Content

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QuickStart kaarten - januari 2024 - microbit101
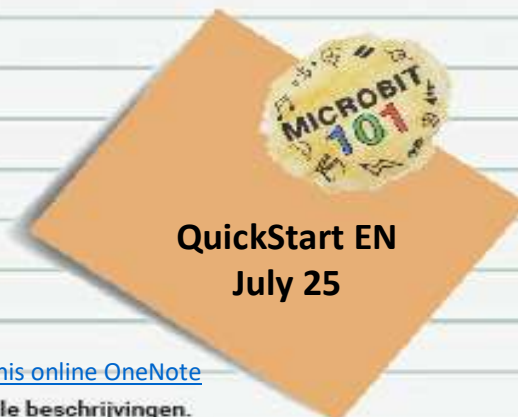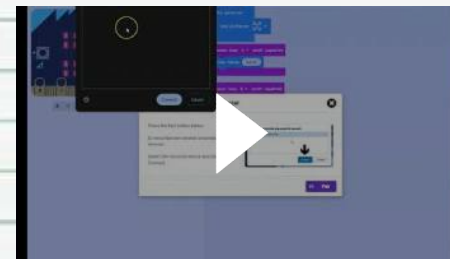
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microbit101 : Een doos met materialen om alle 101 projecten om te maken en een online omgeving met alle beschrijvingen.
copyright: Peter Heldens & Pauline Maas.
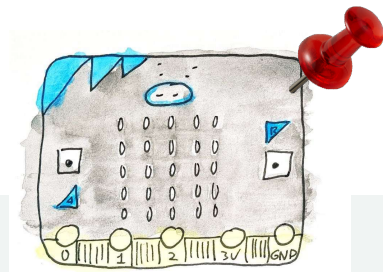
Get to know the micro:bit

[Get to know the BBC micro:bit's features](#)

WHAT?
What is a micro:bt?

www.makecode.com

YouTube channel microbit101.

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Card 1 - Name Badge

Link to Code

woensdag 30 juli 2025   22:37

```
on start
    show icon [💠]

forever

on button [A ▼] pressed
    show string "microbit101"
    play melody dadadum [▼]   in background [▼]

on button [B ▼] pressed
    show number 8
    play melody [🎵🟥🟧🟨🟩🟦🟪] at tempo 120 (bpm) until done [▼]
```
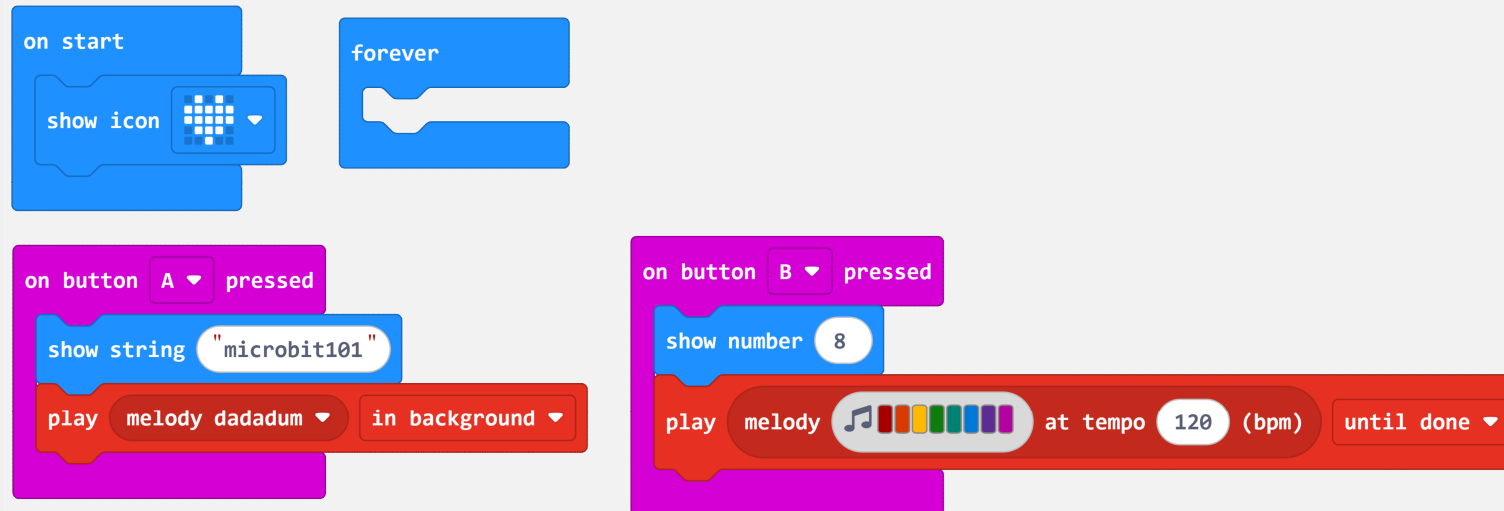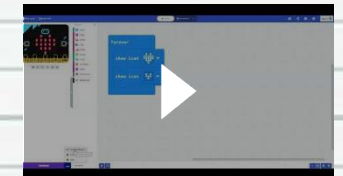
WHAT?
You will take the first steps coding the micro:bit. You will put your name and sounds by pressing button A and B.

www.makecode.com

EXPLAIN CODE
- ☐ Drag from **Basic**; show **icon** into on **Start**
- ☐ Drag from **Input**; on Button **A pressed**
- ☐ Drag from **Basis**; show string into button A pressed
- ☐ Drag from **Music**; **play** under show string
- ☐ Drag from **Input**; on Button **B pressed**
- ☐ Drag from **Basic**; show **number** into button B pressed
- ☐ Drag from **Music**; play **melody** under show string

TIPS
- ☐ All the commands fit together as jigsaw puzzles
- ☐ You can delete a piece code with delete, right mouse

EXTRA
- ☐ Change the name
- ☐ Change the music
- ☐ Choice another icon
- ☐ Try button AB

