

# Digital Movement instrument

31 October 2021

**Valerio**

Girls In Stem – Ghent 2021

What are we going to do?

- **Intro musick: Rhythm, Pitch, Melody, Harmony**
- **Microbit refresh/ last session**
- **Direction music instrument**
- **Touch music instrument**

# Rhythm



**Repetitive phenomenon in time**

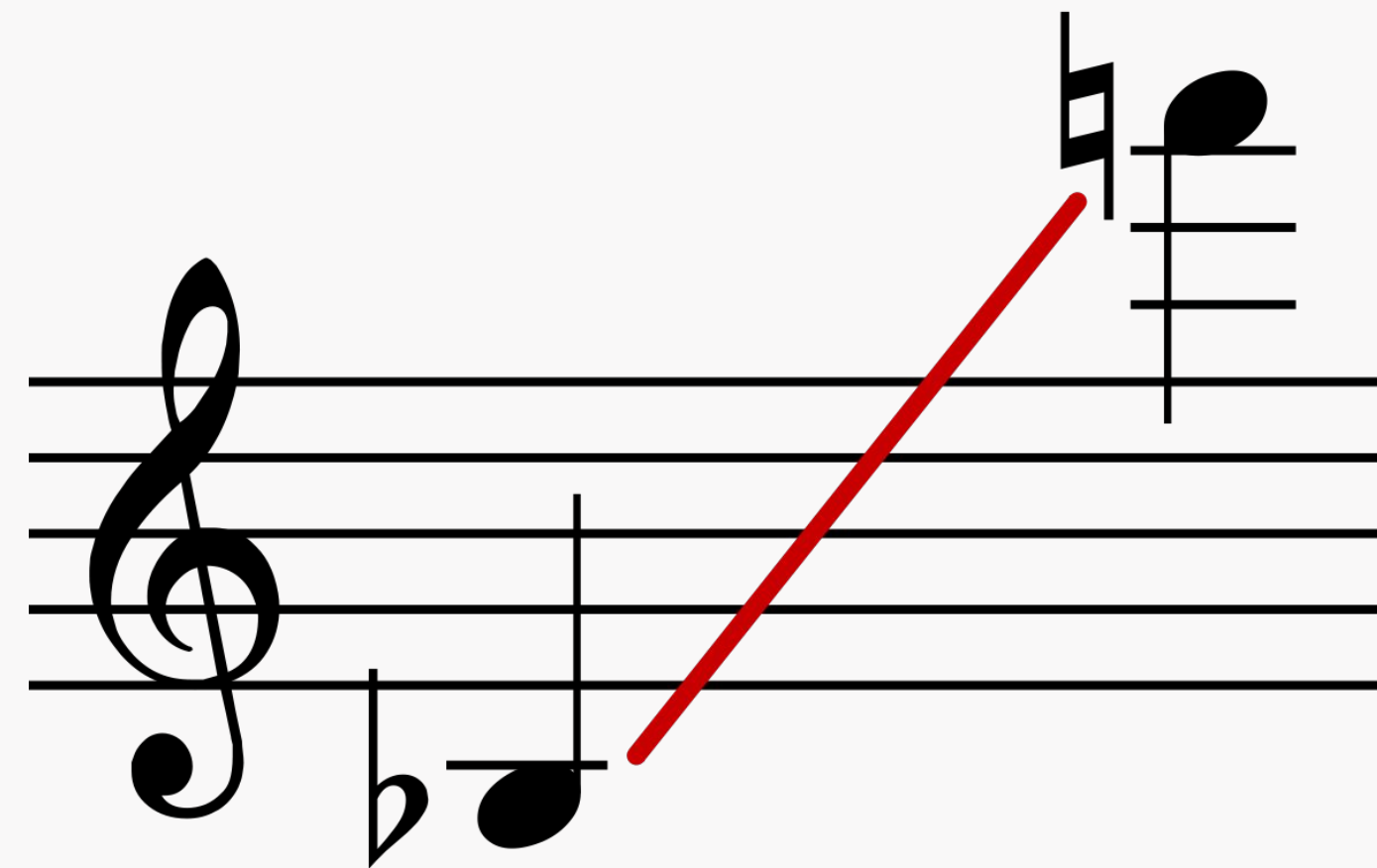
