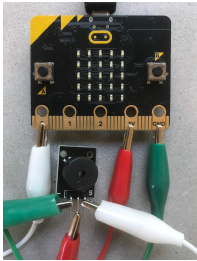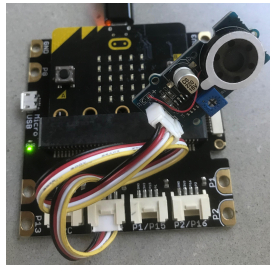# 1 - Creating Sounds

Added libraries: | Libraries + | 🟦 **Tone** 🟦 **Scrolling**
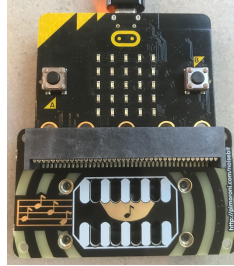
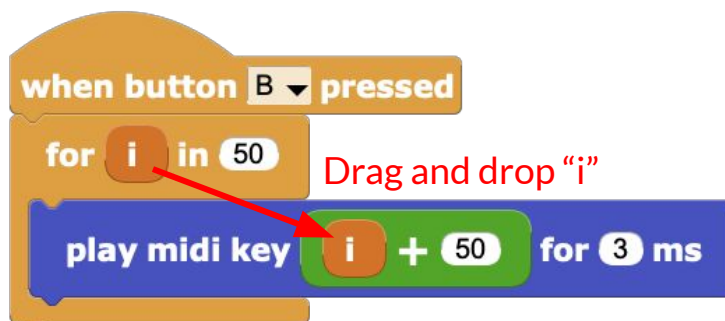| piezo | Grove | Pimoroni | paperclip, headset | audio jack speaker |

There are many ways to play music.
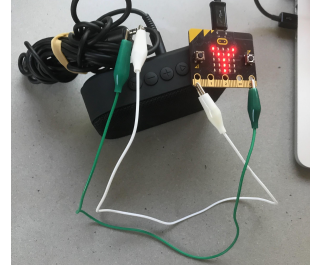
Set the speaker pin using the "attach buzzer" block. Then try "play note" blocks to hear sounds.

```
when started
    attach buzzer to pin (0)
    play note C octave (0) for (500) ms
```
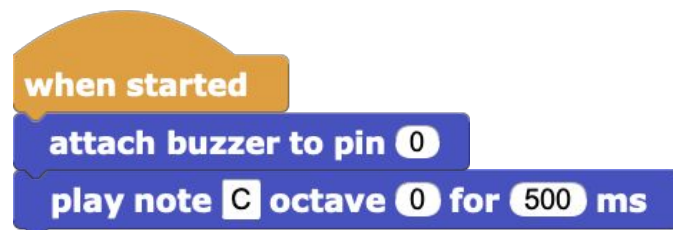
Create the script at right. Use a variable "beat" to adjust the song to play faster or slower. Do you recognize the tune?

▌ Challenge: Try making a "sound effect" like below. Also, explore examples in the Music folder.

```
when button B pressed
    for i in (50)
        play midi key ( i + (50) ) for (3) ms
```
Drag and drop "i"

```
when button A pressed
    set beat to (250)
    repeat (3)
        play note D octave (0) for beat ms
    play note G octave (0) for ( beat × (6) ) ms
    play note D octave (1) for ( beat × (6) ) ms
    repeat (2)
        play note C octave (1) for beat ms
        play note B octave (0) for beat ms
        play note A octave (0) for beat ms
        play note G octave (1) for ( beat × (6) ) ms
        play note D octave (1) for ( beat × (3) ) ms
    play note C octave (1) for beat ms
    play note B octave (0) for beat ms
    play note C octave (1) for beat ms
    play note A octave (0) for ( beat × (6) ) ms
```