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Card 2 - Song

Link to Code

woensdag 30 juli 2025   22:37

on shake
```
repeat  2  times
do
    play  tone  Middle C  for  1  beat   until done
    play  tone  Middle D  for  1  beat   until done
    play  tone  Middle E  for  1  beat   until done
    play  tone  Middle C  for  1  beat   until done
    rest for  1/2  beat
```

on button A pressed
```
play  tone  Middle E  for  1  beat   until done
play  tone  Middle A  for  1  beat   until done
play  tone  High C    for  1/2 beat  until done
play  tone  Middle B  for  1/2 beat  until done
play  tone  Middle A  for  2  beat   until done
play  tone  High E    for  1  beat   until done
play  tone  High D    for  2  beat   until done
play  tone  Middle B  for  2  beat   until done
```

WHAT?
You will make a littel song, and see how you can use the loop. Or you can make the Harry Potter song.

www.makecode.com

EXPLAIN CODE
- ☐ Delete on **start** and **forever** block
- ☐ Drag from **Input**; on **shake**
- ☐ Drag from **Loops**; **repeat** 4 times (change to 2 times)
- ☐ Drag from **Music**; **play** tone
- ☐ **Right mouse**; **copy** play tone, change to middle D etc
- ☐ Drag from **Input**; on button **A pressed**
- ☐ Drag from **Music**; **play** tone and make the harry potter song

TIPS
- ☐ **Right** mouse, you can copy a block
- ☐ Click on the **micro:bit logo**, you start a **new** project

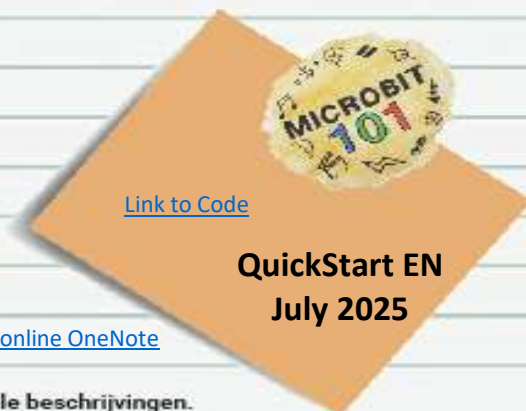### EXTRA
- ☐ Make your own music piece on Button AB
- ☐ What happens when you don't use the rest?
- ☐

Link to Code

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Card 3 - (Own) Animation

Link to Code

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on button A **pressed**

repeat 4 **times**
do
show icon ▾
play **tone** Middle C **for** 1/2 ▾ **beat** **until done** ▾
show icon ▾
play **tone** Middle C **for** 1/2 ▾ **beat** **until done** ▾

on button A+B ▾ **pressed**

repeat 4 **times**
do
show leds

pause (ms) 50 ▾

show leds

pause (ms) 50 ▾

play giggle ▾ **until done** ▾
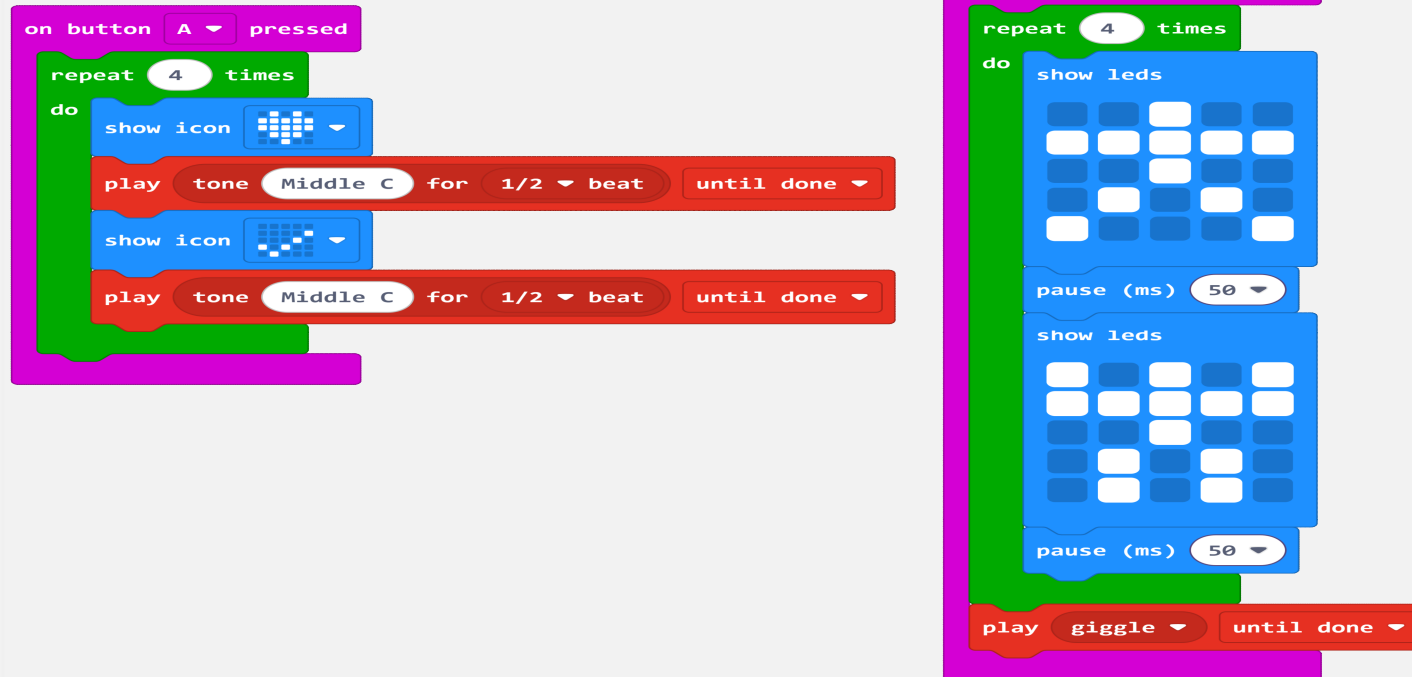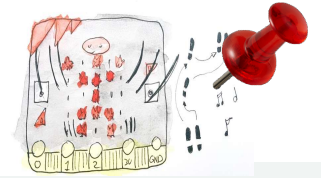
WHAT?
You will make your own animation (ticking hart) and add sounds. You make your own animation with the block show leds.