**some more tips**

**Exercise...**



## Pitch, Note

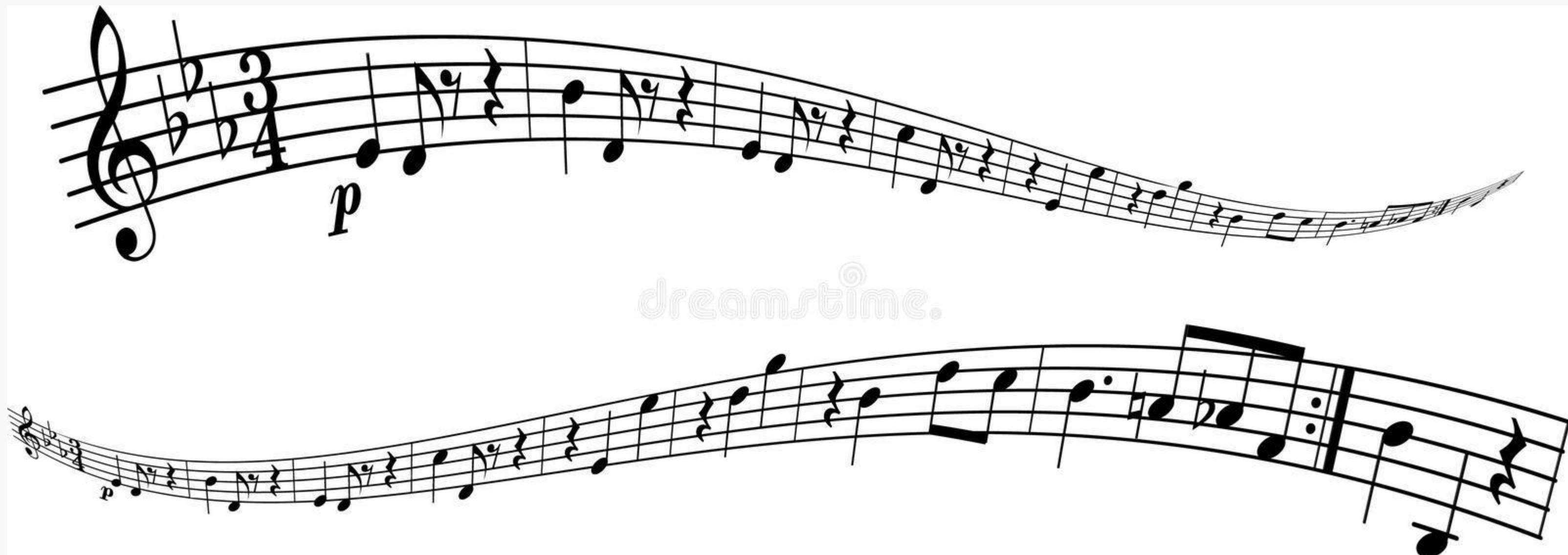
**HEIGHT** of the sound



<https://www.youtube.com/watch?v=YkOJQmaFGNw>

# Melody

## Sequence of notes





# Harmony



More notes played at  
the same time -  
**CHORDS** [check](#)



