

# COMPUTATIONAL TINKERING

Programmare,  
Risolvere, Integrare con micro:bit

Gennaio 2020

# Pensiero Computazionale

L'insieme dei **processi mentali** che vengono posti in essere  
nella formulazione di un **problema**  
e della sua relativa **soluzione**

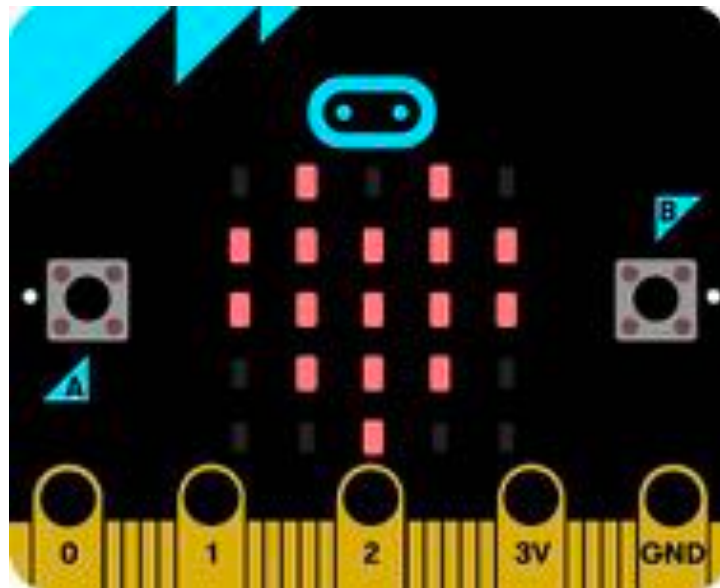


Apollo 13 – Creatività in azione

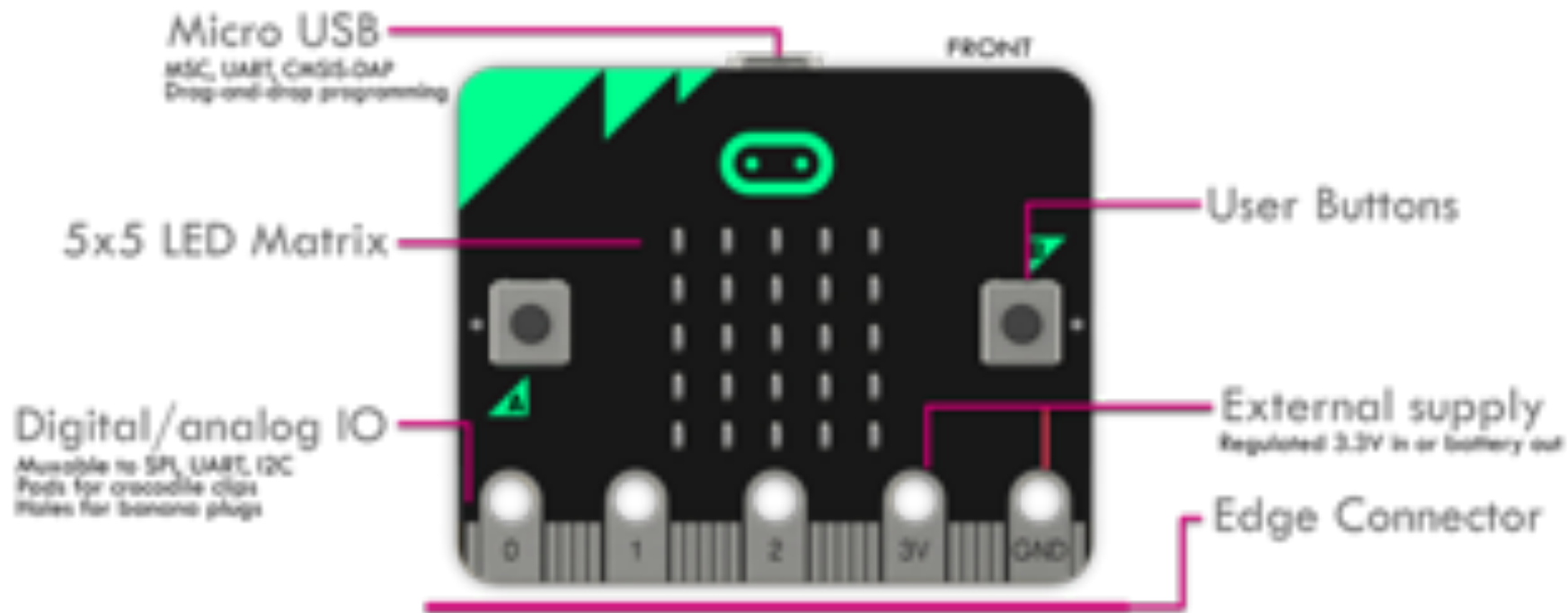
<https://youtu.be/uBe-BZMY2nw>

# Vi presento micro:bit

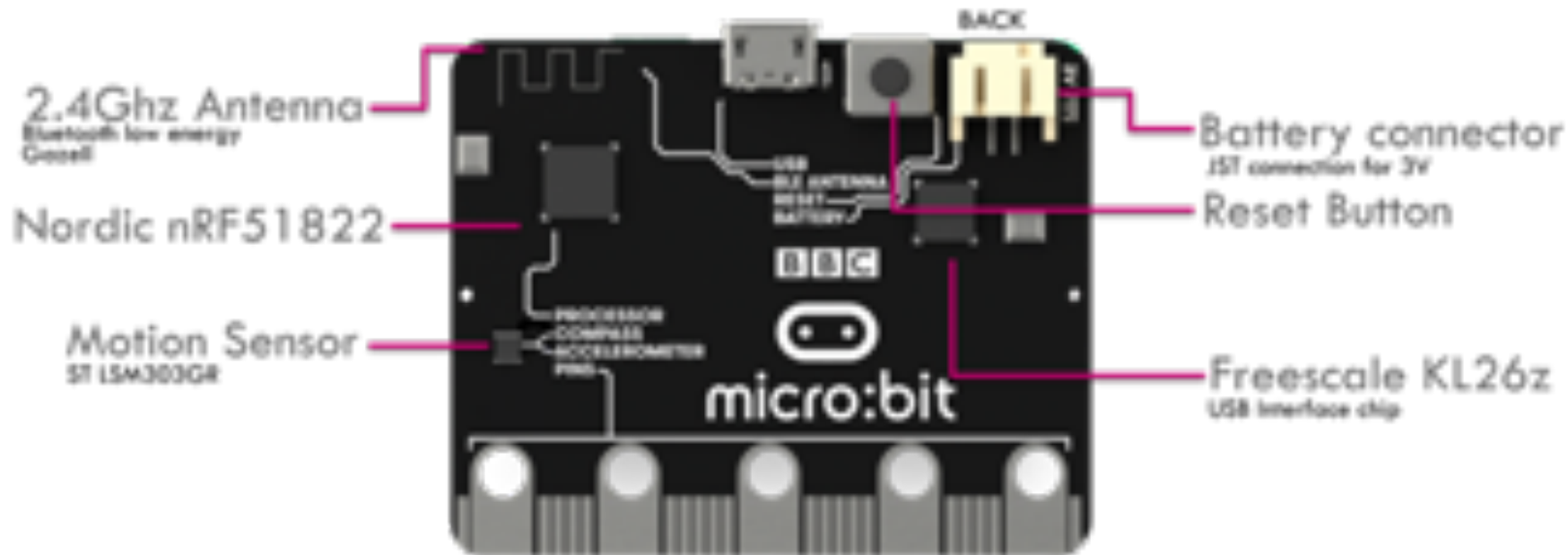


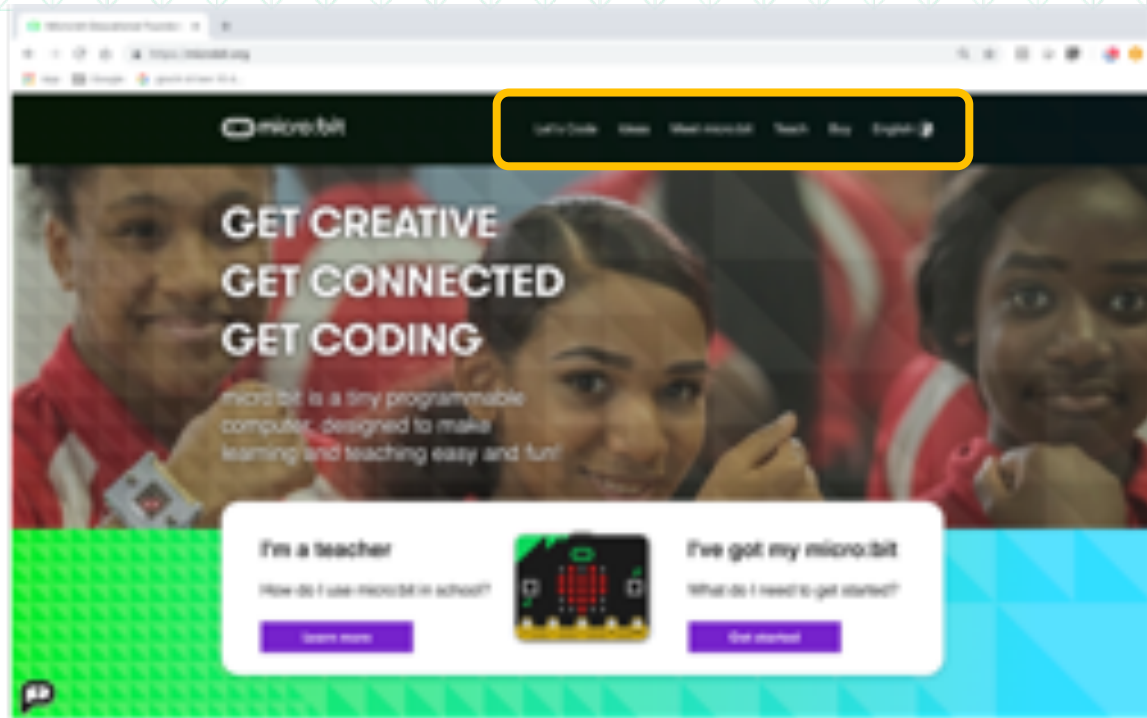


## Selezionare tutte le celle

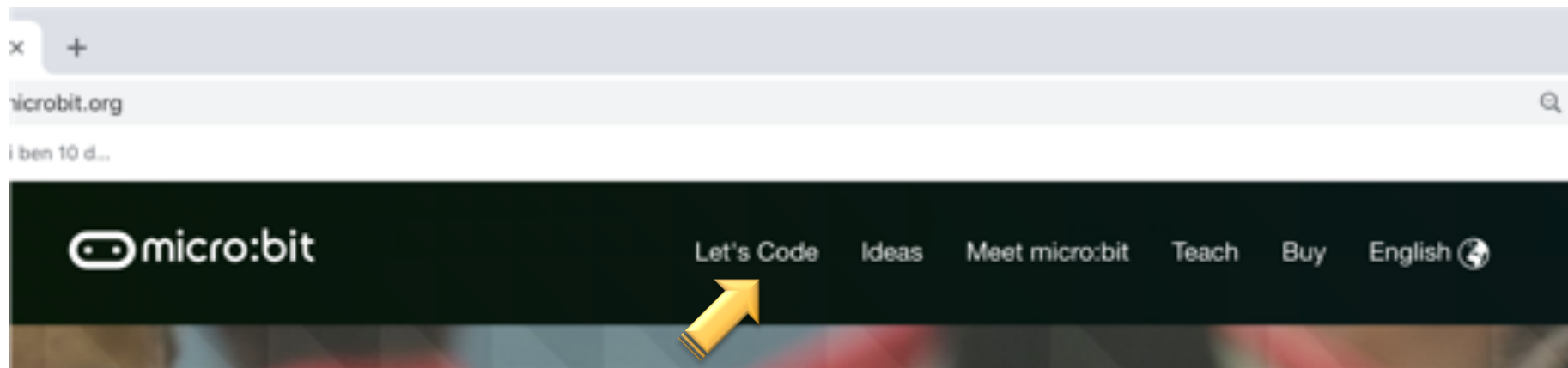


## Selezionare tutte le celle

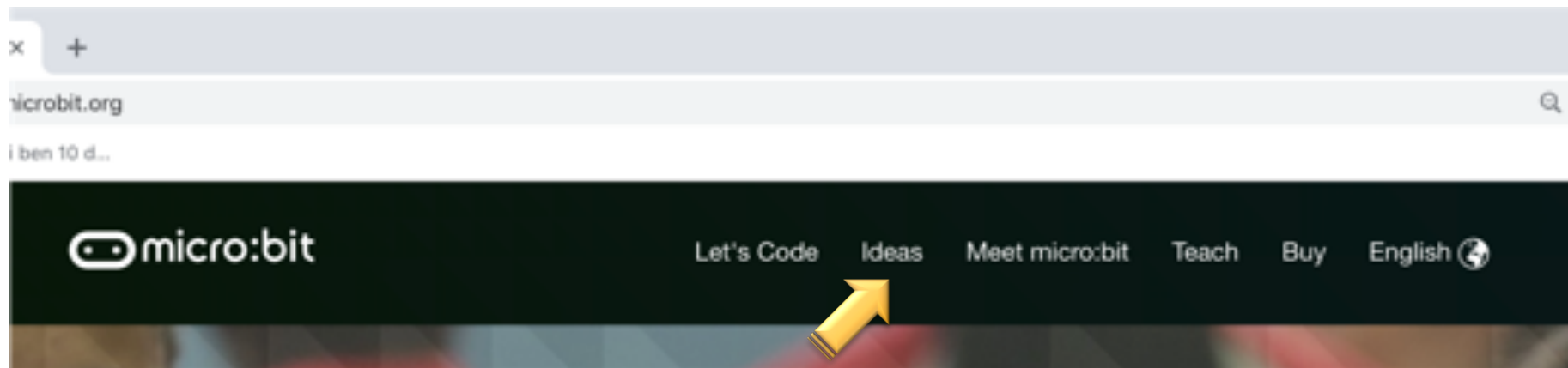




<https://makecode.microbit.org/>

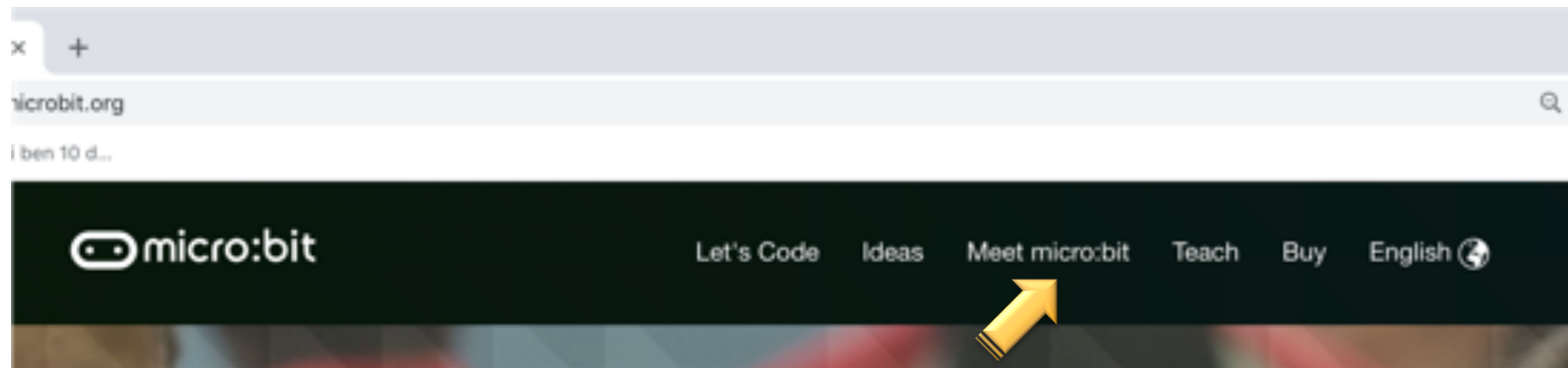


Ambiente di sviluppo per la programmazione