v1.0

2 - Play and Display Happy Birthday

Make a "Happy Birthday" cake topper that uses command functions. From "My Blocks" click "Add a command block", name it, and a purple "hat block" will appear.
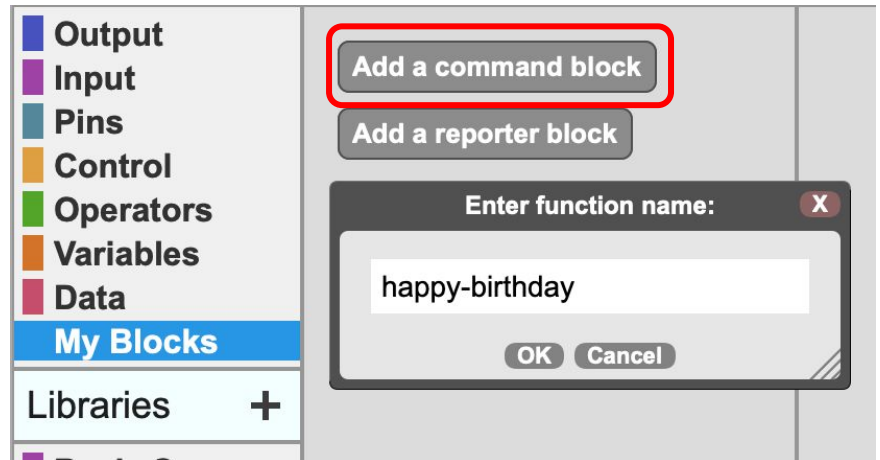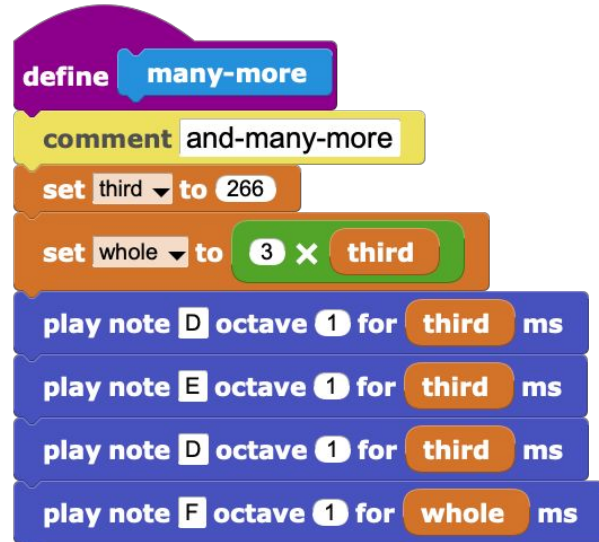
Output — Output
Input — Input
Pins — Pins
Control — Control
Operators — Operators
Variables — Variables
Data — Data
My Blocks
Libraries ➕

Add a command block
Add a reporter block

Enter function name: ✕
happy-birthday
OK Cancel

define happy-birthday ▶

Run your new command functions when button A is pressed.

when button A ▾ pressed
  happy-birthday
  many-more

when button B ▾ pressed
  scroll text HAPPY BIRTHDAY EMMY! ▶

when started
  attach buzzer to pin 0

define happy-birthday
  comment happy birthday
  set eigth ▾ to 200
  set quarter ▾ to 2 × eigth
  set half ▾ to 2 × quarter
  comment happy birthday part 1
  play note D octave 1 for eigth ms
  play note D octave 1 for eigth ms
  play note E octave 1 for quarter ms
  play note D octave 1 for quarter ms
  play note G octave 1 for quarter ms
  play note F# octave 1 for half ms
  comment happy birthday part 2
  play note D octave 1 for eigth ms

define many-more
  comment and-many-more
  set third ▾ to 266
  set whole ▾ to 3 × third
  play note D octave 1 for third ms
  play note E octave 1 for third ms
  play note D octave 1 for third ms
  play note F octave 1 for whole ms

These functions define variables for note duration (eighth, quarter, half...)

Challenge: Can you add the remaining notes of the Happy Birthday tune?

http://microblocks.fun