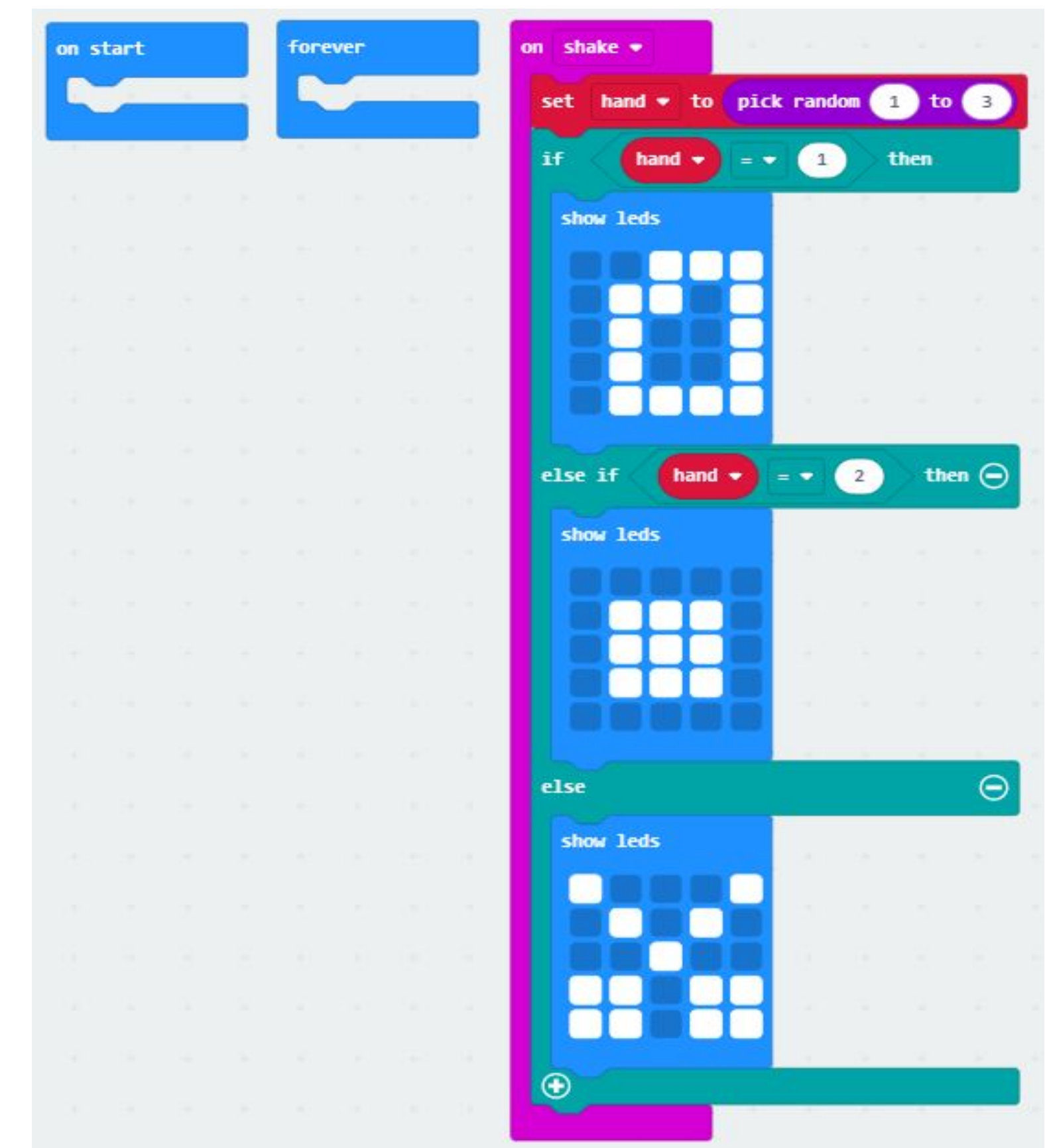