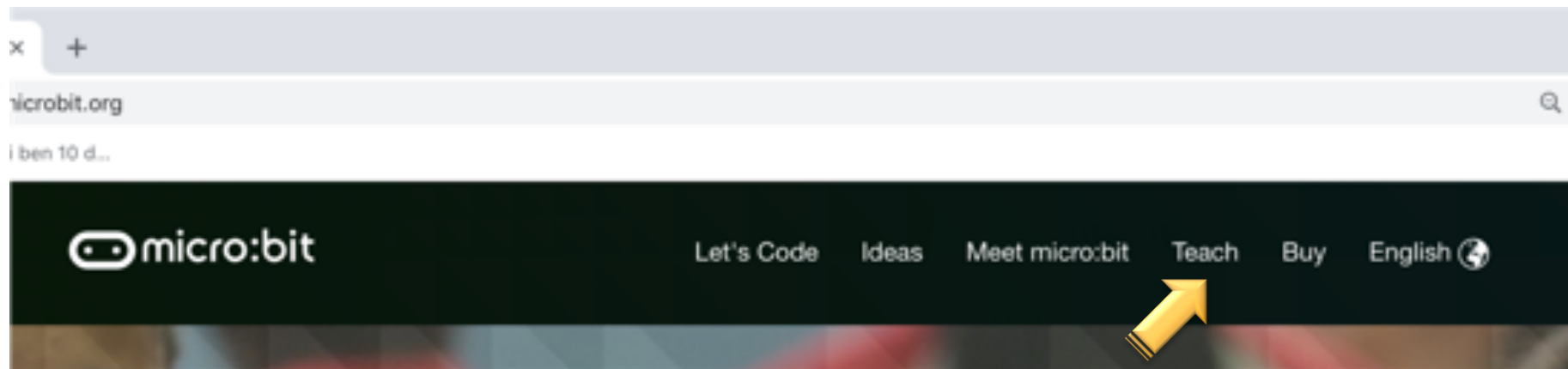


Raccolta di idee utili





## Caratteristiche e Quick Start Guide

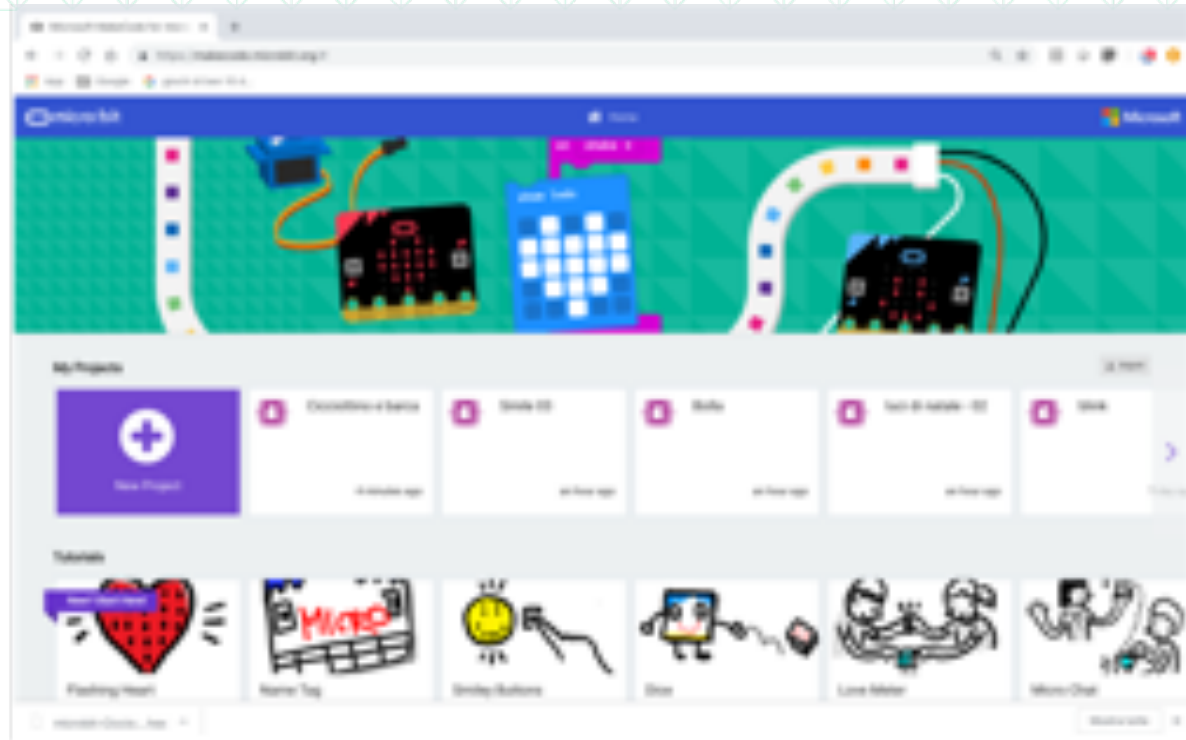


Raccolta di risorse per Insegnanti e Educatori  
(suddivise per materie di insegnamento)

# Risorse on line e supporto

# micro:bit – Help

Risorse on line e supporto

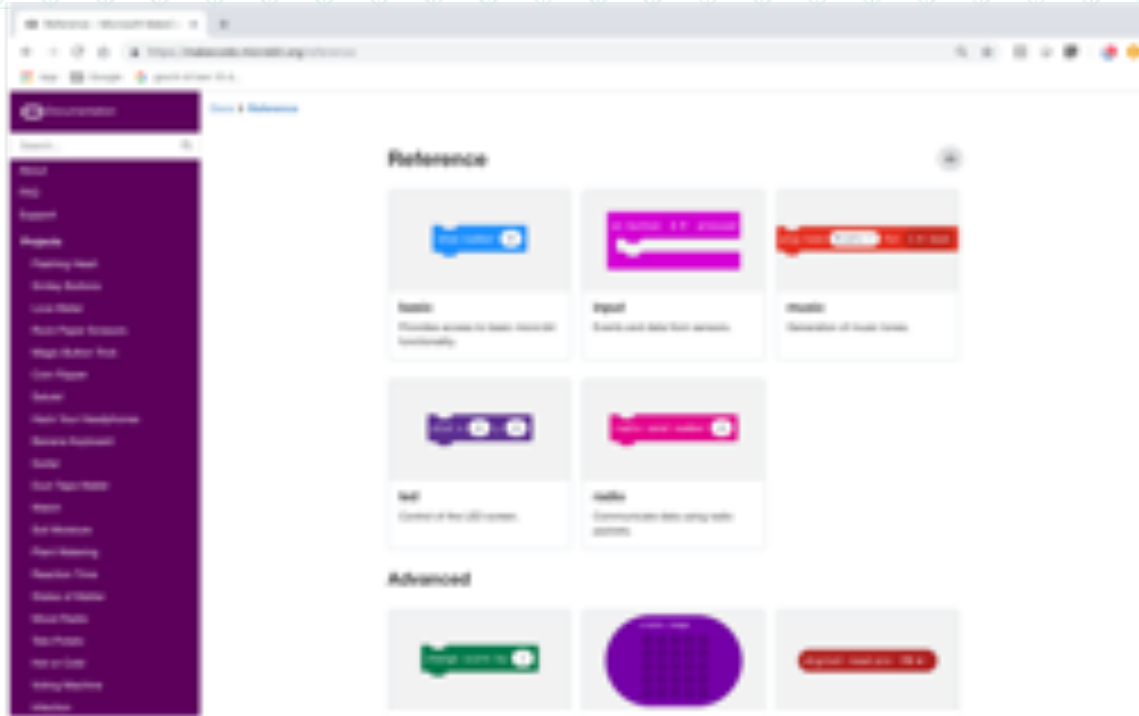


Scorri verso il basso!!



<https://makecode.microbit.org/>

## Risorse on line e supporto



<https://makecode.microbit.org/reference>

# micro:bit – Help

## Quick Start Guide



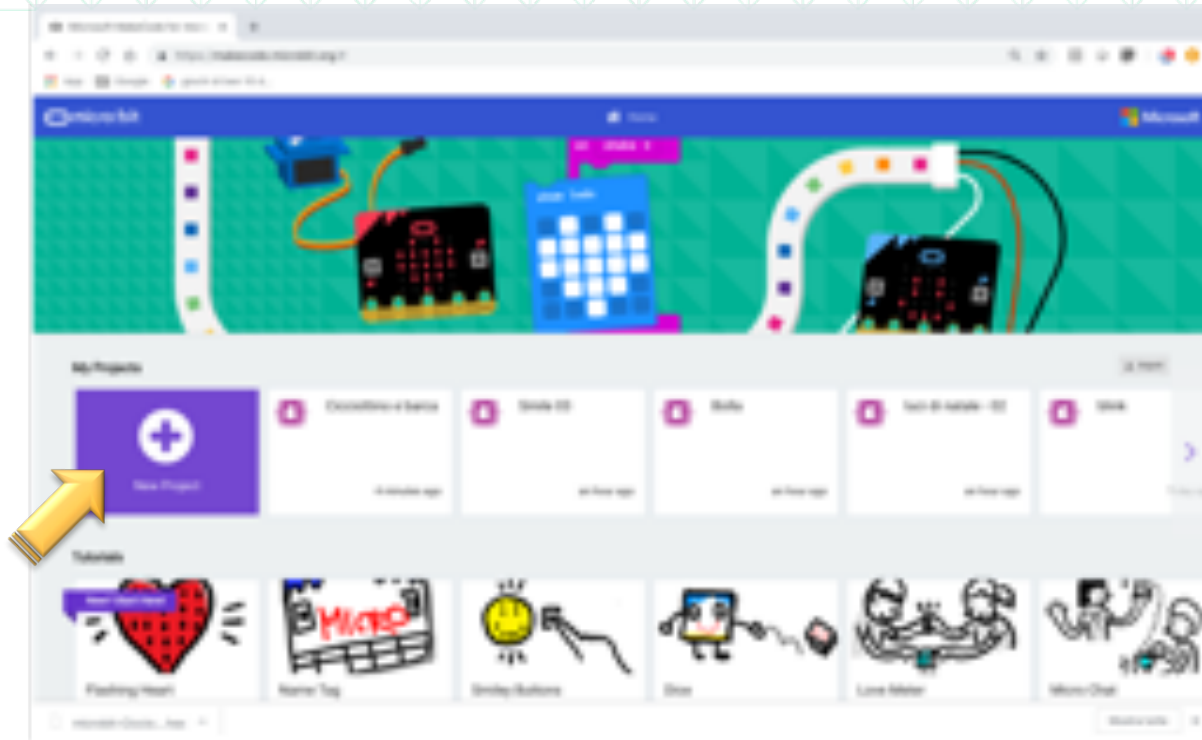
<https://microbit.org/guide/quick/>



# Ambiente di programmazione

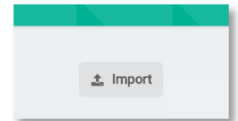
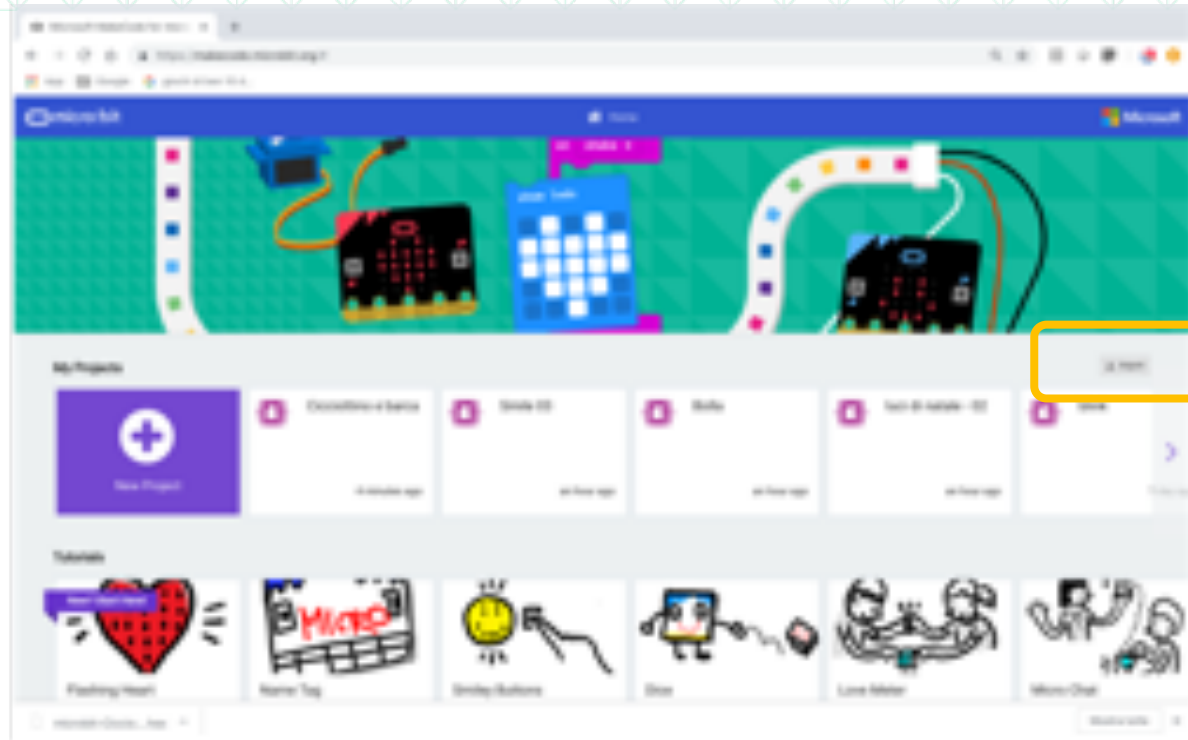
# micro:bit – Help

