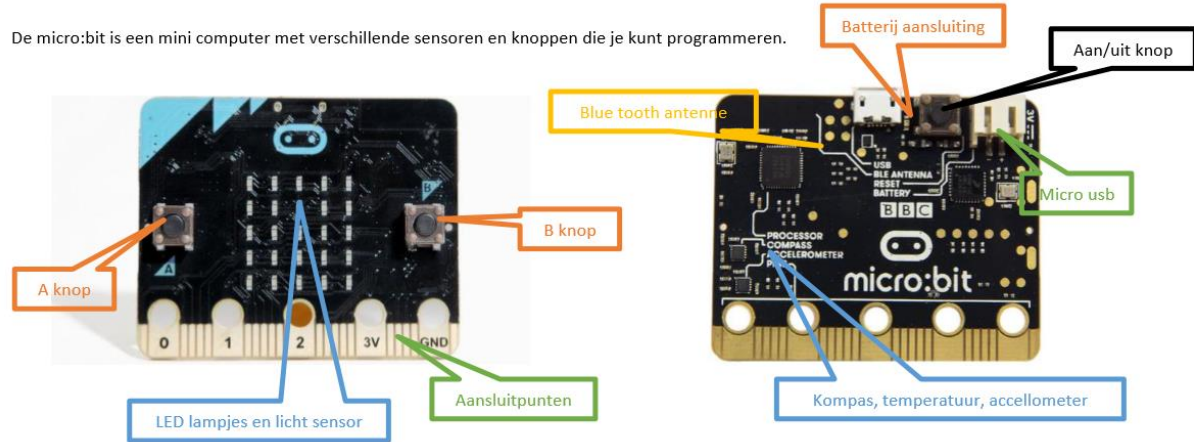


Negen mini opdrachten voor de micro:bit

De micro:bit is een mini computer met verschillende sensoren en knoppen die je kunt programmeren.



Aan de slag

Ga naar www.makecode.com, kies voor micro:bit en je kunt meteen aan de slag.

Sleep je commando's naar het midden. Kijk goed naar de kleuren, deze hebben allemaal andere functies.

Zodra je programma klaar is kun je deze direct online testen. Zie de virtuele micro:bit aan de linkerkant van je scherm.

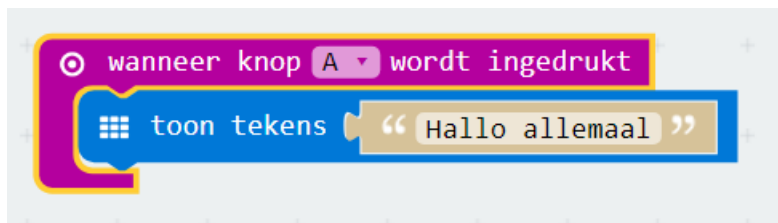
Als je je programmacode ook wilt testen op de echte micro:bit doe dan het volgende:

1. Stop de USB kabel in de micro:bit.
2. Stop de andere kant van de kabel in de computer
3. Klik in makecode.com op download.
4. Sleep het gedownloadde bestand naar de micro:bit in de verkenner

Sla iedere opdracht op in je map. Allemaal gemaakt? Vraag de docent om je werk af te vinken.

Negen mini opdrachten voor de micro:bit

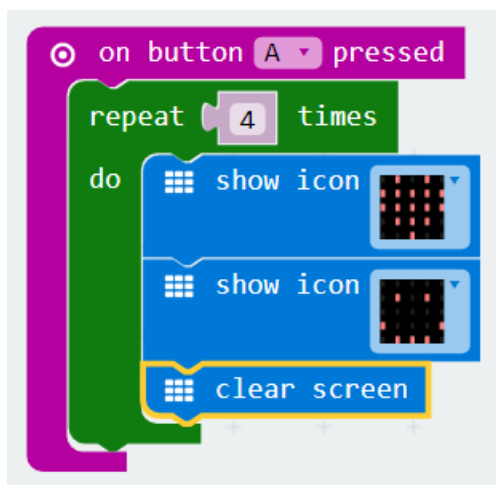
Opdracht 1: Hallo allemaal



Opdracht 2: Willekeurig nummer



Opdracht 3: Icoon tonen



Negen mini opdrachten voor de micro:bit

Opdracht 4 Steen Papier Schaar

The image shows a Scratch script for a Rock Paper Scissors game on a micro:bit. The script starts with a 'when green flag clicked' event, followed by a 'shake' block. A loop 'as long as' block contains three conditional branches based on the 'Dobbelsteen' (dice roll) value:

- When Dobbelsteen = 0:** The 'instellen naar' block is set to 0. The 'toon lichtjes' block shows a 5x5 grid of lights where the four corners are red and the rest are blue.
- When Dobbelsteen = 1:** The 'instellen naar' block is set to 1. The 'toon lichtjes' block shows a 5x5 grid of lights where the center three lights in the second and third rows are red, and the rest are blue.
- When Dobbelsteen = 2:** The 'instellen naar' block is set to 2. The 'toon lichtjes' block shows a 5x5 grid of lights where the four corners and the center light are red, and the rest are blue.

```
op schudden
als
  Dobbelsteen = kies willekeurig van 0 tot 2
  dan
    Dobbelsteen instellen naar 0
    toon lichtjes
  anders als
    Dobbelsteen = 1
    dan
      toon lichtjes
  anders
    toon lichtjes
```

Negen mini opdrachten voor de micro:bit

Opdracht 5 Dobbelsteen

The image shows a Scratch script for a dice game on a micro:bit. The script is contained within a 'when green flag clicked' event block. The main logic is as follows:

- Start:** A 'when green flag clicked' event block.
- Initialization:** A 'Dobbelsteen instellen naar' block with a 'kies willekeurig van 0 tot' block set to 5, and a '+ 1' block.
- Game Loop:** A 'do while' loop with the condition 'Dobbelsteen <= 5'. Inside the loop, there are three 'if-then' blocks:
 - Condition 1:** 'als Dobbelsteen = 1'. If true, the 'toon lichtjes' block shows a 5x5 grid with one red square in the center.
 - Condition 2:** 'als Dobbelsteen = 2'. If true, the 'toon lichtjes' block shows a 5x5 grid with two red squares at (row, col) (1, 4) and (4, 1).
 - Condition 3:** 'als Dobbelsteen = 3'. If true, the 'toon lichtjes' block shows a 5x5 grid with three red squares at (1, 3), (2, 2), and (3, 1).
- End:** The 'do while' loop ends with the condition 'Dobbelsteen <= 5'.

Negen mini opdrachten voor de micro:bit

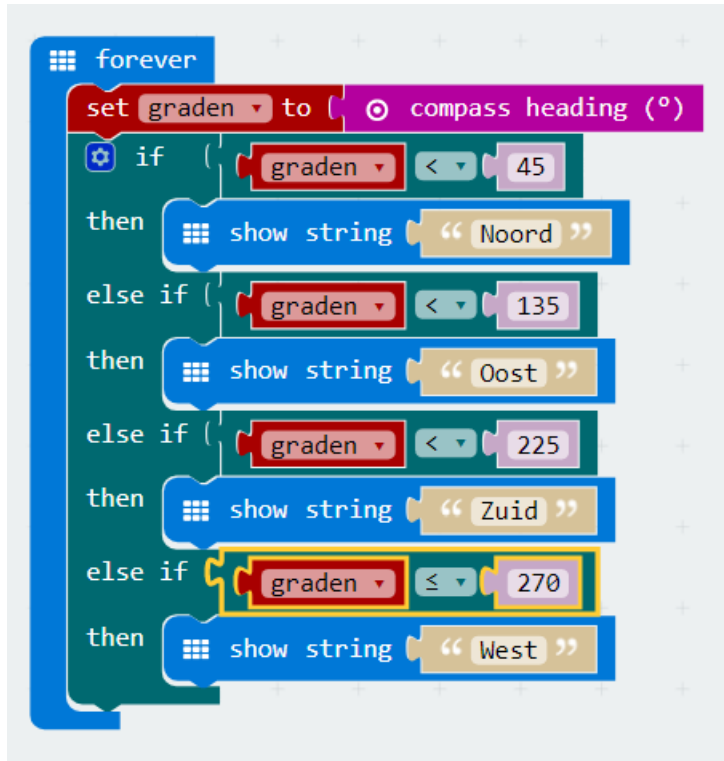
Opdracht 6 Timer

```
on button A pressed
  if (score > 0)
  then
    while true
    do
      set score score - 1
      show number score

on start
  set score 10
  show number score
```