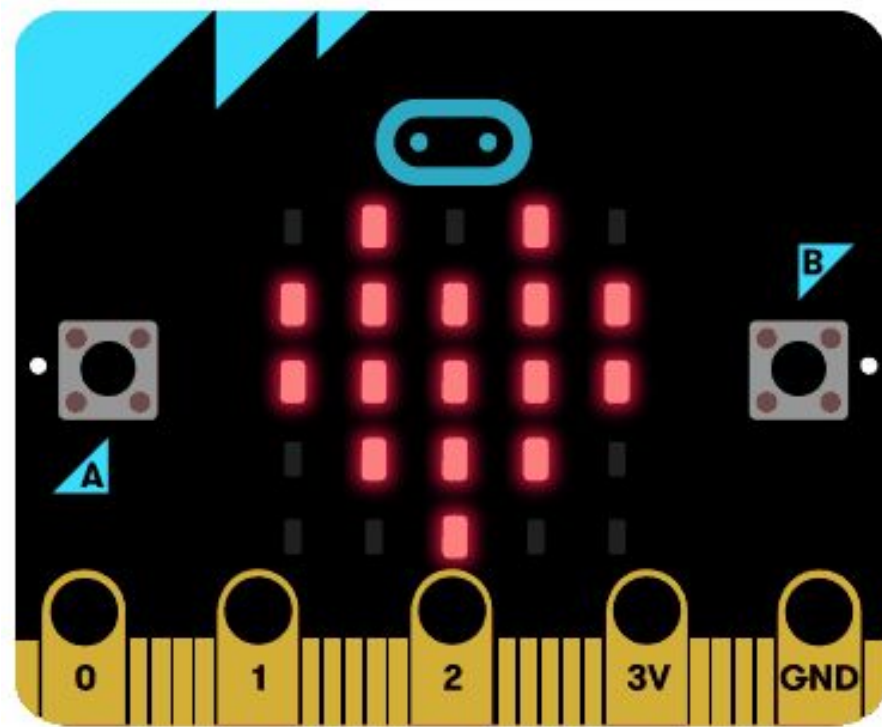