## Ambiente di programmazione



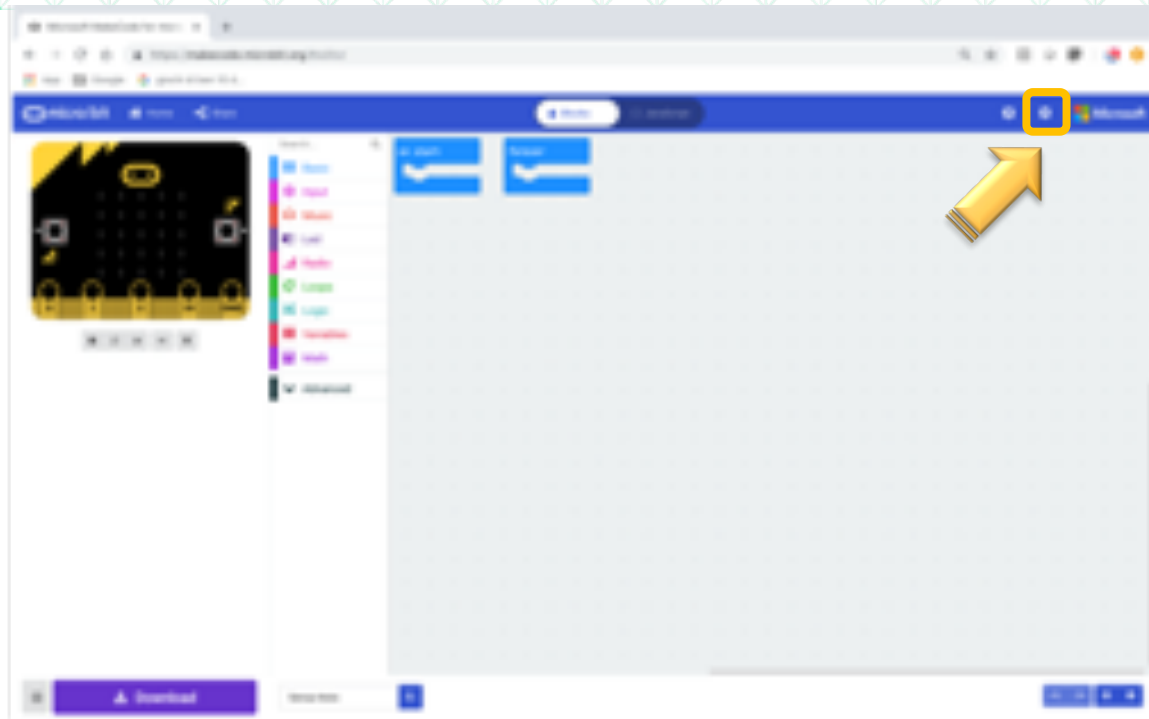
# micro:bit – Help

## Ambiente di programmazione

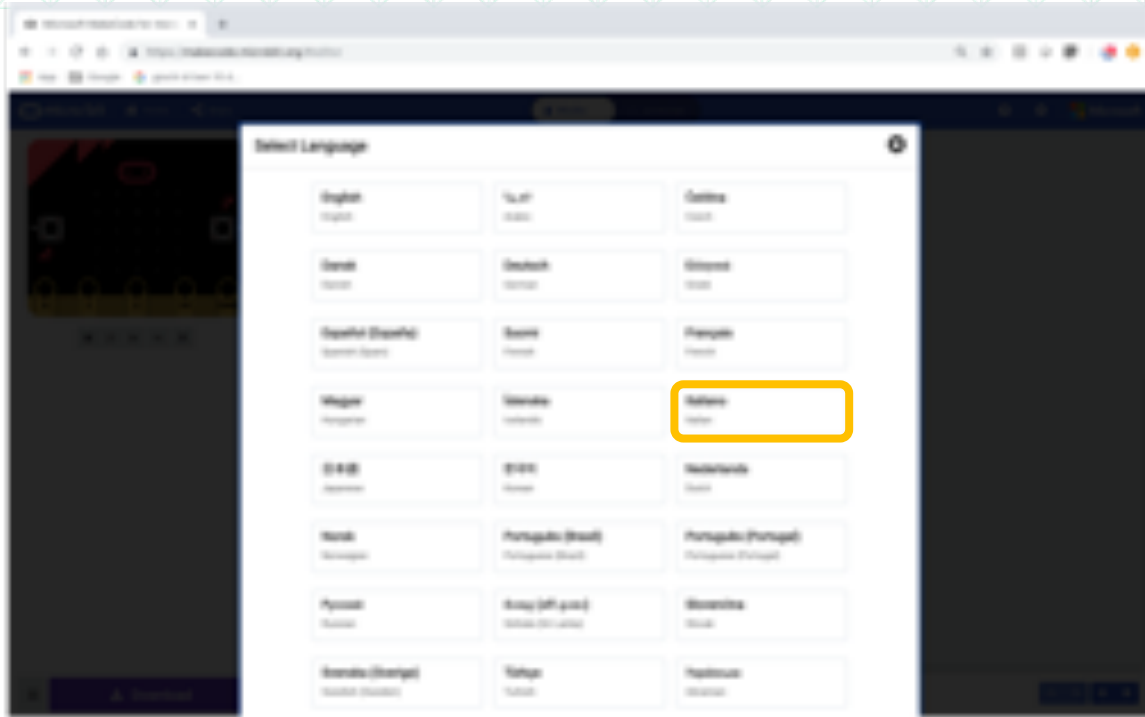


# micro:bit – Help

## Ambiente di programmazione

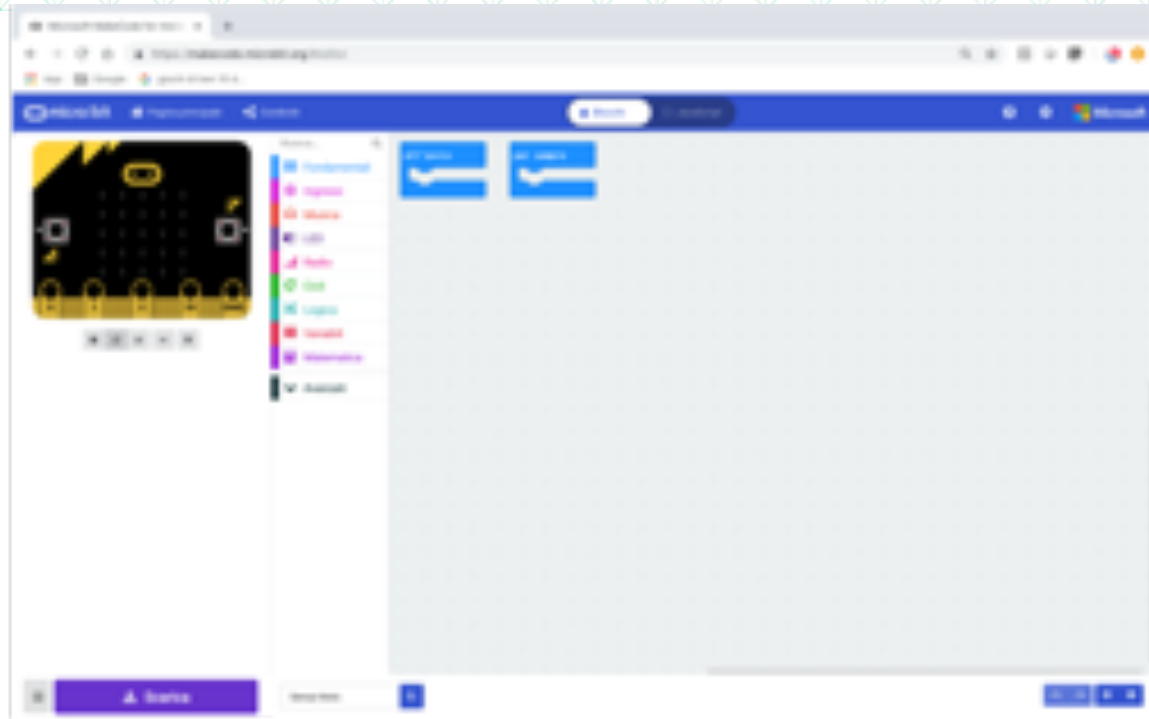


## descrizione dei singoli blocchi



# micro:bit – Help

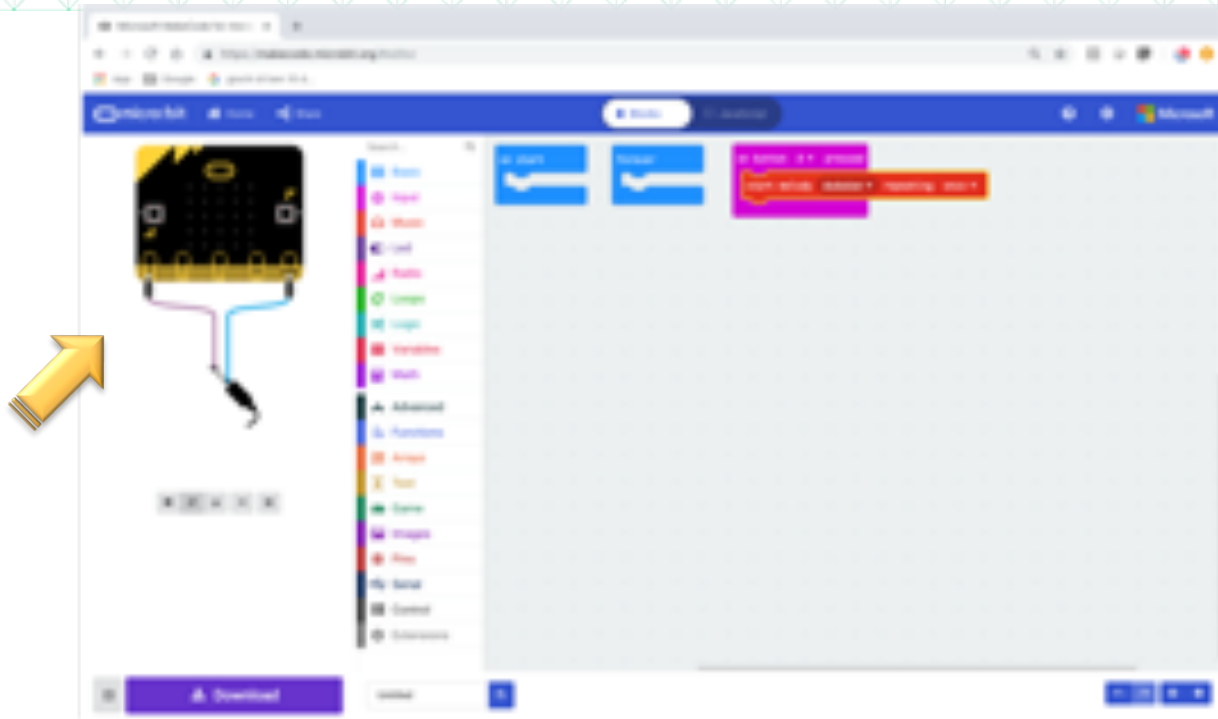
## Ambiente di programmazione





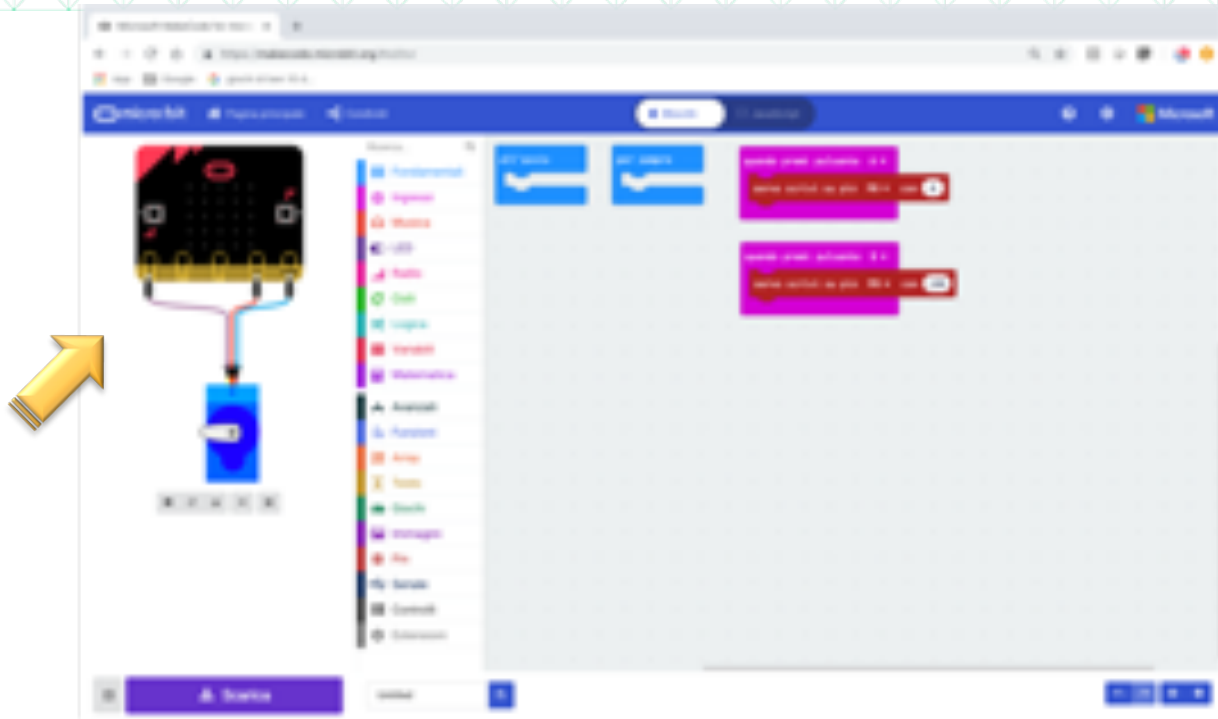
# micro:bit – Help

## Ambiente di programmazione



# micro:bit – Help

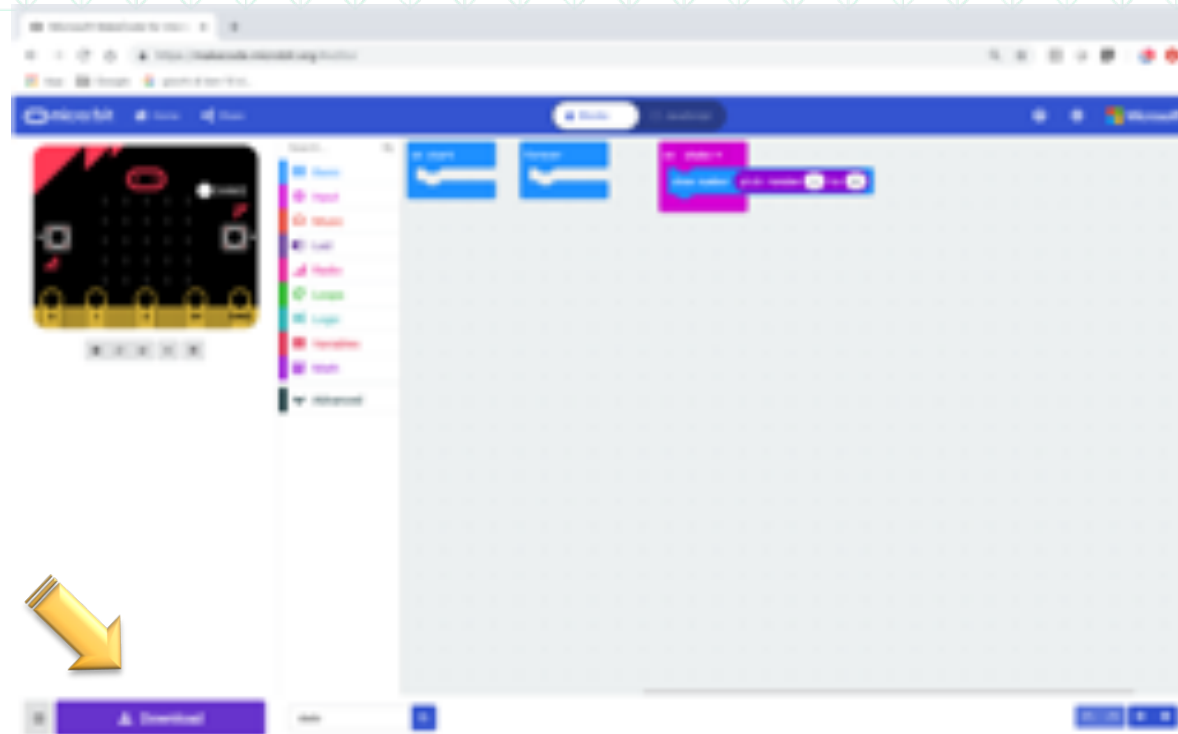
## Ambiente di programmazione



# Come scaricare il programma su micro:bit

# micro:bit – Help

## descrizione dei singoli blocchi



# micro:bit – Help

## descrizione dei singoli blocchi



## Download to your micro:bit



- 1 Connect the micro:bit to your computer with a USB cable

Use the microUSB port on the top of the micro:bit



- 2 Move the .hex file to the micro:bit

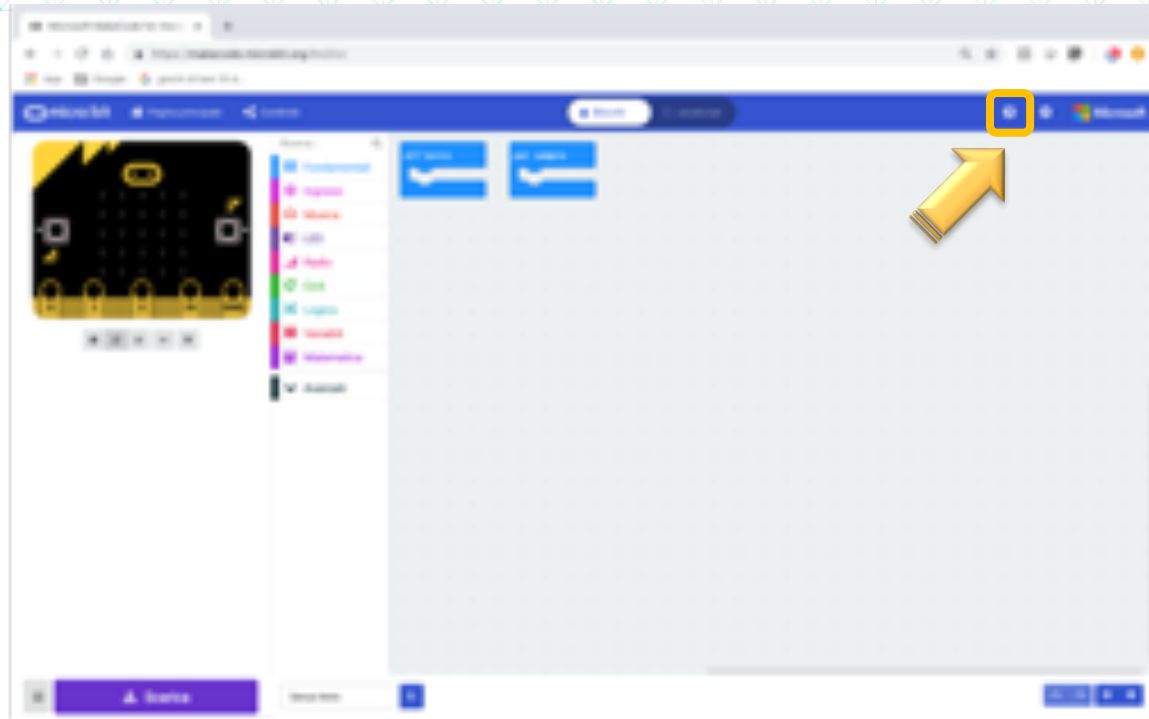
Locate the downloaded .hex file and drag it to the MICROBIT drive



# Aiuto!

# micro:bit – Help

## Quick Start Guide





<https://microbit.org/guide/quick/>

# Let's code!

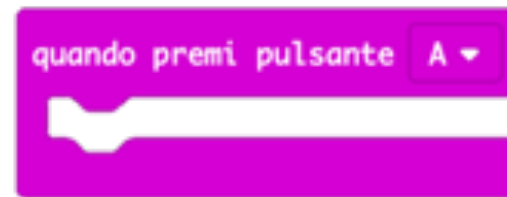
## I blocchi più significativi



Inizializzazioni



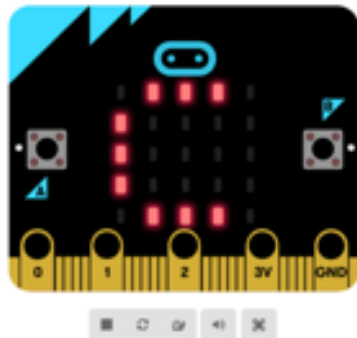
Ciclo Infinito



Evento

# micro:bit – Esempi

## 01 - microbit-ciao.hex



# micro:bit – Esempi

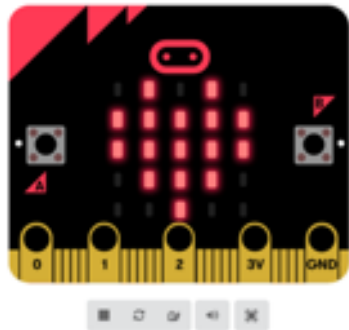
## 02.a - microbit-cuore-statico.hex





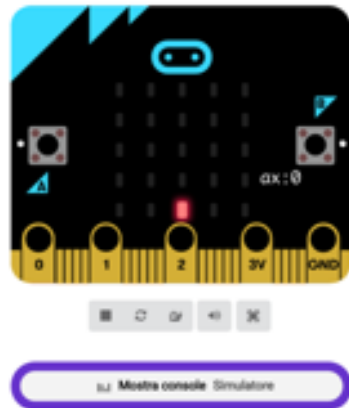
# micro:bit – Esempi

## 02.b - microbit-cuore-dinamico.hex



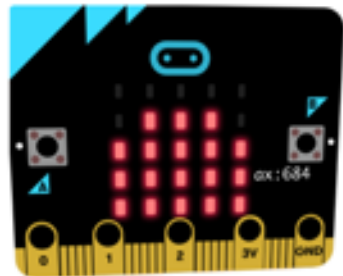