Negen mini opdrachten voor de micro:bit

Opdracht 7A Kompas



```
forever loop
  set graden to (compass heading (°))
  if (graden < 45)
    then show string "Noord"
  else if (graden < 135)
    then show string "Oost"
  else if (graden < 225)
    then show string "Zuid"
  else if (graden ≤ 270)
    then show string "West"
```

The image shows a Scratch script for a compass. It starts with a 'forever' loop. Inside the loop, the first block is 'set graden to (compass heading (°))'. This is followed by four 'if-then' blocks. The first 'if' block checks 'if (graden < 45)' and then shows the string 'Noord'. The second 'else if' block checks 'else if (graden < 135)' and then shows 'Oost'. The third 'else if' block checks 'else if (graden < 225)' and then shows 'Zuid'. The fourth 'else if' block checks 'else if (graden ≤ 270)' and then shows 'West'. The '≤' operator in the last condition is highlighted with a yellow box.

7B: Breidt de opdracht uit met NoordOost, NoordWest, ZuidOost en ZuidWest.

Negen mini opdrachten voor de micro:bit

Opdracht 8 Stappen

The image displays three Scratch code blocks on a grid background, designed for a micro:bit project. The first block is a 'when shaken' event block containing a 'set steps to 2' block, a 'show lights' block (displaying a 5x5 grid of red and blue squares), a 'wait 500 ms' block, and a 'clear screen' block. The second block is a 'when button A+B pressed' event block containing a 'clear screen' block and a 'set steps to 0' block. The third block is a 'when button A pressed' event block containing a 'show number' block (displaying the 'steps' variable), a 'wait 1500 ms' block, and a 'clear screen' block.

```
op schudden  
  stappen instellen naar 2  
  toon lichtjes  
  pauzeer (ms) 500  
  scherm wissen  
wanneer knop A + B wordt ingedrukt  
  scherm wissen  
  stappen instellen naar 0  
wanneer knop A wordt ingedrukt  
  toon nummer stappen  
  pauzeer (ms) 1500  
  scherm wissen
```

Negen mini opdrachten voor de micro:bit

Opdracht 9A Geluid

```
when button A is pressed
  repeat 2 times
    do
      play tone Low C for 1 beat
      play tone Low D for 1 beat
      play tone Low E for 1 beat
      play tone Low C for 1 beat
      pause 50 ms
  repeat 2 times
    do
      play tone Low E for 1 beat
      play tone Low F for 1 beat
      play tone Low G for 1 beat
      pause 50 ms
  repeat 2 times
    do
      play tone Low G for 1/2 beat
      play tone Low A for 1/2 beat
      play tone Low G for 1/2 beat
      play tone Low F for 1/2 beat
      play tone Low E for 1 beat
      play tone Low C for 1 beat
      pause 50 ms
  repeat 2 times
    do
      play tone Low C for 1 beat
      play tone Low G for 1 beat
      play tone Low C for 2 beat
      pause 50 ms
```

The code is written in Scratch and is triggered by button A. It consists of four main sections, each enclosed in a 'repeat 2 times' loop. Each section contains a 'do' block with several 'play tone' blocks and a 'pause' block. The notes and durations are as follows:

- Section 1: Low C (1 beat), Low D (1 beat), Low E (1 beat), Low C (1 beat), pause 50 ms.
- Section 2: Low E (1 beat), Low F (1 beat), Low G (1 beat), pause 50 ms.
- Section 3: Low G (1/2 beat), Low A (1/2 beat), Low G (1/2 beat), Low F (1/2 beat), Low E (1 beat), Low C (1 beat), pause 50 ms.
- Section 4: Low C (1 beat), Low G (1 beat), Low C (2 beat), pause 50 ms.

9B: Maak ook je eigen muziekcode.