www.makecode.com

EXPLAIN CODE
☐ Drag from **Input**; on button **A pressed**
☐ Drag from **Loops**; **repeat** 4 times
☐ Drag from **Basic**; show icon (choose hart)
☐ Drag from **Music**; **Play** (tone Middel 1/2 beat)
☐ **Copy** the last 2 items (**right** mouse click)
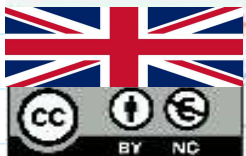☐ Change the **hart** for a **small hart**

TIPS
☐ 50 ms is 0,05 seconds.
☐ Calculation site from milliseconds to seconds

EXTRA
☐ Make your own animation with the show leds block.
☐ Add an extra block pause with onlly 50 ms.
☐ Drag play giggle from the Music blocks under the repeat
☐ You can also make rain, or a rocket
☐ You can use more show leds.

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Card 4 - Morse Code

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```
on button [A ▾] pressed
  play tone (Middle C) for [1 ▾] beat until done ▾

on button [B ▾] pressed
  play tone (Middle C) for [1/2 ▾] beat until done ▾

on button [A+B ▾] pressed
  repeat (3) times
  do
    play tone (Middle C) for [1/2 ▾] beat until done ▾
    pause (ms) (100 ▾)
  play tone (Middle C) for [1 ▾] beat until done ▾
```

WHAT?
You will make morse code with the micro:bit. So you can send morse code to each other.

www.makecode.com

Morse Code of Beethoven | Classical Music Did You Know | Hobuco

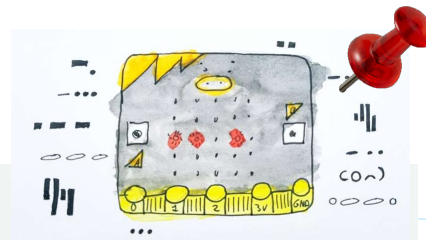The Morse Code of Beethoven

EXPLAIN CODE
- [ ] Drag from **Input**; on button **A** pressed
- [ ] Drag from **Music**; **Play** (tone Middel C 1 beat)
- [ ] **Copy** the block **button A pressed** (right mouse)
- [ ] **Paste** this, change A into **B**
- [ ] **Change** 1 beat to **1/2 beat**
- [ ] Drag from **Input**; on button **A pressed**, change to **AB**
- [ ] Drag from **Loop**, **repeat** 4 times, change to 3
- [ ] Drag from **Music**; **Play** tone Middel C, change beat to 1/2
- [ ] Drag from **Basic**; pause
- [ ] **Copy** play tone; **paste** this under the loop. Change 1/2 to **1 beat**

TIPS
- [ ] You can look for a command in the search above Basic
- [ ] A list of the international Morse Code
- [ ] Did you know that the start of Beethoven number 5 starst with 3 times short and 1 time long. That is V for victory. In the second World War, this music piece was forbidden to be played by the Nazi's.

EXTRA
- [ ] Send you own secret code in morse code to each other
- [ ] Put a word morse under the shake input

Link to Code

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Card 5 - Touch Sensor (V2)

Link to Code