# micro:bit – Esempi

## 03 - microbit-accelerometro-01.hex



# micro:bit – Esempi

## 03 - microbit-accelerometro-01.hex



Mostra console Simulatore

Mostra console Simulatore

all'avvio

per sempre

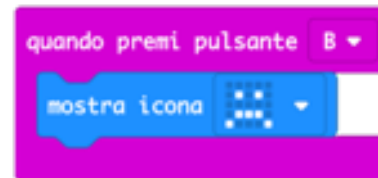
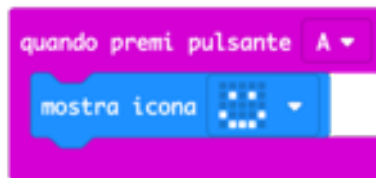
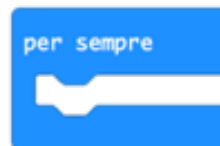
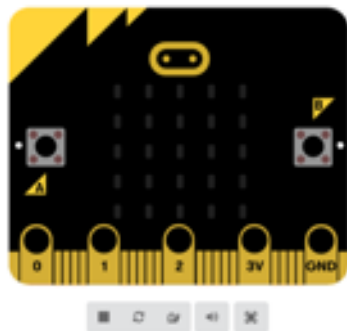
disegna un grafico a barre di accelerazione (mg) x

fino a 0

pausa 100 (ms)

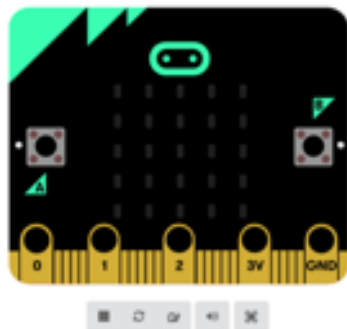
# micro:bit – Esempi

## 04.a - microbit-smile-01.hex



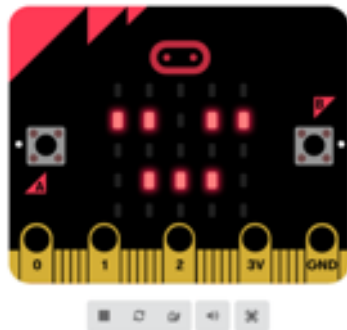
# micro:bit – Esempi

## 04.b - microbit-smile-02.hex



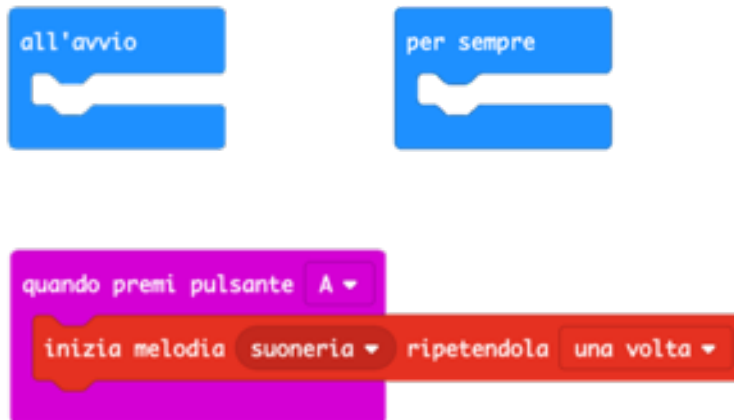
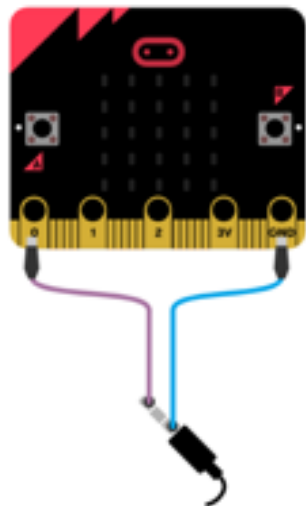
# micro:bit – Esempi

## 04.c - microbit-smile-03.hex



# micro:bit – Esempi

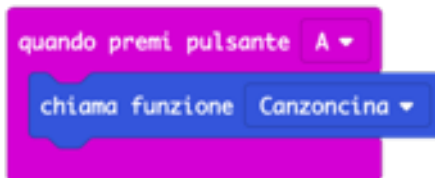
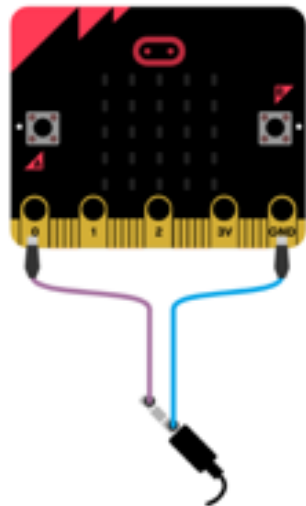
## 05.a - microbit-suoni-01.hex





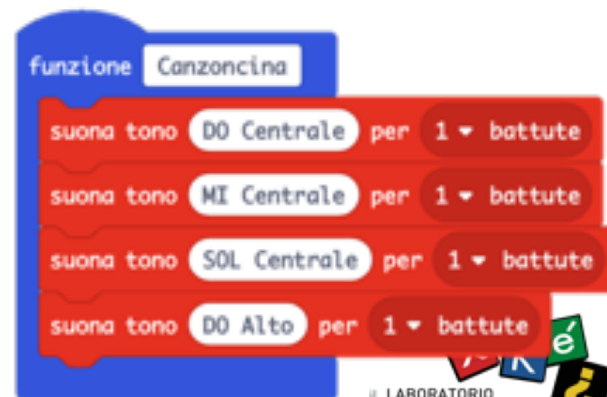
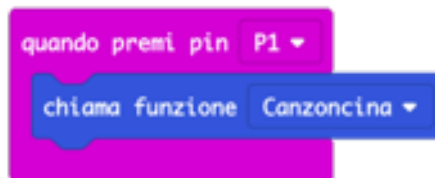
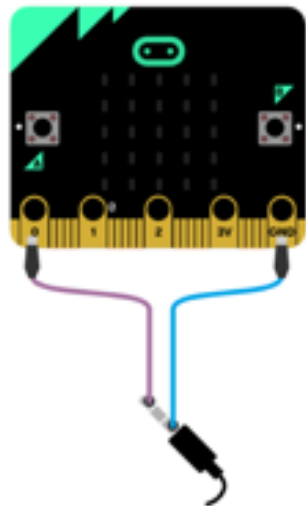
# micro:bit – Esempi

## 05.b - microbit-suoni-02.hex



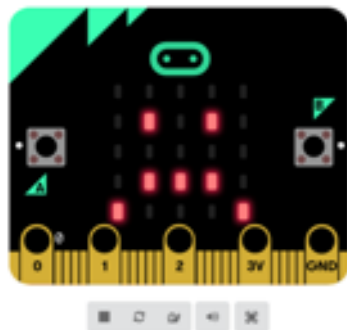
# micro:bit – Esempi

05.c - microbit-suoni-con-input.hex



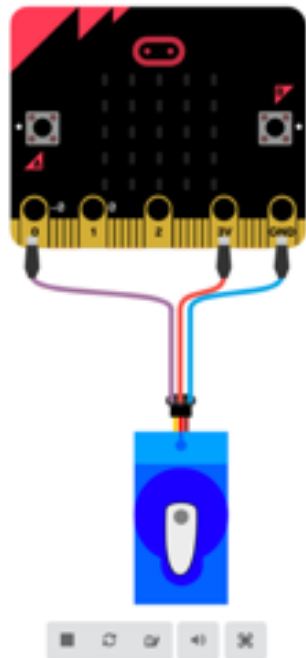
# micro:bit – Esempi

06 - microbit-input-esterno-magneto-e-smile.hex



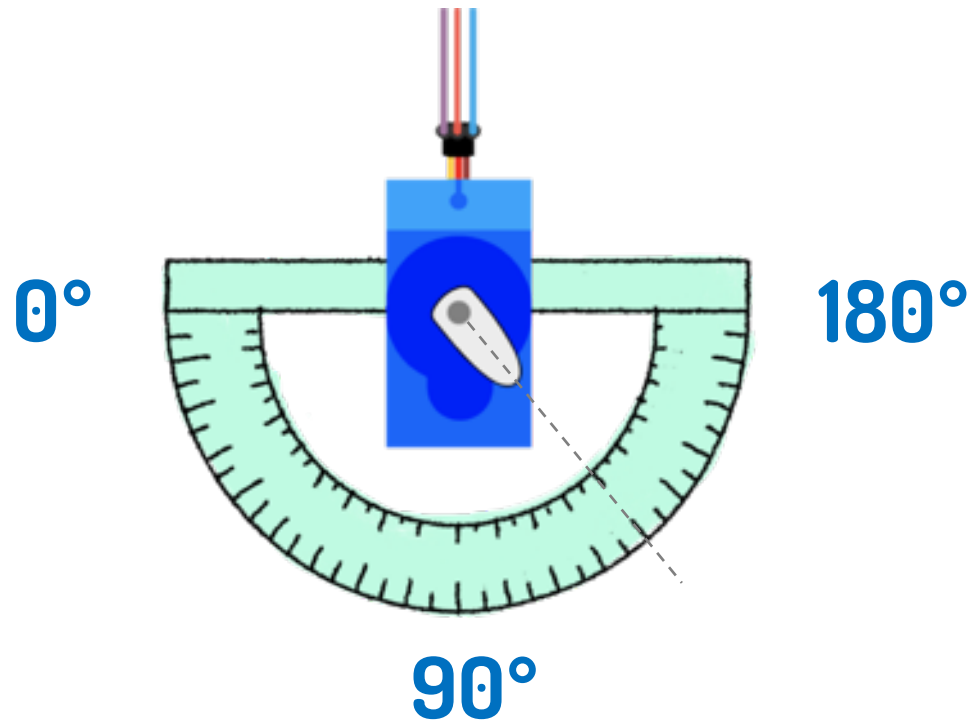
# micro:bit – Esempi

07.a - microbit-passaggio-a-livello-01.hex



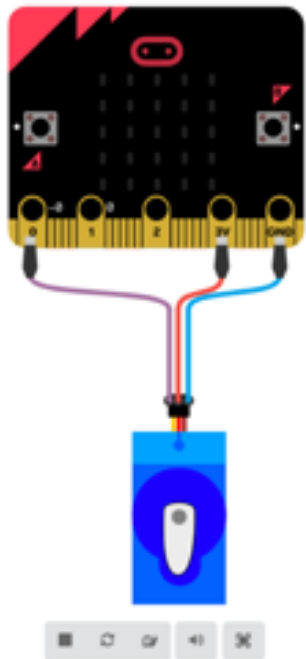
# micro:bit – Esempi

07.a - microbit-passaggio-a-livello-01.hex



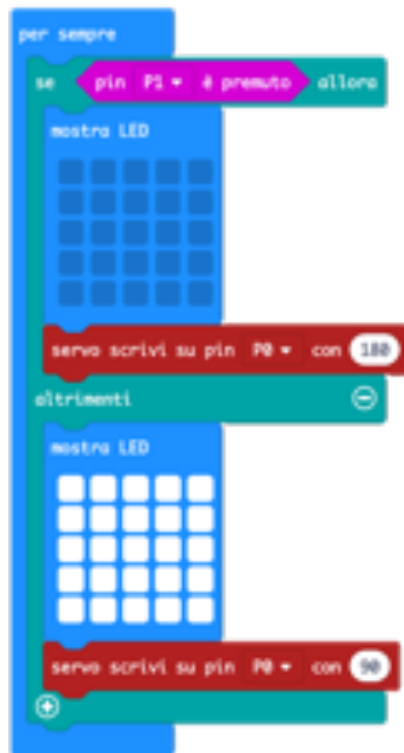
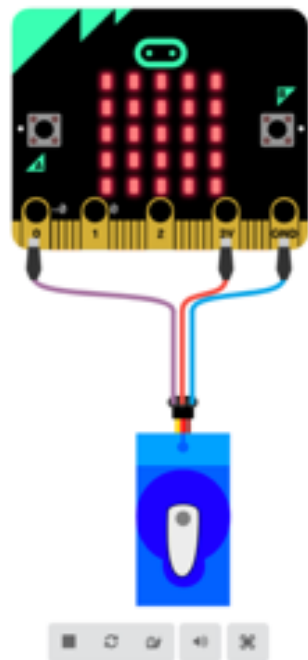
# micro:bit – Esempi

