feet and play the game – **Lights On!**

GAMEPLAY

01. Format

- ❑ Make sets of 4 role cards on pieces of paper with the words below. Make enough sets that each person in the group can have one word.

1. LED **2. Crocodile Clip** **3. Battery** **4. Buttons**

- ❑ Write "**Robot**" on one additional piece of paper.
- ❑ Fold the role cards to hide the words and mix them in a pile.
- ❑ Everyone picks one card at random and keeps their role a secret!
- ❑ Except: the person who picks "**Robot**" tells everyone they are **Robot**!

02. Goal

- ❑ For a minute or two, everyone moves around the room and does the actions **Robot** shouts out, e.g. "Touch your toes!" "Skip!"
- ❑ When **Robot** decides it's time, they call out **"Lights On!"**
- ❑ When this happens, everyone must reveal their roles and find others to make a group of all four roles: LED, Clips, Battery and Buttons.
- ❑ When you have a full group of four, hold hands to close the circuit and shout **"Lights On!"**

03. Winning

- ❑ The first full group to shout "**Lights On**" - WINS!

WHY DO THIS FIRST?

This warm-up introduces the components we will use in making the robot. Just like players work together in the game, these components work together to create a circuit that brings the Micro:bit Robot to life!



3 CREATE: Make

MAKER + DESIGNER TASK

1



Using the LED wires, punch 2 holes in your paper cup, sticking the LEDs into the cup to make eyes, ears or antennas.

2



Cut out a small piece in the back of the cup to allow space for the crocodile clips.

3



Craft your Robot with your own creativity or you can take inspiration from the images shown.



COLLECT sticker

Coding Video Guide

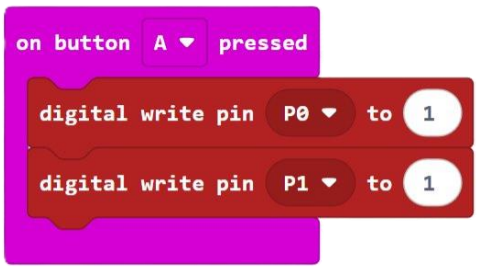
3 CREATE: Code

Ourkidscode.ie/steam-team-robot

CODER + DESIGNER TASK

- ❑ Coder, open makecode.microbit.org and select New Project.
- ❑ Name it Robot and follow the code as shown

1



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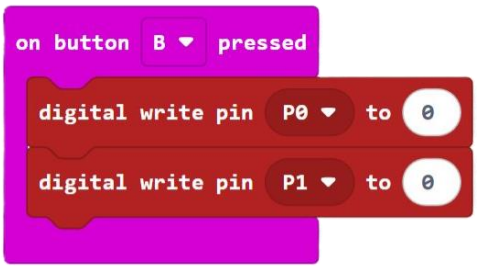
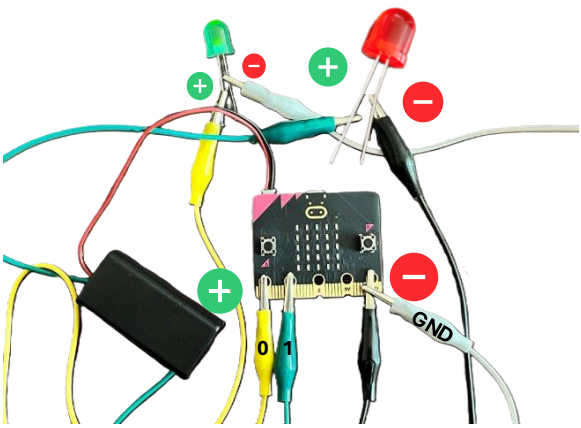


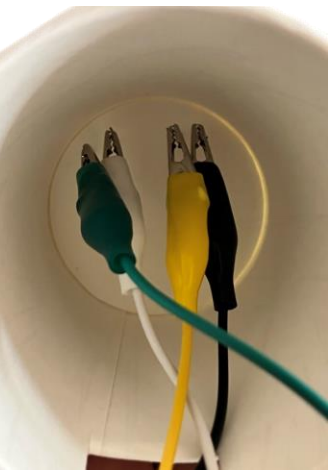
- ❑ Let's connect Micro:bit to LEDs using crocodile clips.
- ❑ As shown on right, connect positive side of Micro:bit (0 & 1) to long legs of LEDs.
- ❑ Connect negative side of Micro:bit (GND) to short legs of LEDs
- ❑ Once complete hand it over to Reviewer.



Hint: The long leg of the LED (anode) is positive, and the short leg of LED (cathode) is negative.

REVIEWER TASK





Connect

Put the LEDs back on the cup as decided by the maker/designer and connect the clips to LEDs. (shown on left)

Download

Connect Micro:bit using USB and download the code. Press button to test the code on the real Micro:bit.

COLLECT sticker

OPTIONAL

ADVANCED: Code

1



- **Coder**, let's build a more advanced code.
- This code turn the LEDs into flashing lights.
- It also adds background music on button press.
- Experiment – try to change sounds, pause times etc.

2





4 SHARE



CONGRATULATIONS!

You made your first Robot!
Name it_____

Introduce your robot to others.
Play with it and have fun
Look at everyone else's work and ask how it went for them

5 REFLECT

Discuss with everyone in the room **what you felt and what could you do in the future**.

- ❑ Did you have fun? Did you help someone?
- ❑ What was your favourite part? Least favourite?
- ❑ Learn anything? Feel more confident?
- ❑ Think you and your family would like to do more?

6 PLAN

At the end of every MeetUp, families plan the next one by choosing a project to work on and deciding who will do which tasks to organise it.

https://ourkidscode.ie/run-a-club

You will find these useful documents on our website:

- ❑ Start a club guide
- ❑ Running a MeetUp
- ❑ Choosing a project
- ❑ MeetUp Checklist
- ❑ Being a team player
- ❑ Forming a family team

Acknowledgements and copyright

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