```
on start
    show icon [▦] ▼
    play  giggle ▼    until done ▼

on logo  pressed ▼
    play  melody 🎵▐▐▐▐▐▐▐  at tempo  220  (bpm)   until done ▼
```
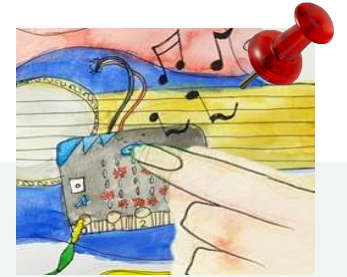
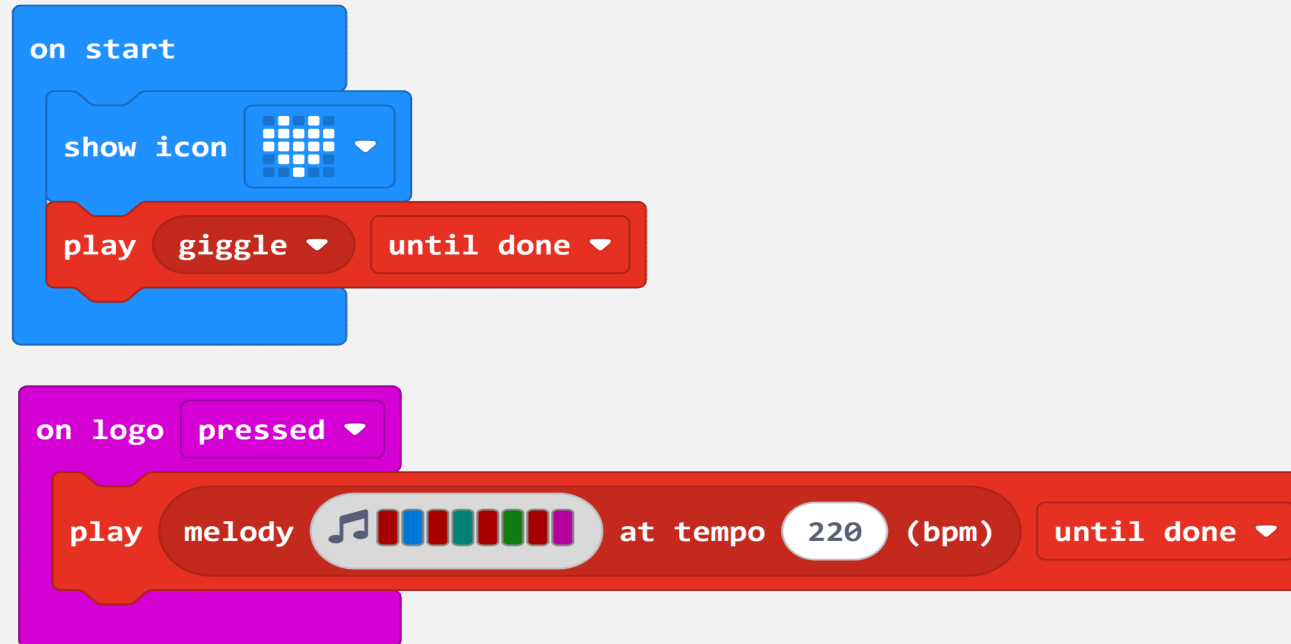**WHAT?**
You will now use the touch sensor on the micro:bit and make music with the melody editor.

www.makecode.com

EXPLAIN CODE
- ☐ Drag from **Basic**; show icon and pick an icon
- ☐ Drag from **Music**; **play giggle** (all the way down to V2 (version 2 micro:bit)
- ☐ Drag from **Input**; on button **A pressed**
- ☐ Drag from **Music**; **Play** melody, and make your own melody
- ☐ Play around with the tempo bpm (beats per minute)
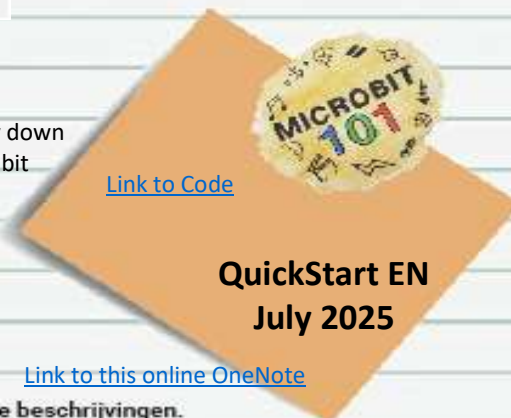
TIPS
- ☐ The special blocks for Version 2 micro:bit are all the way down
- ☐ If you use V2 sounds, error 927 will show on your micro:bit
- ☐ Sometimes you have to make you finger a little wet

EXTRA
- ☐ Change the sounds
- ☐ Can you change until done, that the sounds is there the whole time?
- ☐ With beats per minute you can change the tempo of the music
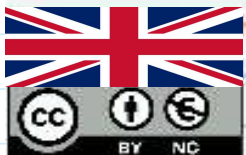
Link to Code

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Card 6 - Disco Lights (V2)
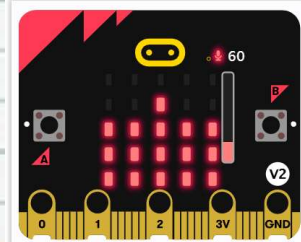
woensdag 30 juli 2025   22:37
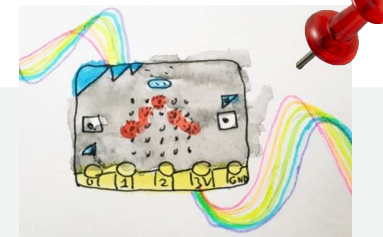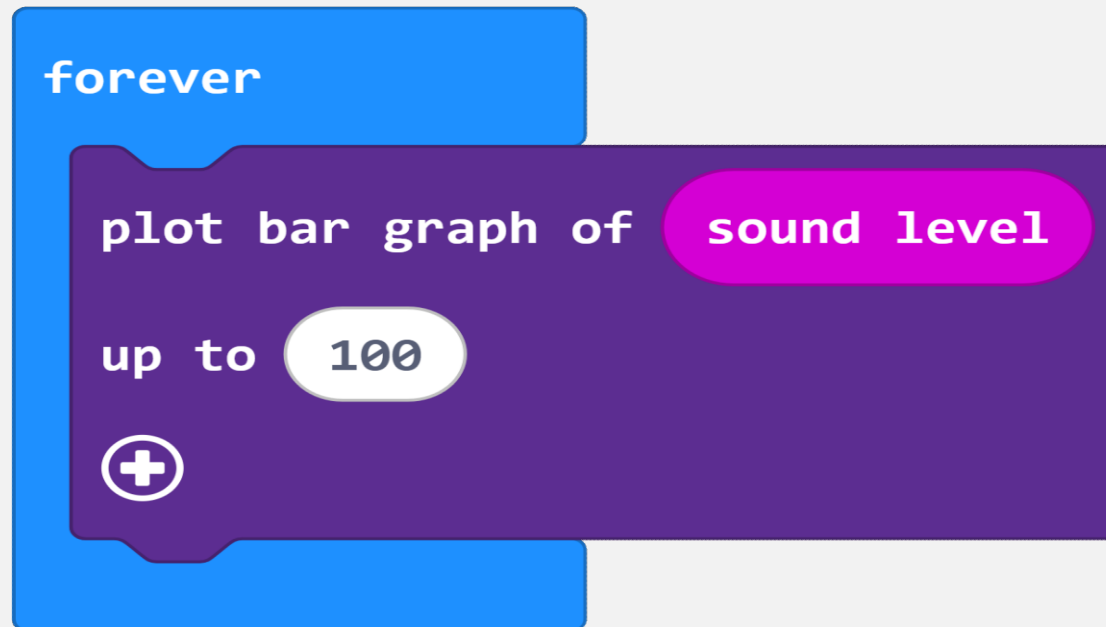
WHAT?
You will now use the sound level from the micro:bit. That is a new sensor on the V2.

www.makecode.com

A small extra LED will turn be on next to the logo, that is the sound sensor from te micro:bit.

EXPLAIN CODE
- [ ] Drag from **Basic**; **forever** block
- [ ] Drag from **Led**; **plot bar** into the **forever** block
- [ ] Drag from **Input**; sound level (down V2 sensor) into the 0 of plot bar
- [ ] Change the 0 from up to into 100
- [ ] Scream very loud towards the micro:bit…
- [ ] Put on a youtube song

TIPS
- [ ] You can see a small LED extra on next to the logo, that is the sound sensor
- [ ] As it is sometimes loud in a classroom, easier to use 100
- [ ] Put on a youtube song, and see the LED's on the micro:bit danse

EXTRA
- [ ] Change the sound level into light level, shine light on your micro:bit
- [ ] Change the sound level into temperature, blow to the micro:bit

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Card 7 - Dice

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[Link naar de Code](#)