07.a - microbit-passaggio-a-livello-01.hex



# micro:bit – Esempi

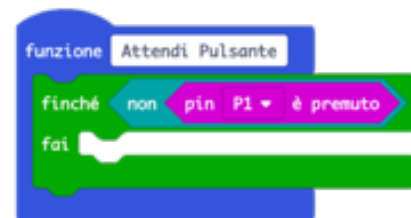
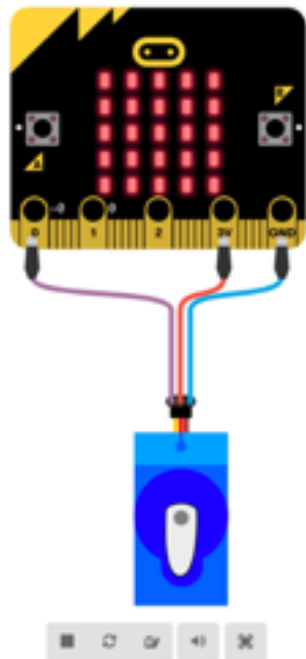
07.b - microbit-passaggio-a-livello-02.hex





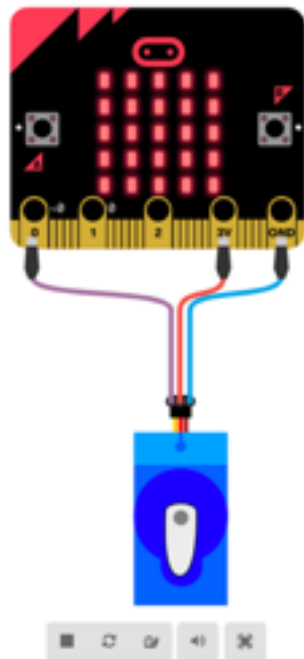
# micro:bit – Esempi

07.c - microbit-passaggio-a-livello-03.hex



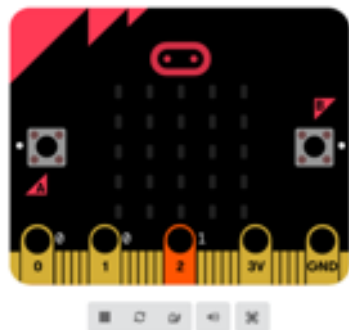
# micro:bit – Esempi

07.d - microbit-passaggio-a-livello-04.hex



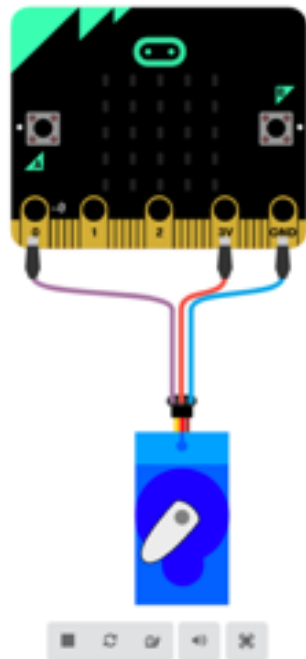
# micro:bit – Esempi

## 08 - microbit-semaforo.hex



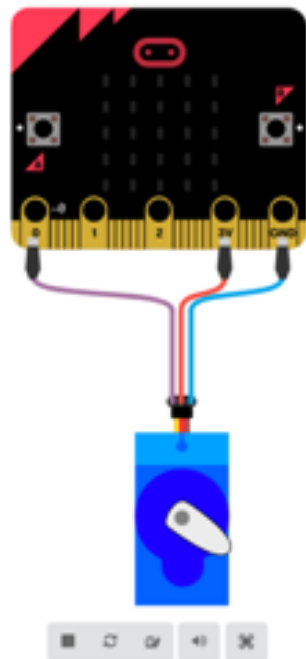
# micro:bit – Esempi

09.a - microbit-tergicristallo-01.hex



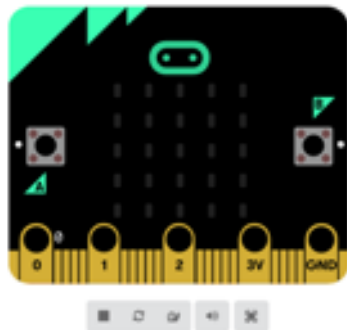
# micro:bit – Esempi

## 09.b - microbit-tergicristallo-02.hex



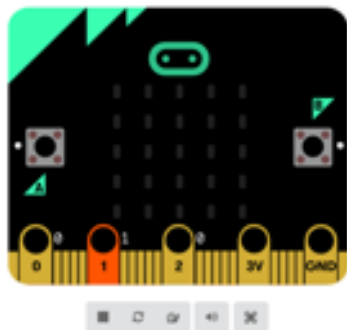
# micro:bit – Esempi

10 - microbit-il-cerchio-dell'amicizia.hex



# micro:bit – Esempi

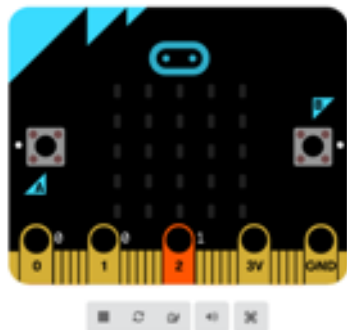
11.a - microbit-luci-di-natale-01.hex





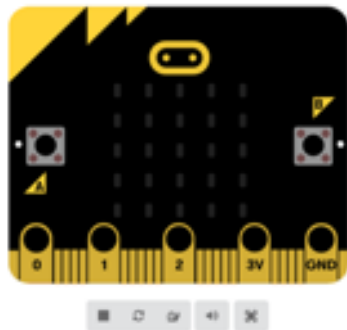
# micro:bit – Esempi

11.b - microbit-luci-di-natale-02.hex



# micro:bit – Esempi

12.a - microbit-luci-di-casa-01.hex



all'avvio

per sempre

quando premi pulsante A ▼

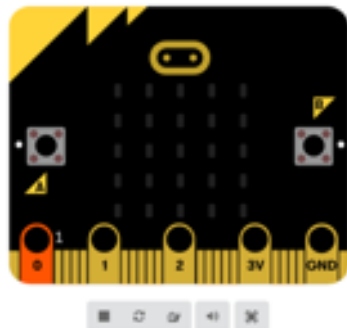
segnale digitale - scrivi su pin P0 ▼ con 1

quando premi pulsante B ▼

segnale digitale - scrivi su pin P0 ▼ con 0

# micro:bit – Esempi

12.b - microbit-luci-di-casa-02.hex



all'avvio



per sempre

segnale digitale - scrivi su pin P0 con 1

chiamata funzione Attendi Pulsante

segnale digitale - scrivi su pin P0 con 0

chiamata funzione Attendi Pulsante

funzione Attendi Pulsante

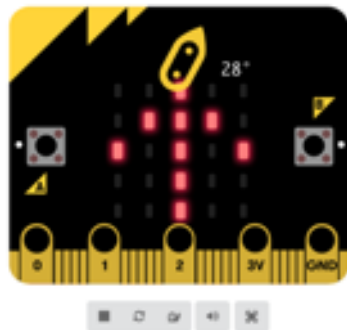
finché non pulsante A è premuto

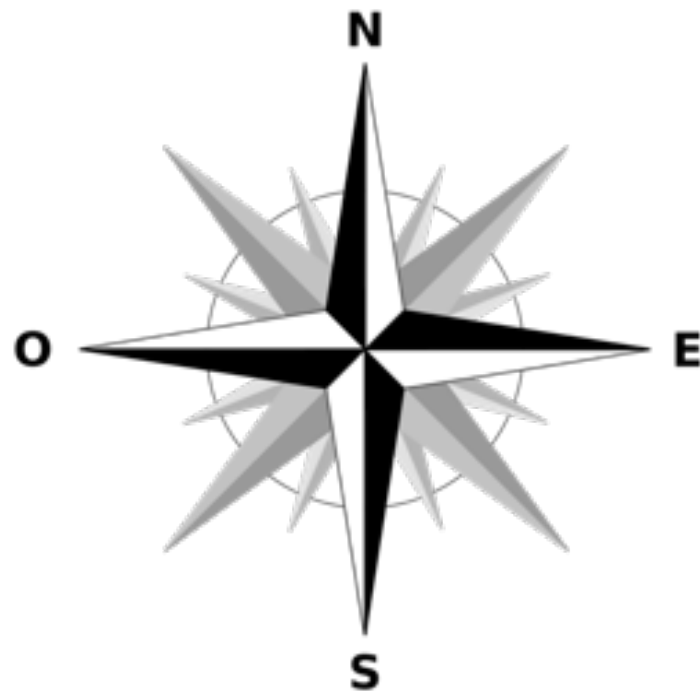
fai

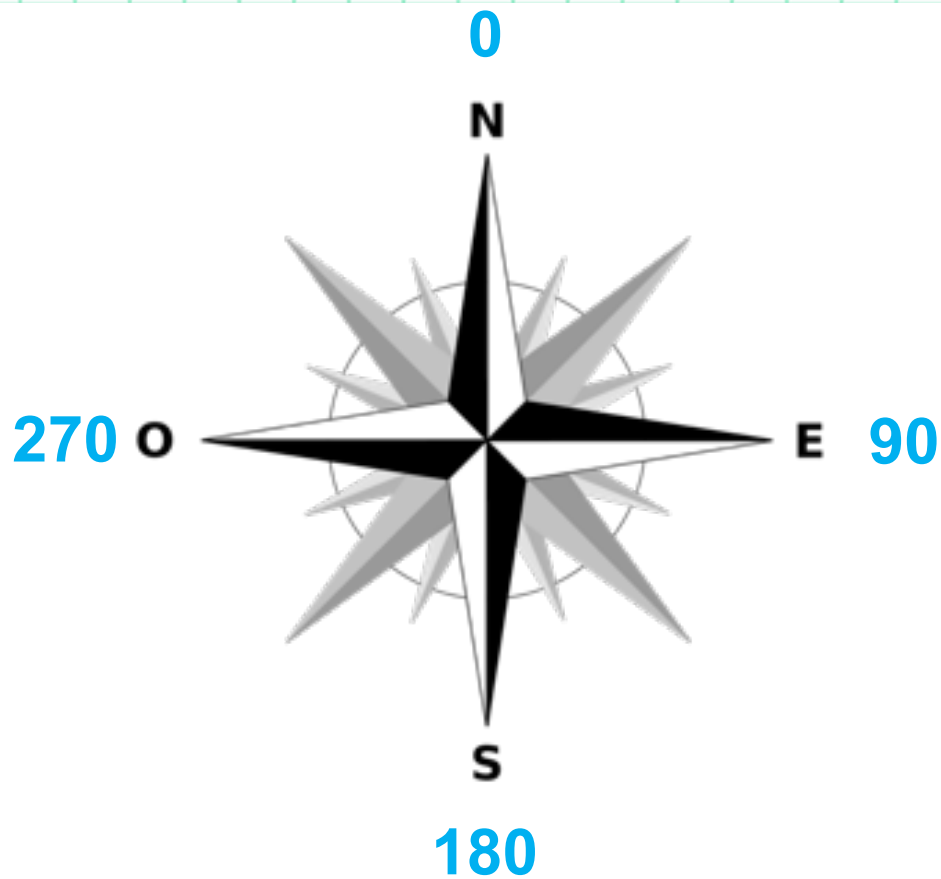
pausa 200 (ms)

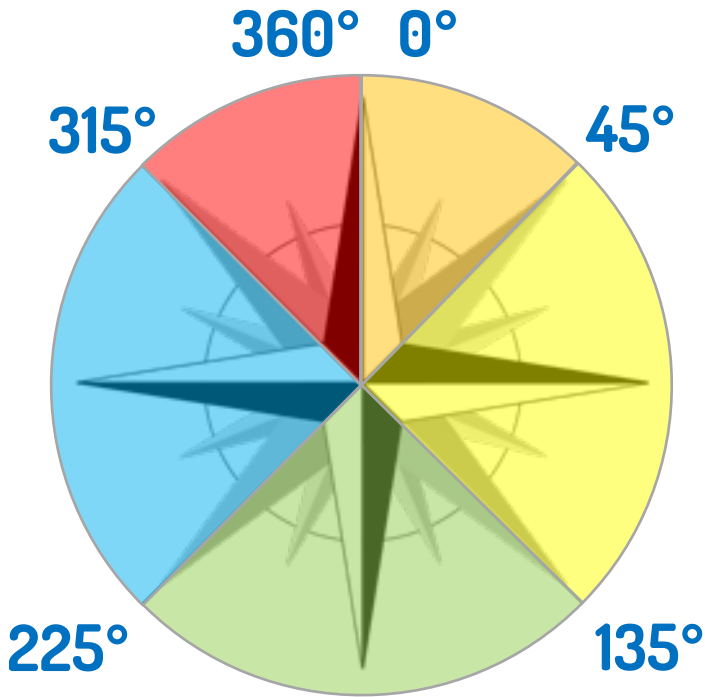
# micro:bit – Esempi

## 13 - microbit-bussola.hex





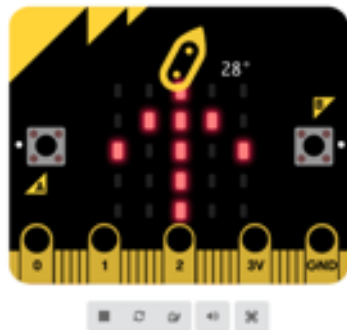






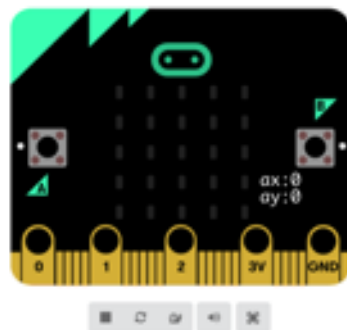
# micro:bit – Esempi

## 13 - microbit-bussola.hex



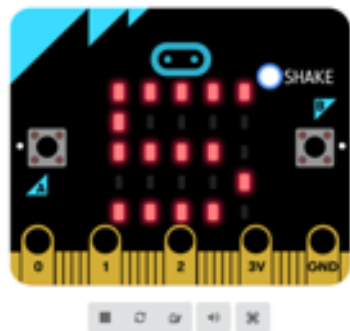
# micro:bit – Esempi

## 14 - microbit-bolla.hex



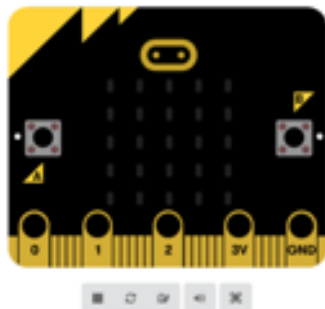
# micro:bit – Esempi

## 15 - microbit-dado.hex



# micro:bit – Esempi

## 16.a - microbit-radio.hex



all'avvio

per sempre

quando premi pulsante A ▼

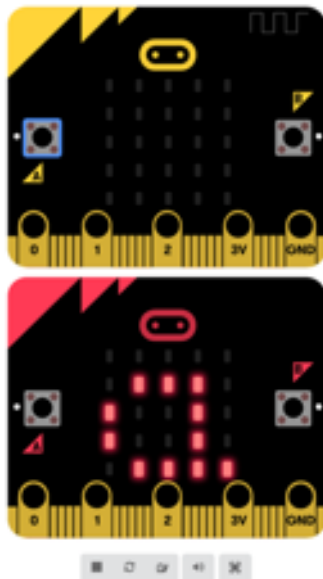
radio - spedisci la stringa "Ciao!"