# Micro:bit





# What we did do last time?





**What are we going to do today?**

**DISTRUMENT – Direction music INSTRUMENT**

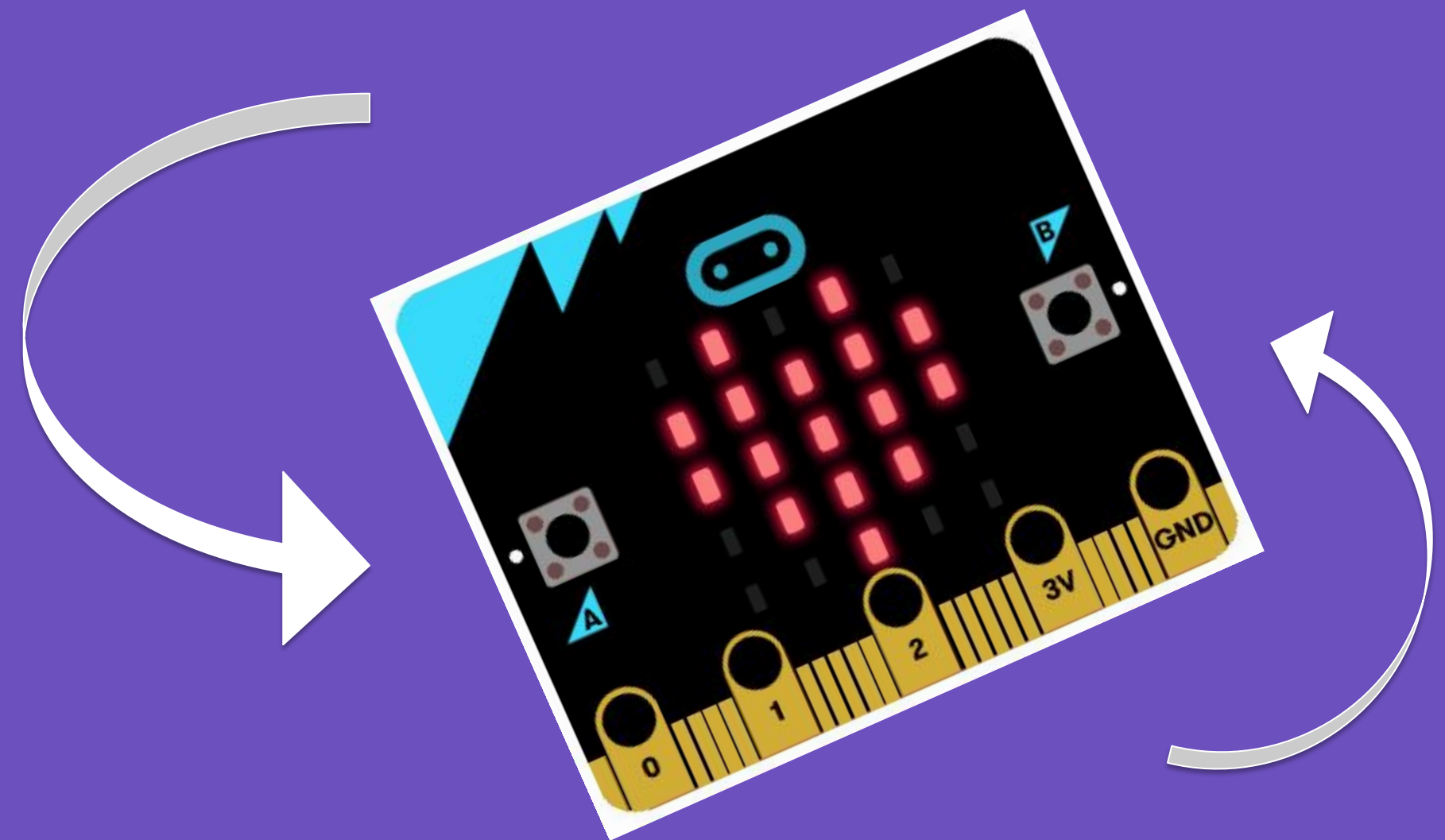
**TOUCHMI - Touch Music Instrument**

# How to hear the Micro:bit



<https://microbit.org/projects/make-it-code-it/frere-jacques-tune/>

# Direction music instrument (compass)





**Code**

**LET'S START!!**

**4 directions:**

**0 - 90**

**90 - 180**

**180 - 270**

**270 - 360**

# Code

```
forever
  set direction to compass heading (°)
  show number direction
  if [ ] > 0 and [ ] ≤ 90 then
    ring tone (Hz) Low C
  else if [ ] > 91 and [ ] ≤ [ ] then
    ring tone (Hz) Low E
  else if direction > 181 and [ ] ≤ 270 then
    ring tone (Hz) Low G
  else
```

FILL IN!



# Code

```
forever
  set direction to compass heading (°)
  show number direction
  if direction > 0 and direction ≤ 90 then
    ring tone (Hz) Low C
  else if direction > 91 and direction ≤ 180 then
    ring tone (Hz) Low E
  else if direction > 181 and direction ≤ 270 then
    ring tone (Hz) Low G
  else
    ring tone (Hz) Low A#
```