```
on shake
    set dice to pick random 1 to 6
    repeat dice times
    do
        play tone Middle C for 1 beat until done
        show number dice
        pause (ms) 100
```
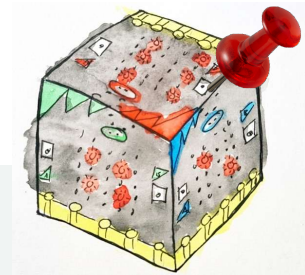
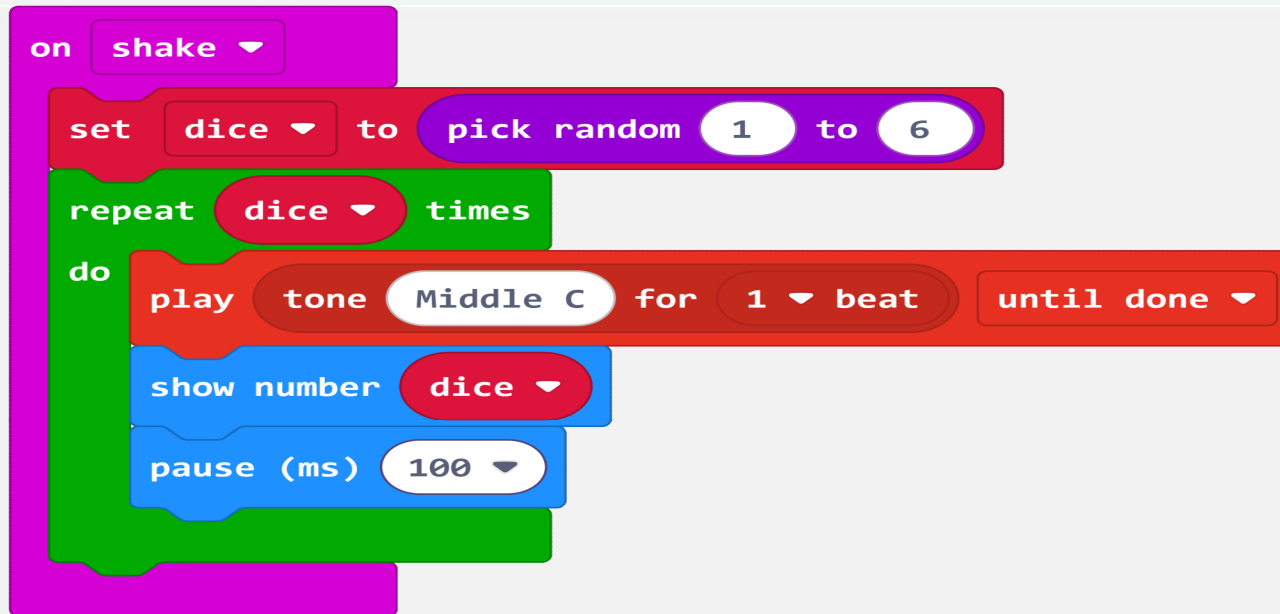**WHAT?**
You will make a dice with the micro:bit with sound.

www.makecode.com

EXPLAIN CODE
- ☐ Drag from **Input**; on **shake** block
- ☐ Drag from **Variable**; **make** a variable **dice**
- ☐ Drag from **Variables**; **set dice** to 0 in the shake block
- ☐ Drag from **Math**; **pick random** 1 to 10 into set dice
- ☐ **Change** the 0 to 10 to **1 to 6**
- ☐ Drag from **Loops**; **repeat** 4 times
- ☐ Drag from **Variables**; dice into the 4
- ☐ Drag from **Music**; play tone
- ☐ Drag from **Basic**; **show number**, **change** the 0 into **dice**
- ☐ Drag from **Basic**; pause 100

TIPS
- ☐ A variable are for instance: colours, ages, countries etc.
- ☐ If you use a variable, it is easy to code you program
- ☐ In a game score or time is a variable

EXTRA
- ☐ You can chance the tone
- ☐ Make a dice with 13 sides
- ☐ Change the pause

[Link naar de Code](#)

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Card 8 - Fortune Teller

woensdag 30 juli 2025   22:37