radio - quando ricevi segnale receivedString ▼

mostra stringa receivedString ▼

# micro:bit – Esempi

## 16.a – microbit-radio.hex



all'avvio

per sempre

quando premi pulsante A ▼

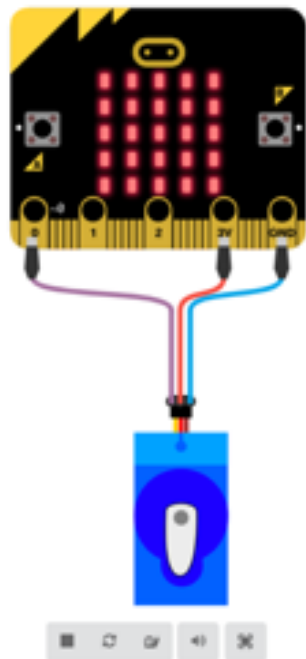
radio - spedisce la stringa "Ciao!"

radio - quando ricevi segnale receivedString ▼

mostra stringa receivedString ▼

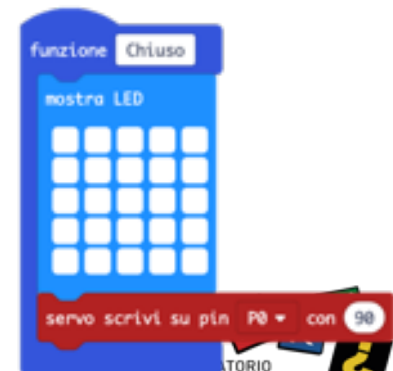
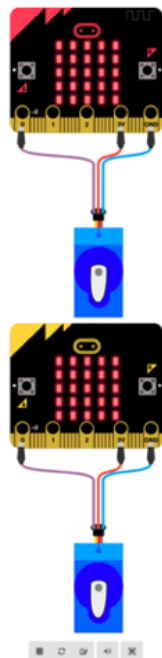
# micro:bit – Esempi