# SOLUTION

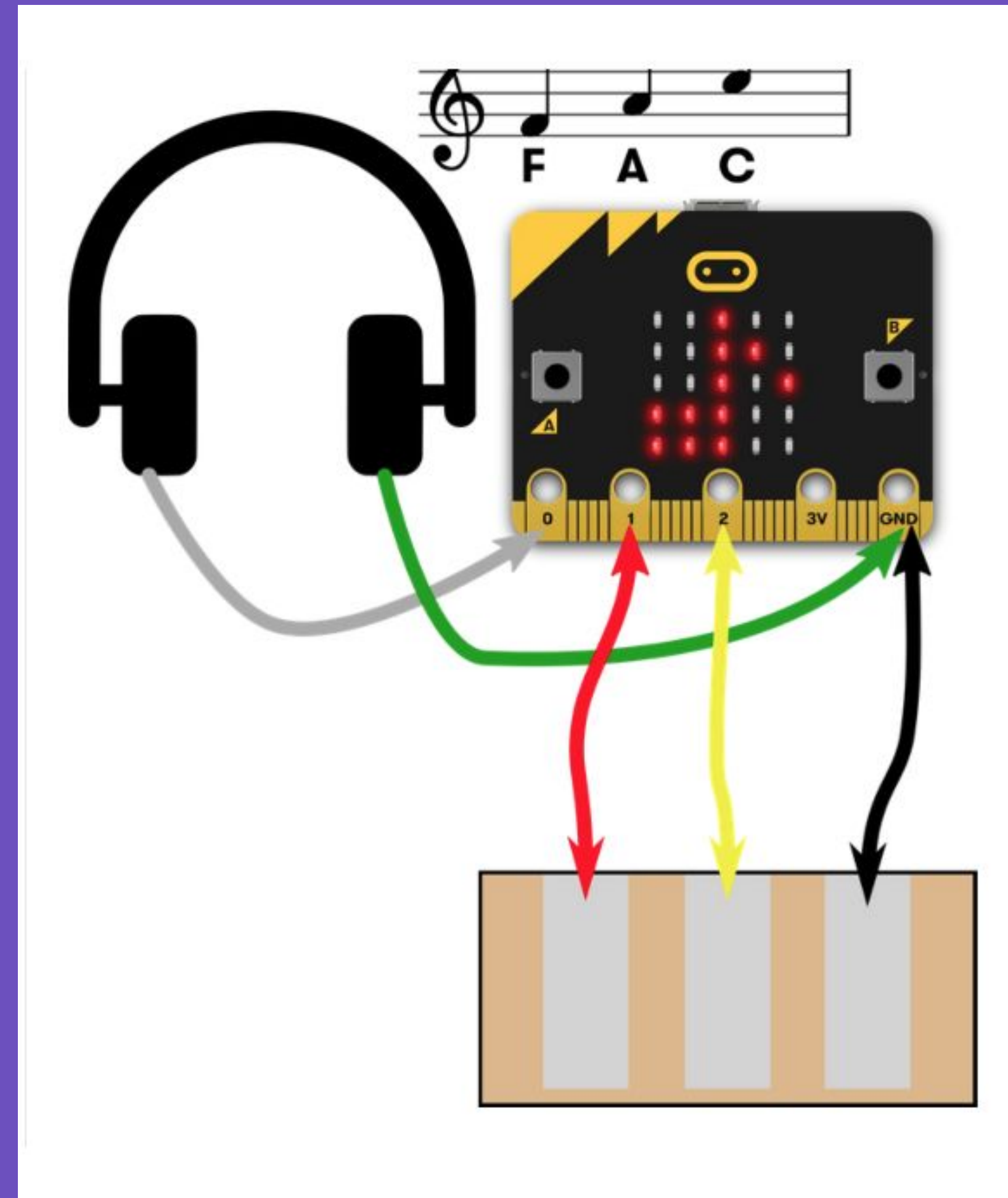


**Try to turn slowly turn the Micro:bit and  
...make music with the others!**

# Touch Music Instrument

Look for similar projects online

- <https://microbit.org/projects>
- <https://microbit.org/projects/make-it-code-it/guitar-1-touch-tunes/>



# Code example

on pin P1 ▼ pressed

play tone Middle C for 1 ▼ beat

play tone Middle E for 1 ▼ beat

play tone Middle G for 1 ▼ beat

on pin P2 ▼ pressed

play tone Low G for 2 ▼ beat

play tone Middle B for 2 ▼ beat

play tone High D for 2 ▼ beat





# CREATE YOUR CRAZY MUSICAL INSTRUMENT



Meer micro:bit?

**Try things online with the simulator**