```
on shake ▼
    if  pick random true or false  then
        play tone High B for 1 ▼ beat  until done ▼
        show icon [....]
    else  ⊖
        play tone Low E for 1 ▼ beat  until done ▼
        show icon [....]
    ⊕
```
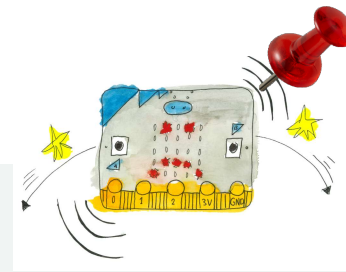
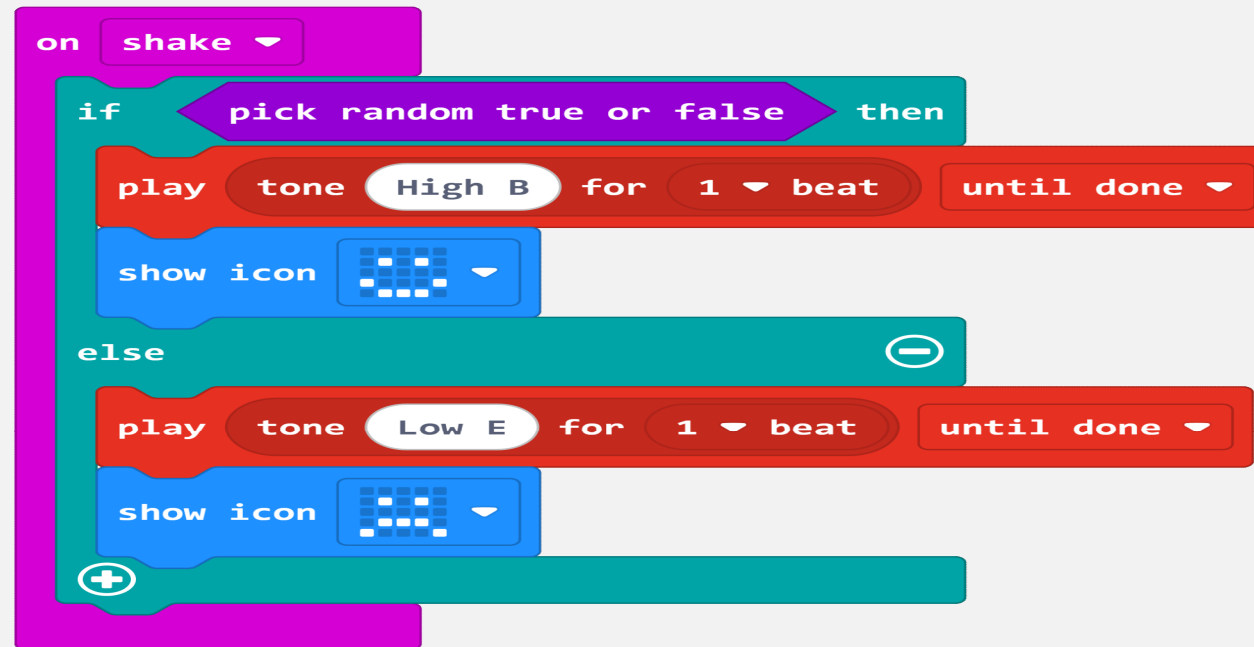**WHAT?**
You are going to make a fortuneteller. You can ask a question and if you shake the micro:bit he will give you the answer.

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EXPLAIN CODE
- ☐ Drag from **Input**; on **shake** block
- ☐ Drag from **Logic**; if true then else in the shake block
- ☐ Drag from **Math**; **pick random** true of false **into true** field
- ☐ Drag from **Music**; **play** tone and pick a **high** tone
- ☐ Drag from **Basic**; **show** icon and pick a **happy** face
- ☐ **Copy play** tone; **paste** it in the **else** part, **change** the tone in a **low** tone
- ☐ **Copy show** icon, **paste** this under the low tone, **change** into **sad** face

TIPS
- ☐ The if then else block you use often. Walk untill you see a wal.
- ☐ When you don't have not lives anymore, you are dead etc.

EXTRA
- ☐ You can chance the show icon into an animation
- ☐ Change the play tone into a play a happy or sad melody

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Card 9 - Click Game

Link naar de Code

woensdag 30 juli 2025   22:37

```
on shake ▼
    clear screen
    start countdown (ms) 10000
    play  tone  High B  for  1 ▼ beat  until done ▼
```

```
on button A ▼ pressed
    plot x  pick random 0 to 4  y  pick random 0 to 4
    play  tone  Middle C  for  1/16 ▼ beat  until done ▼
```
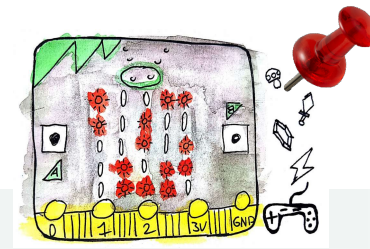
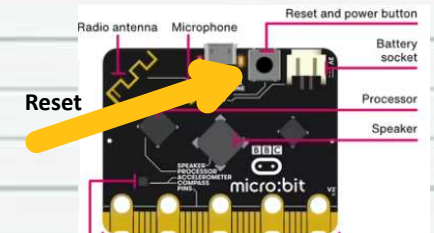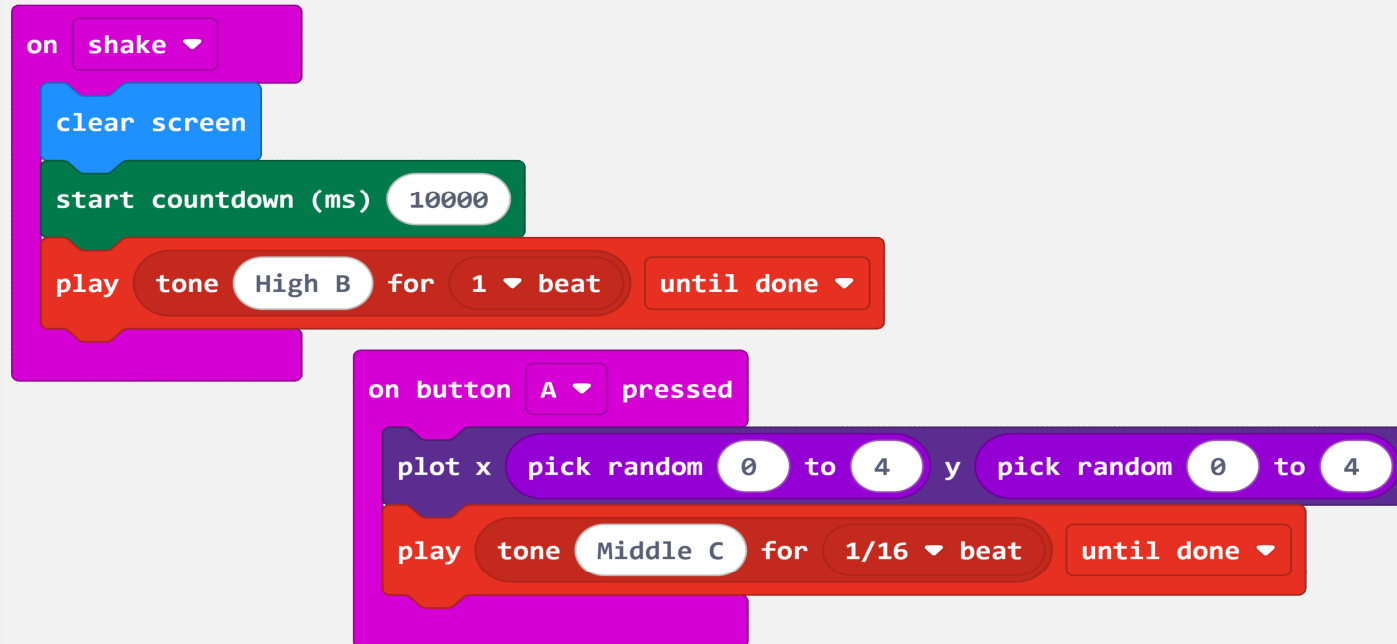**WHAT?**
Now you are going to make a simple klick game with sounds. Klick on button A and a LED light will go on and you hear a sound. When you fill all the LED's before the time is over you win. You can play this against each other. Or you can hack the game....

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Reset

Radio antenna   Microphone   Reset and power button
Battery socket
Processor
Speaker

micro:bit

EXPLAIN CODE
☐ Drag from **Input**; on **shake** block
☐ Drag from **Basic**; **clear** screen
☐ Drag from **Games** (**Advanced** blocks); start **countdown**
☐ Drag from **Music**; **play** tone and pick a **high** tone
☐ Drag from **Input**; on button **A pressed**
☐ Drag from **Led**; plot **x y** into the button **A pressed**
☐ Drag from **Math**; pick **random**, put this in random **x= 0** (change to **0 to 4**)
☐ **Copy** this **random block** and put it in the **y=0**
☐ Drag from **Music**; **play** tone and change to **1/16** beat

TIPS
☐ If you shake the micro:bit, he will clear the screen, start a countdown, when you her the tone, you can start press A to play the game
☐ Play it against somebody else. Start at the same time
☐ **When the game is finished, you have to press the reset button at the back**

EXTRA
☐ How can you add more LED's when you press A?
☐ What will happen when you pick random 0-10?
☐ You can change the countdown, more time to play

Link naar de Code

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Card 10 - Connect

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```
on start
    radio set group 1

on button A pressed
    radio send number 0
    show icon [V]

on radio received receivedNumber
    play melody 🎵 at tempo 120 (bpm) until done ▼
```