## 16.b – microbit-radio-passaggio-a-livello.hex



# micro:bit – Esempi

16.b – microbit-radio-passaggio-a-livello.hex



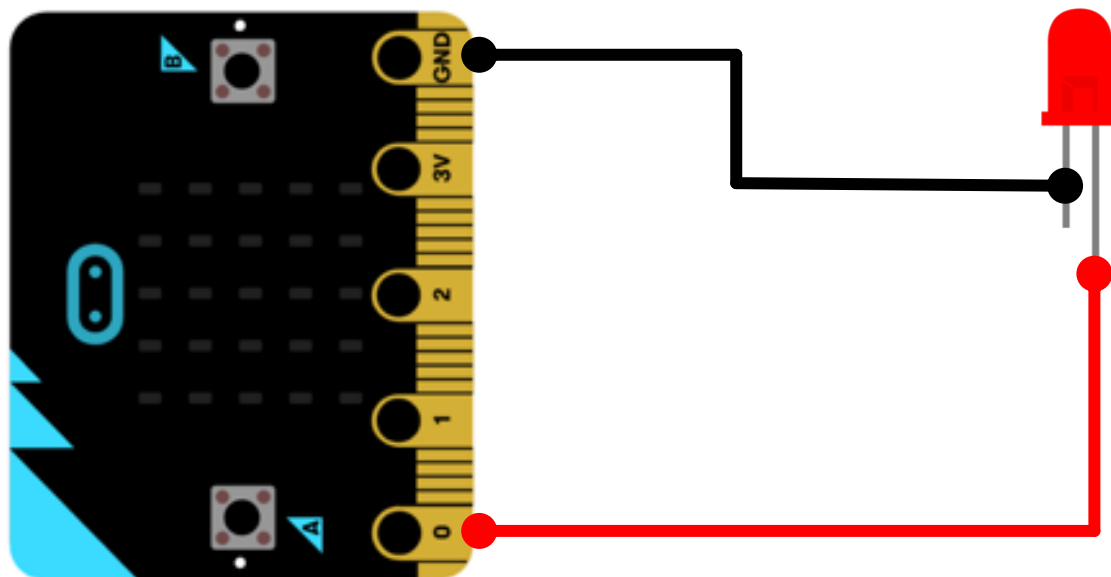


# Collegamenti

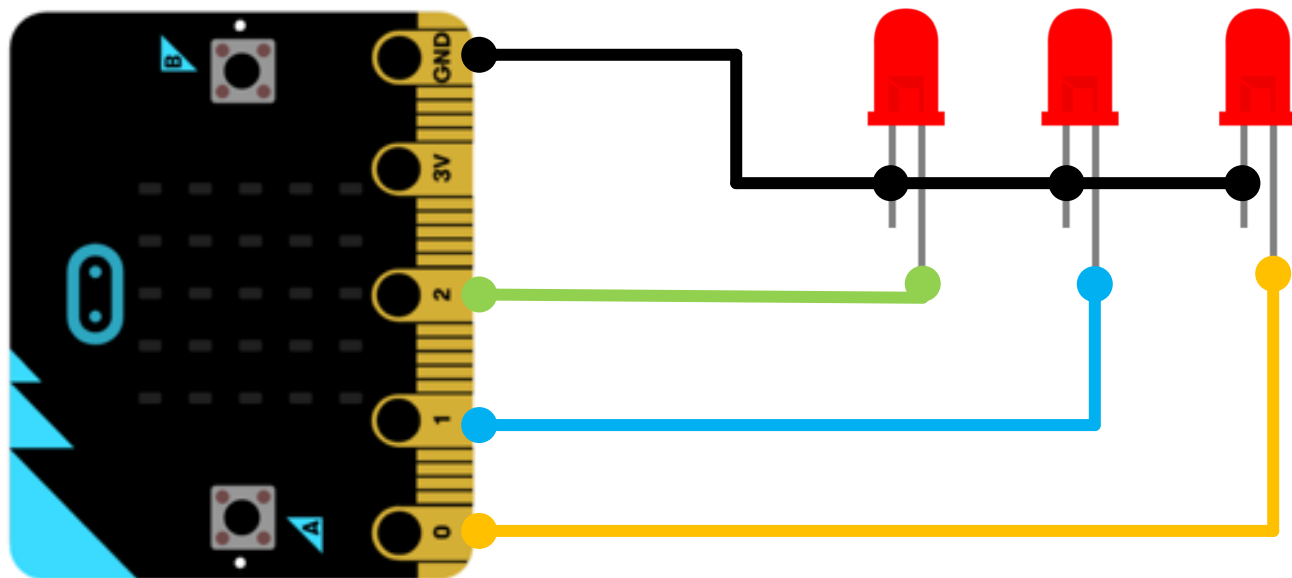


# Connessioni

## LED singolo

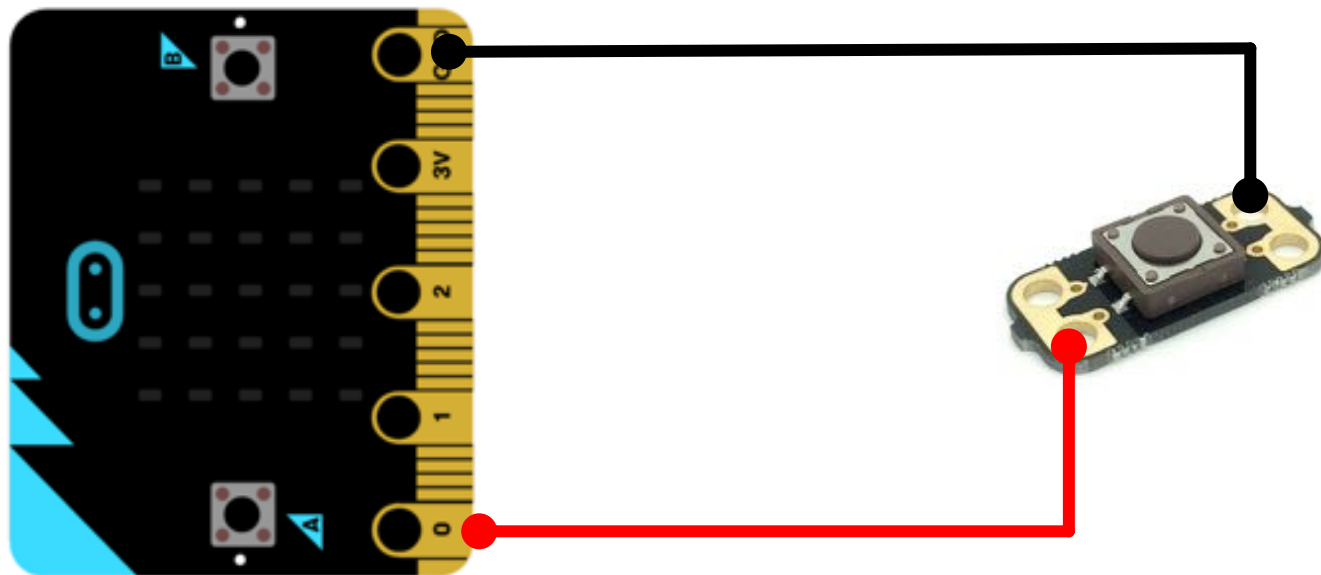


# Conessioni LED multipli



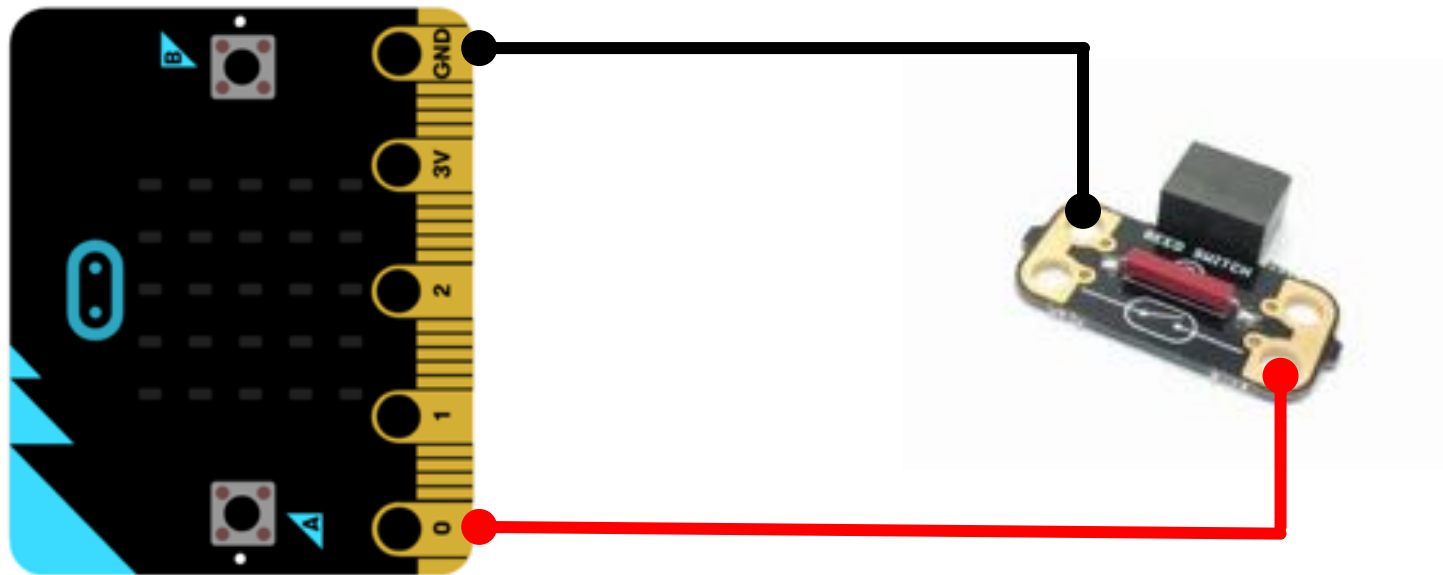
# Conessioni

## Pulsante esterno



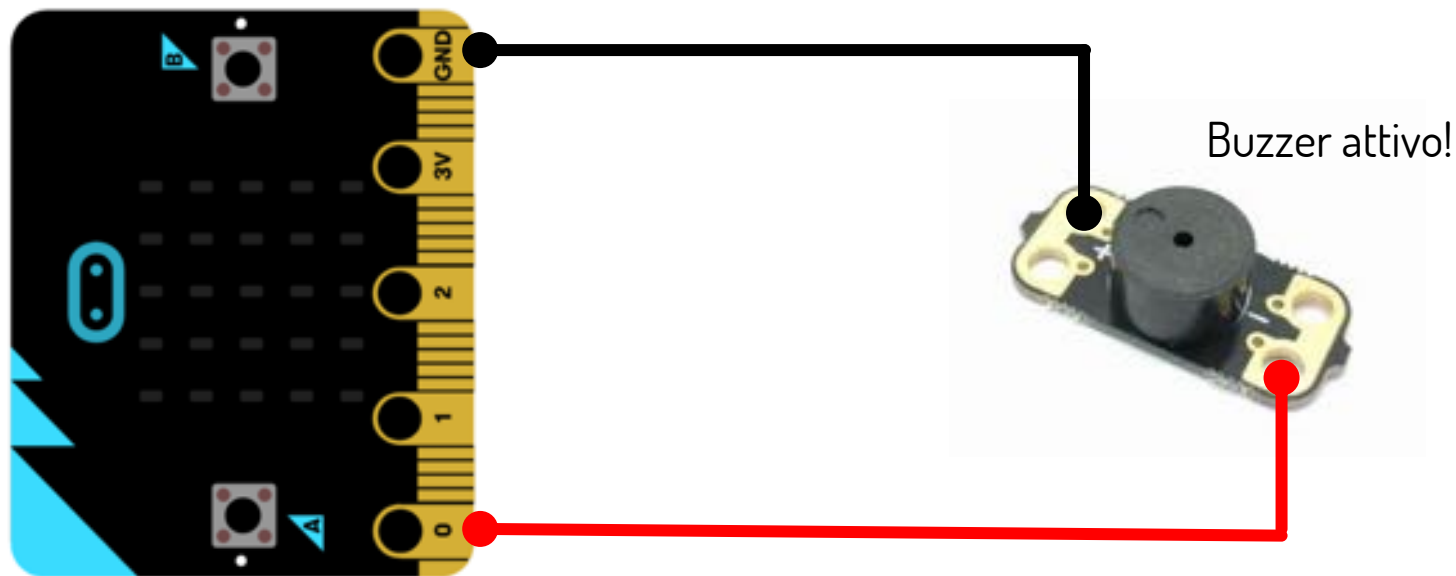
# Connessioni

## Interruttore magnetico



# Connessioni

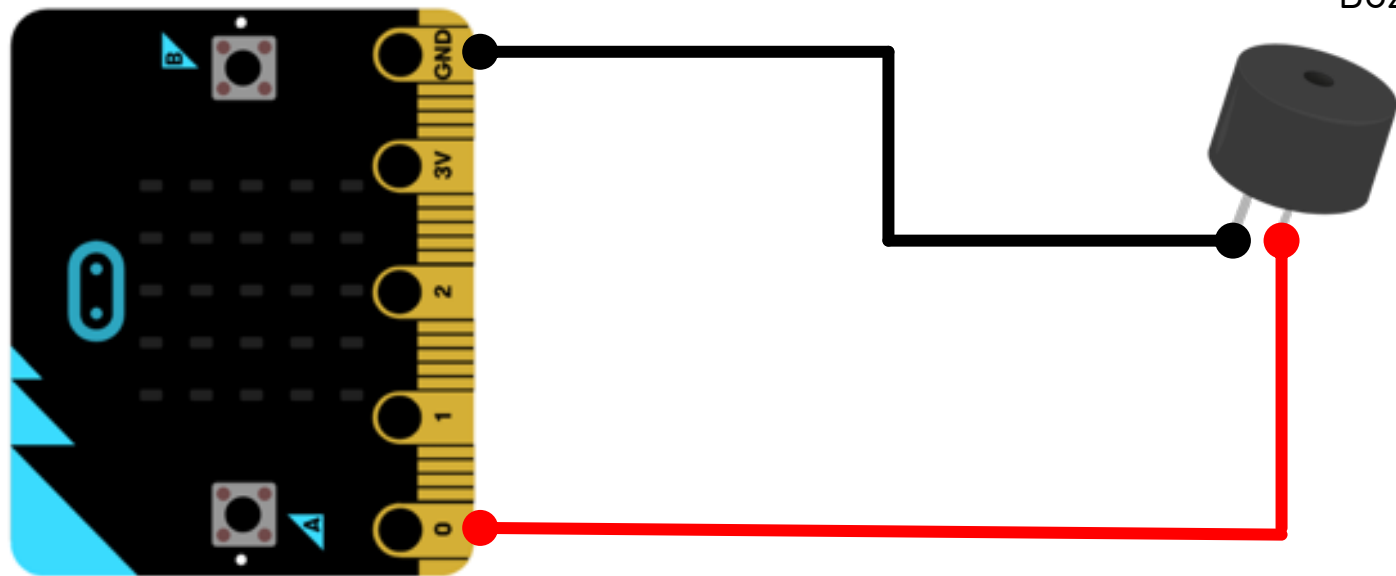
## Buzzer attivo



segnale digitale - scrivi su pin P0 ▼ con 1

# Connessioni

## Buzzer passivo

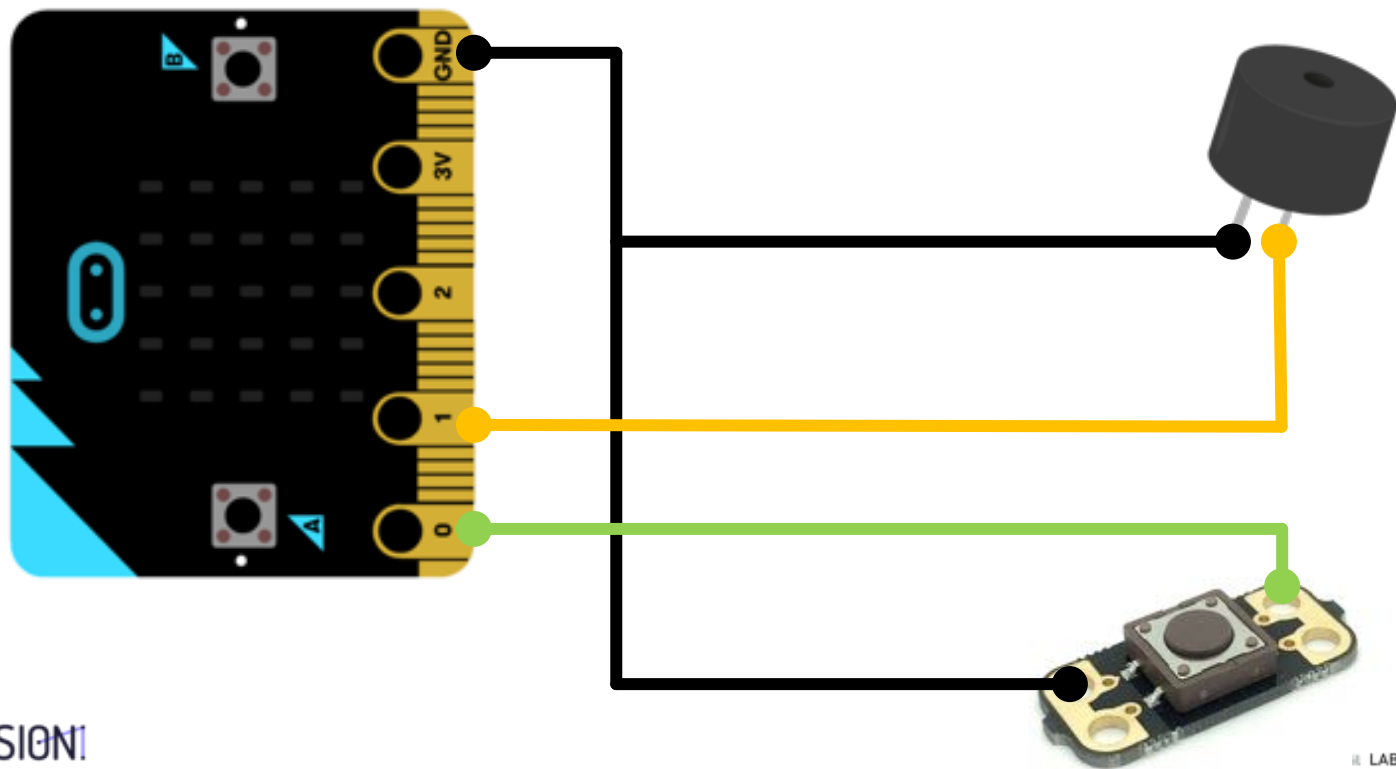


Buzzer passivo!

inizia melodia suoneria ▼ ripetendola una volta ▼

# Conessioni

## Pulsante esterno + Buzzer



# Connessioni

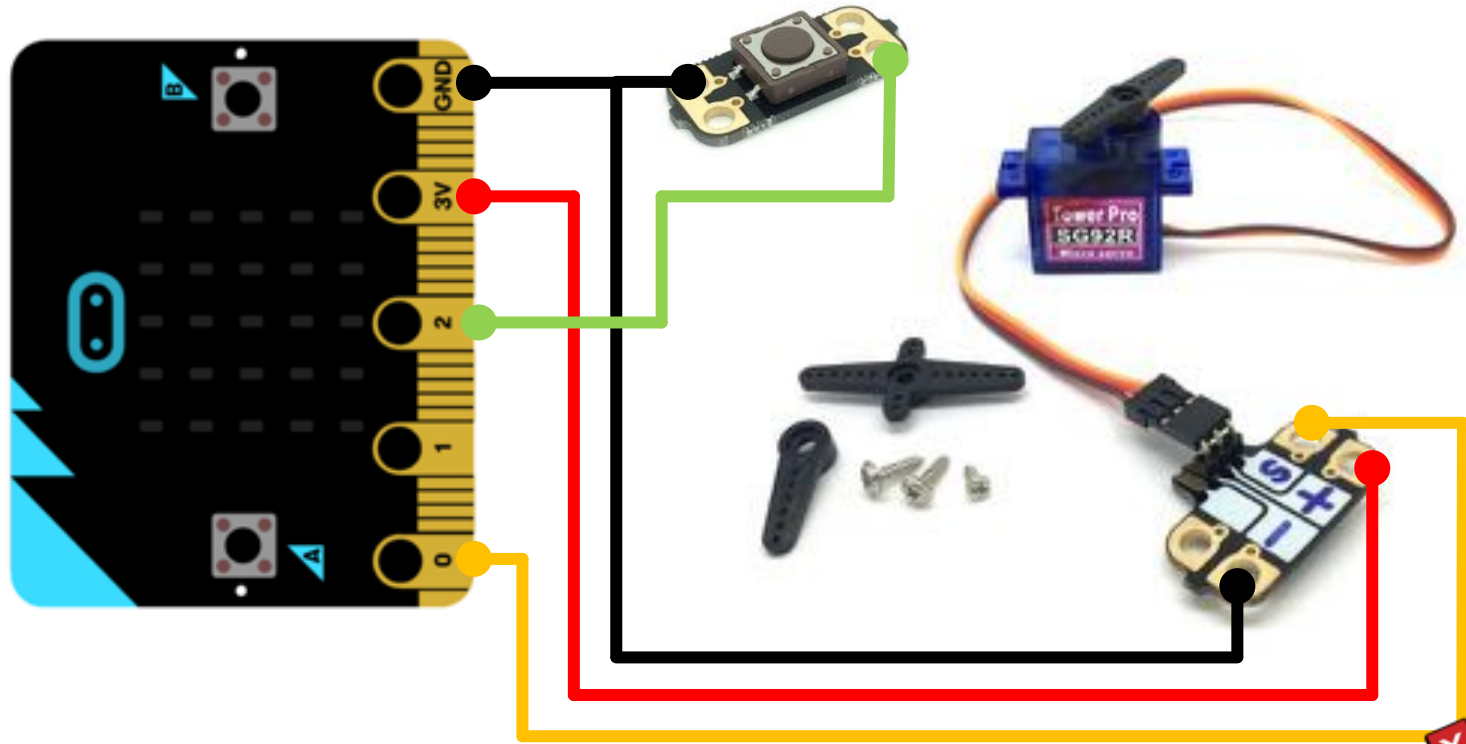
## Servo





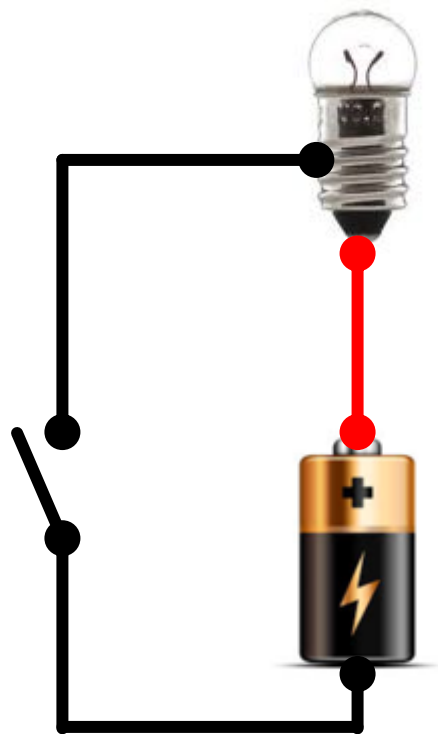
# Conessioni

## Pulsante esterno + Servo



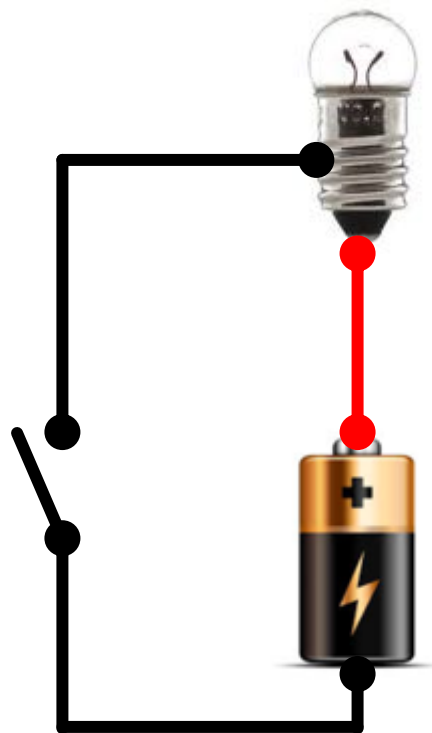
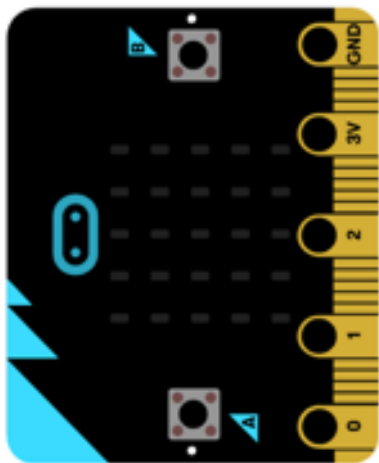
# Connessioni

## Dispositivi di potenza



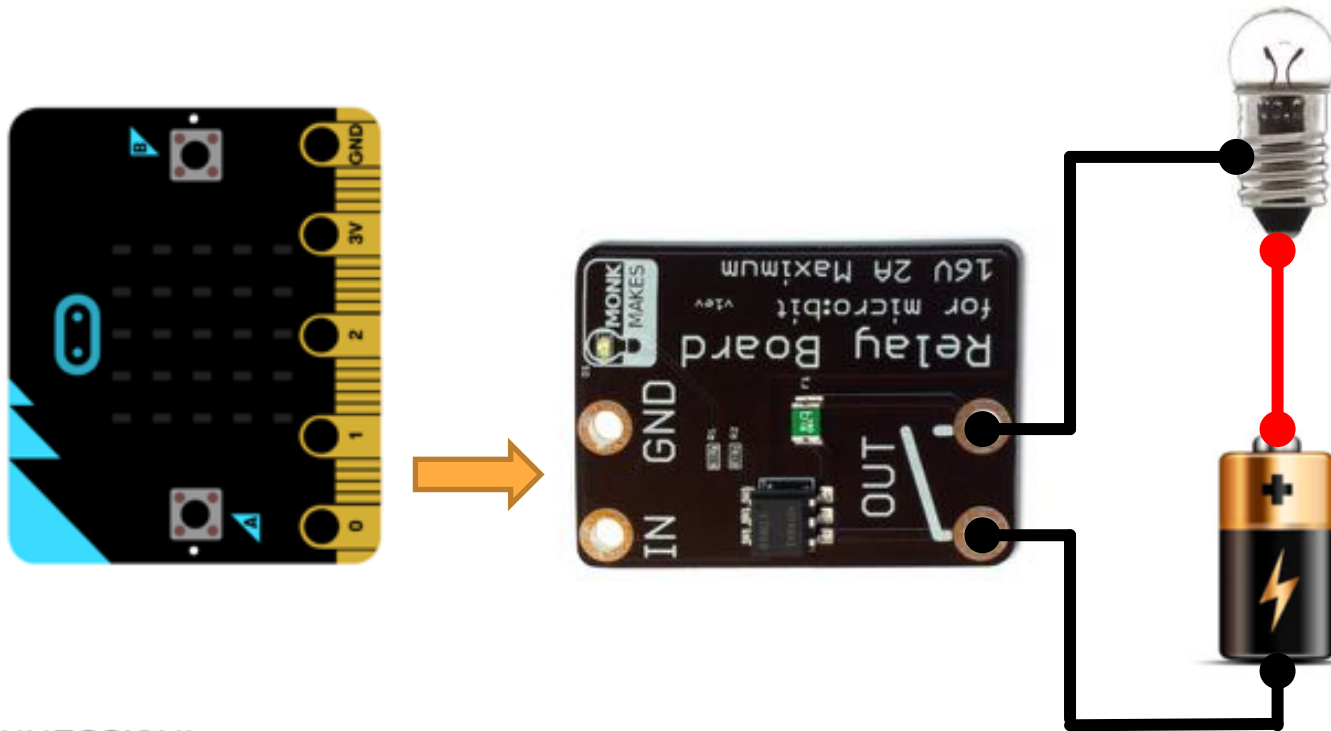
# Connessioni

## Dispositivi di potenza



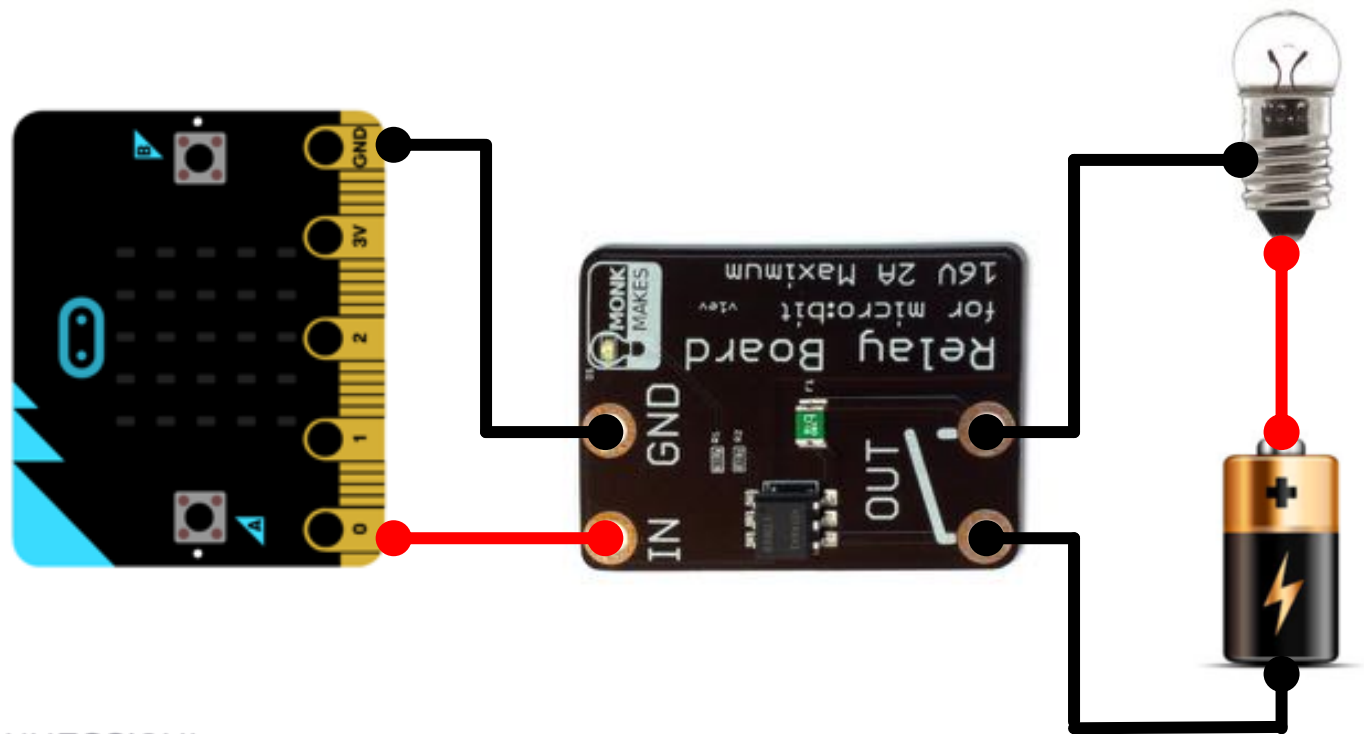
# Connessioni

## Dispositivi di potenza



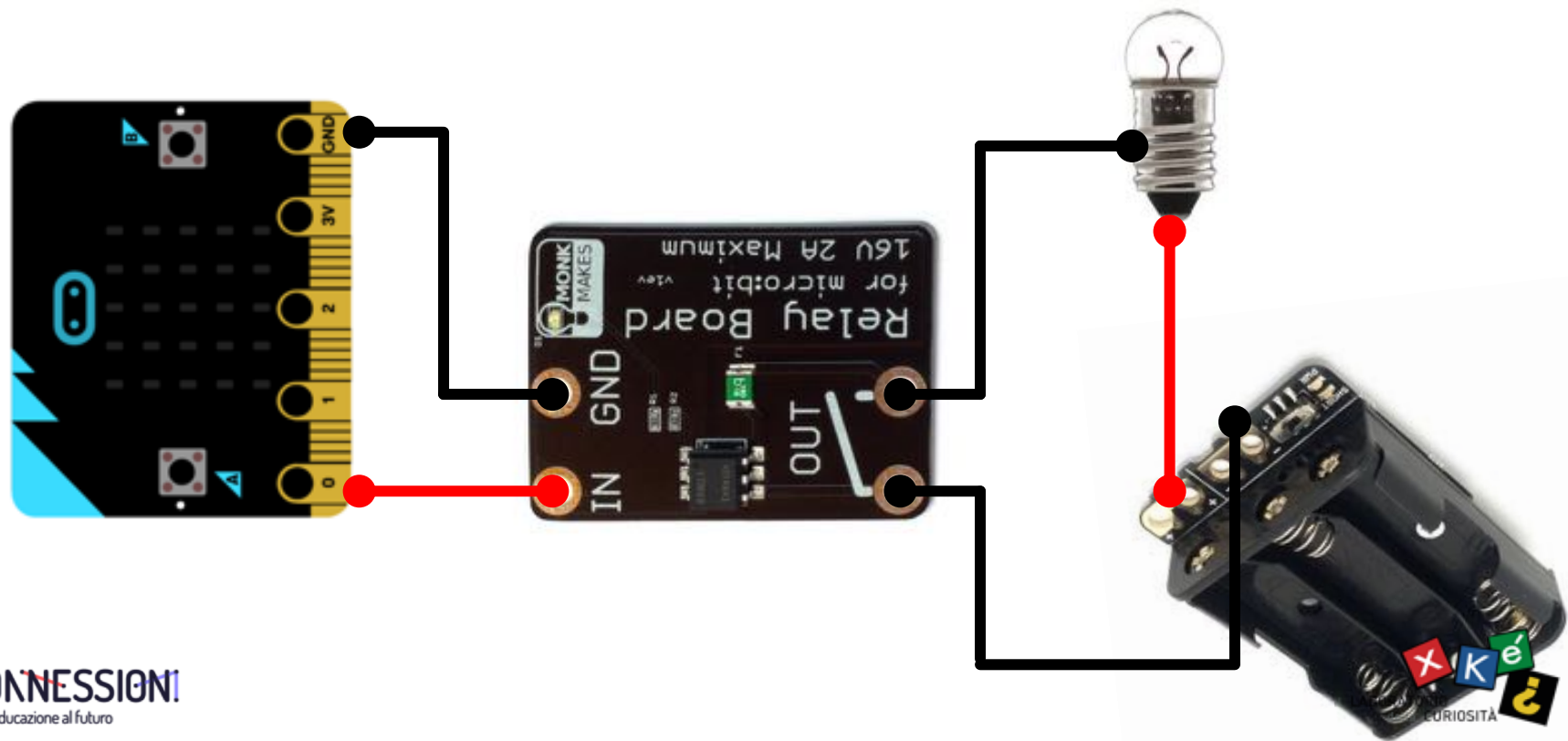
# Connessioni

## Dispositivi di potenza



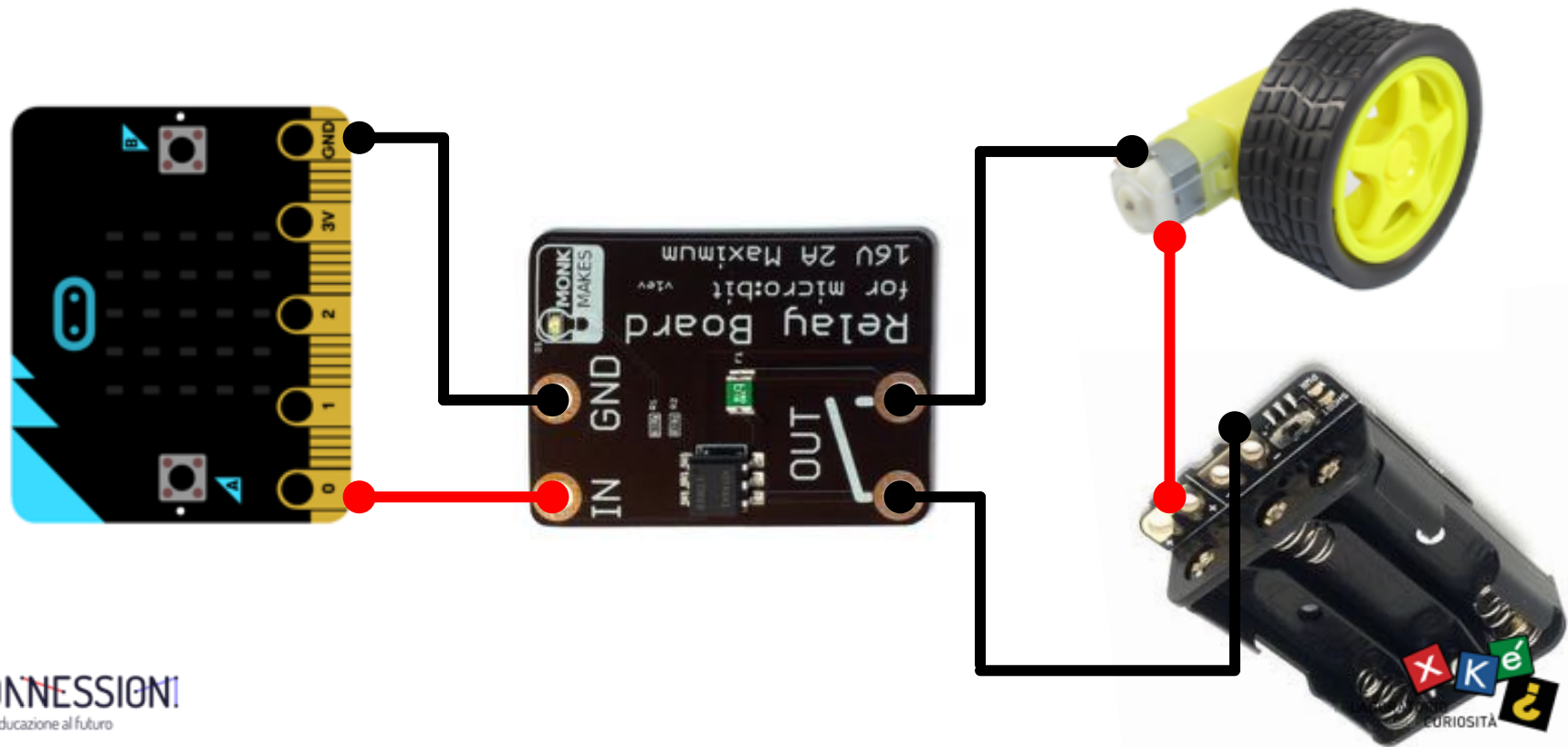
# Conessioni

## Dispositivi di potenza



# Conessioni

## Dispositivi di potenza





# Approfondimenti



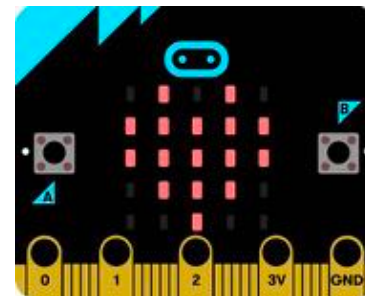
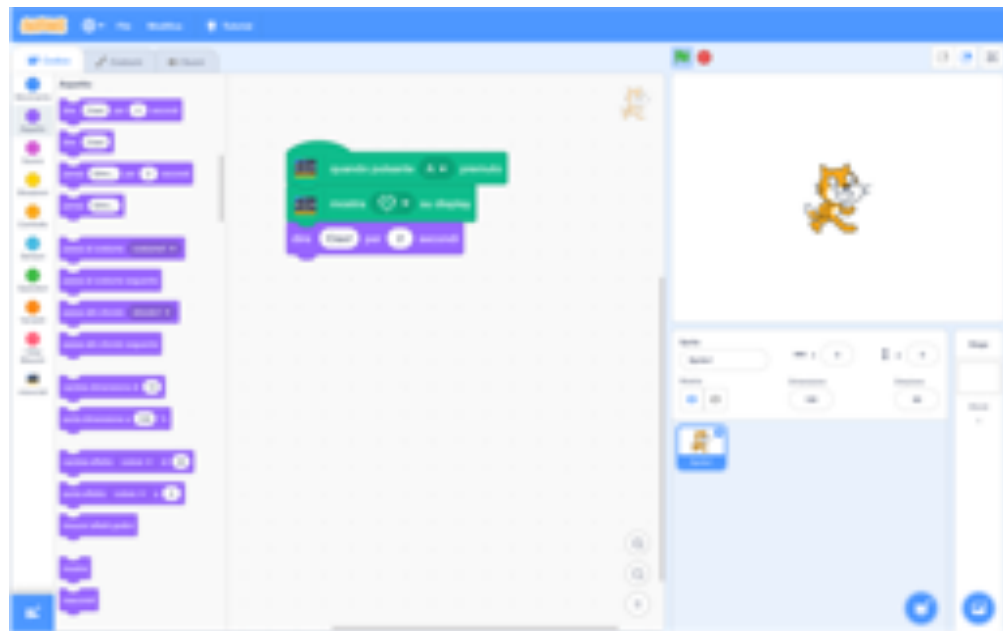
# Scratch e miro:bit

Come procedere?

<https://scratch.mit.edu/microbit>

# micro:bit e Scratch

Come interfacciare Scratch con micro:bit



# Scratch e miro:bit

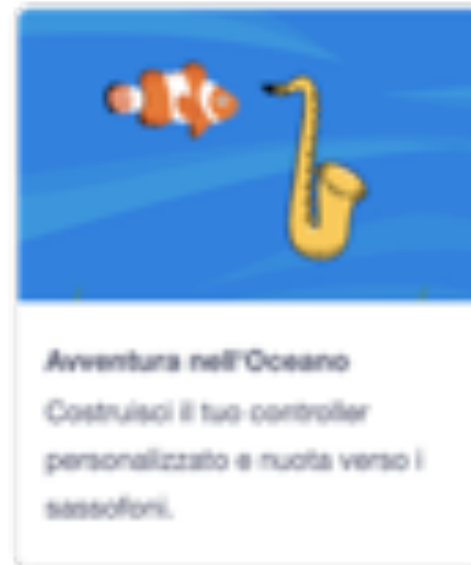
## Progetti per iniziare



<https://scratch.mit.edu/projects/239075756/editor>



<https://scratch.mit.edu/projects/239075950/editor>



<https://scratch.mit.edu/projects/239075973/editor>

# micro:bit e Scratch

## Come interfacciare Scratch con micro:bit

Cosa ti serve	Dove trovarlo
Scratch 3.0	<a href="https://scratch.mit.edu/download">https://scratch.mit.edu/download</a> (offline) <a href="https://scratch.mit.edu/projects/editor/">https://scratch.mit.edu/projects/editor/</a> (online)
Scratch Link	<a href="https://scratch.mit.edu/microbit">https://scratch.mit.edu/microbit</a>
Istruzioni passo passo	<a href="https://scratch.mit.edu/microbit">https://scratch.mit.edu/microbit</a>

# Buon coding a tutti!

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[www.riconnessioni.it](http://www.riconnessioni.it)