WHAT?
Now You learn how you can connect 2 micro:bits. They have to be on the same radio group. There are 256 different radio groups. The distance can be 60 meter.

www.makecode.com
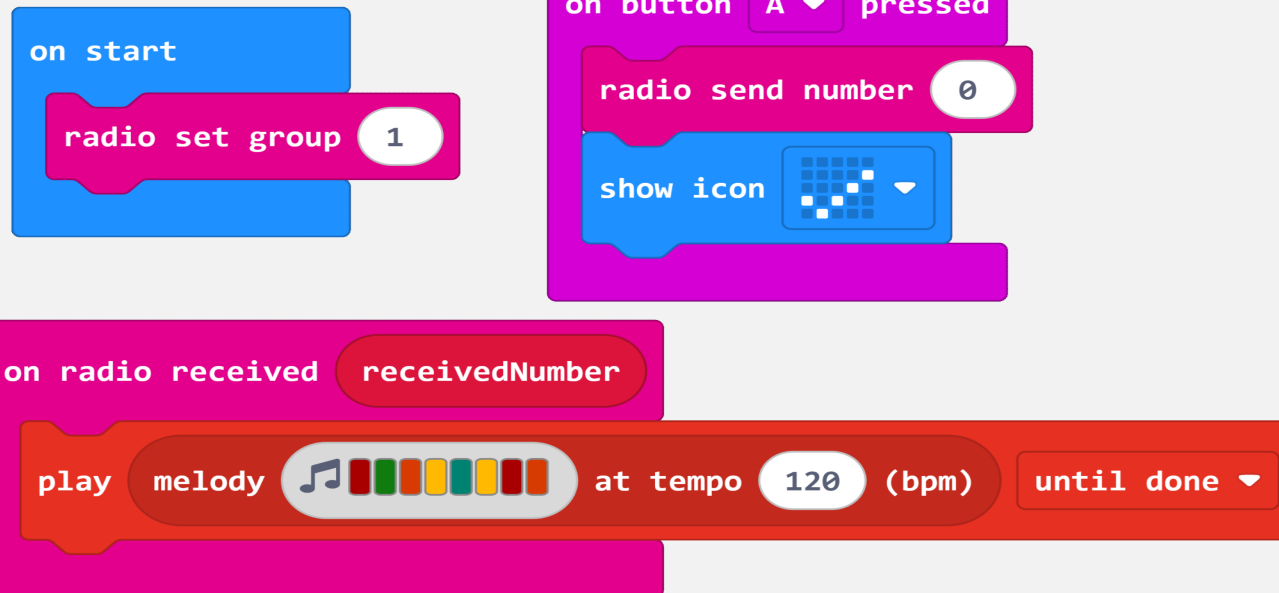
EXPLAIN CODE
- [ ] Drag from **Radio**; **radio** set **group** into the on start block
- [ ] You can **choose** from **1** to **255** radio group, make **pairs** and **pick** your **number**
- [ ] Drag from **Input**; on button **A pressed**
- [ ] Drag from **Radio**; **radio** send **number** 0 into the button A block
- [ ] Drag from **Basic**; show **icon** and pick a **V**
- [ ] Drag from **Radio**; on **radio received**
- [ ] Drag from **Music**; play **melody** into this block and pick a melody
- [ ] **Put this code on 2 micro:bits, and connect**

TIPS
- [ ] Make pairs, and pick your radio channel (1 to 255)
- [ ] You can send more different numbers to control for instance a car with a micro:bit in there.

EXTRA
- [ ] Change a button
- [ ] Send something by shake the other micro:bit
- [ ] Can you now hack the game (Card 9)?

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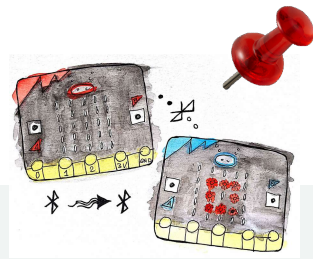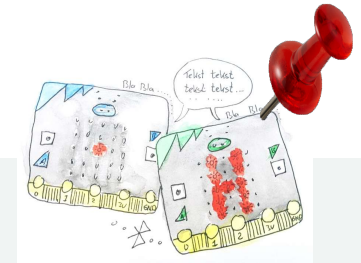copyright: Peter Heldens & Pauline Maas.

Card 11 - Secret Code

Link naar de Code

woensdag 30 juli 2025   22:37

```
on start
  radio set group 1
```

```
on button A ▼ pressed
  radio send string "YES"
```

```
on radio received receivedString
  show string receivedString
```

```
on button B ▼ pressed
  radio send string "NO"
```

WHAT?
As you saw in Card 12,you can connect micro:bits and send a number. You can also send a text, then you can send a secret code to each other.

www.makecode.com

EXPLAIN CODE
- [ ] Drag from **Radio**; **radio** set **group** into the on start block
- [ ] You can **choose** from **1** to **255** radio group, make **pairs** and **pick** your **number**
- [ ] Drag from **Input;** on button **A pressed**
- [ ] Drag from **Radio**; radio **send string** and change it into **YES**
- [ ] **Copy** on button A **pressed**, **Paste** it
- [ ] Change it on button B pressed and the string in **NO**
- [ ] Drag from **Radio;** on **radio received received string**
- [ ] Drag from **Basic; show string** into it, drag **ReceivedString** into "hello"
- [ ] **Put this code on 2 micro:bits, and connect**

TIPS
- [ ] Make pairs, and pick your radio channel (1 to 255)
- [ ] Now you can send secret message to each other

EXTRA
- [ ] What other words can you send?
- [ ] Try how far away you can stand
- [ ] Can you connect more micro:bits on the same group?

Link naar de Code

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Card 12- Bom

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```
on shake ▼
    show string "3 2 1"
    set time ▼ to  pick random  5  to  20
    while   time ▼  > ▼  0
    do
        play  tone  Middle C  for  1/4 ▼ beat    until done ▼
        change  time ▼ by  -1
        pause (ms)  1000 ▼

    play  sad ▼   until done ▼
```
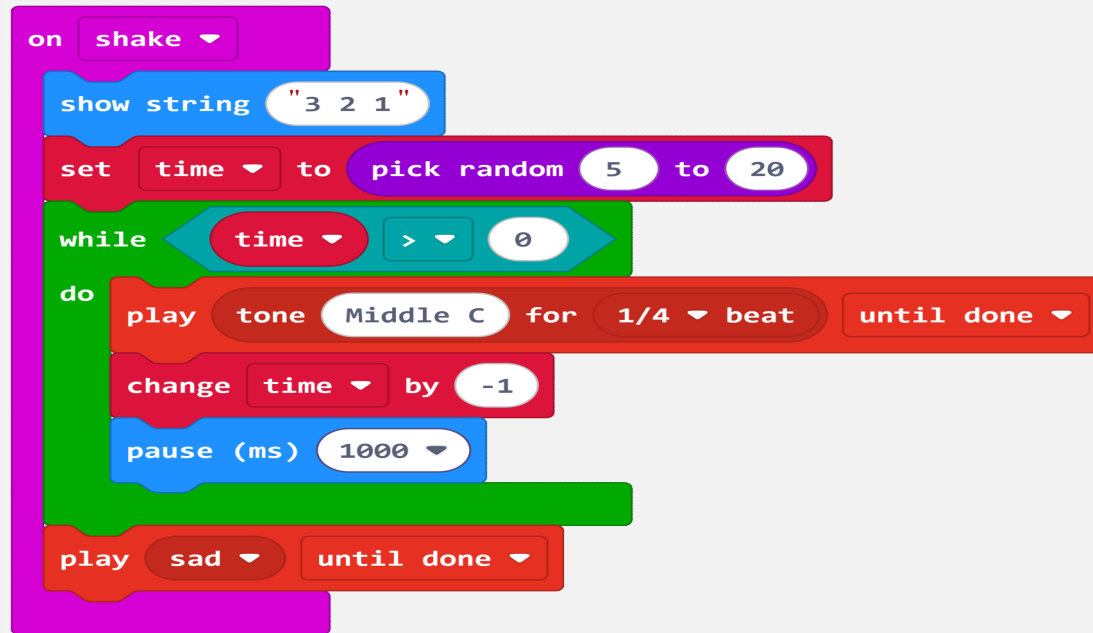
WHAT?
Do you know the game "Hot Potato" with a time "bom" in your box. You have to hand it to the other in a circle when the "bom" explode you loose.

www.makecode.com

EXPLAIN CODE
- ☐ Drag from **Input;** on **shake**
- ☐ Drag from **Basic;** show **string** and change it into "**3 2 1**"
- ☐ Go to **Variables; make** a variable **time**
- ☐ Drag from **Variables; set time** under show string
- ☐ Drag from **Math; pick random** and change it into 5 to 20
- ☐ Drag from **Loops; While** do
- ☐ Drag from **Logistic;** 0 > 0 into the **while do**
- ☐ Drag from **Variable; time** into the first **0**
- ☐ Drag from **Music; play** tone in the **while** do and change **the beat to 1/4**
- ☐ Drag from **Variables; change time** and change it to **-1**
- ☐ Drag from **Basic; pause** 1000
- ☐ Drag from **Music;** play **giggle** (V2 music) and change it to **sad**

TIPS
- ☐ The block play sad, must be under while do, that is the music that comes when the bom explodes
- ☐ Can you change the pause also in random?
- ☐ Can the play tone change, when the bom almost explodes

EXTRA
- ☐ Make LED on the micro:bit, is the more exiting yes or no?
- ☐ What happens when you set the first random on 0?
- ☐ Why don't we use the game block, count down?

QuickStart EN
July 2025

microbit101 : Een doos met materialen om alle 101 projecten om te maken en een online omgeving met alle beschrijvingen.