

matatalab EDU

Uitdagings boekje



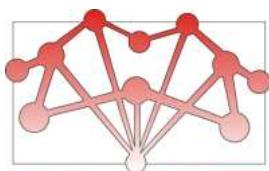
TAK



techniek als kapstok

Uitgave van PMOT

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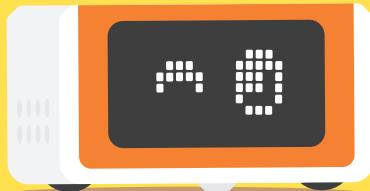
PMOT, december2022
ISBN: 978-90-832144-7-4

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01

Hallo
Ik ben VinciBot!



Hallo ,
Ik ben VinciBot!



```
when triangle key pressed
  move forward [20 cm]
  turn left [720 degrees]
  show image [hands hands v2.png] for [1] seconds
  show image [hands hands v1.png] for [1] seconds
  write [Hi]
  wait [1 seconds]
  show image [hands v1.png]
  say [Hallo ik ben VinciBot!] until done
  emotion [happy v2]
```

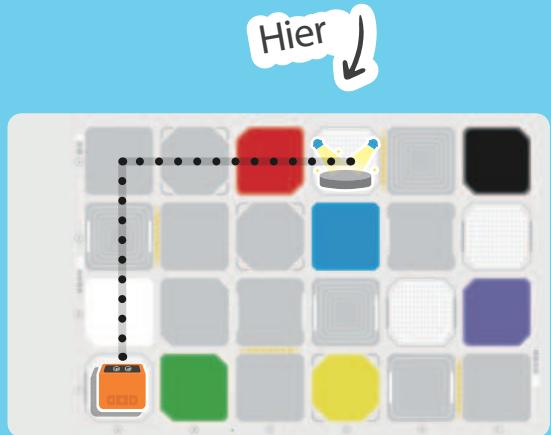
A Scratch script consisting of the following blocks:

- when triangle key pressed
- move forward [20 cm]
- turn left [720 degrees]
- show image [hands hands v2.png] for [1] seconds
- show image [hands hands v1.png] for [1] seconds
- write [Hi]
- wait [1 seconds]
- show image [hands v1.png]
- say [Hallo ik ben VinciBot!] until done
- emotion [happy v2]

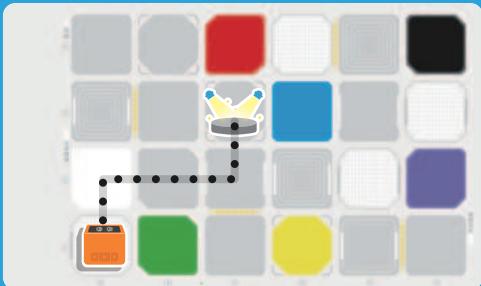


02

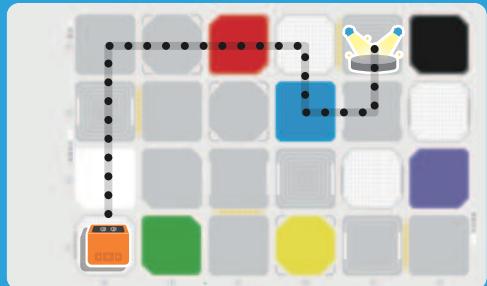
VinciBot is een Superstar!



Uitdaging 01



Uitdaging 02



03

De regenboog lamp

Make a paper lampshade



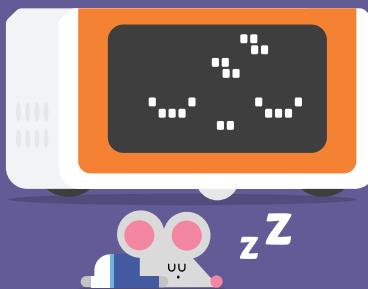
```
When triangle key pressed
forever
  set all LEDs to color [red v] brightness [100 %]
  Wait [1] seconds
  set all LEDs to color [green v] brightness [100 %]
  Wait [1] seconds
  set all LEDs to color [yellow v] brightness [100 %]
  Wait [1] seconds
  set all LEDs to color [white v] brightness [100 %]
  Wait [1] seconds
  set all LEDs to color [orange v] brightness [100 %]
  Wait [1] seconds
  set LED's array [rainbow v]
  Wait [2] seconds
```



04

Ik ben
slaperig

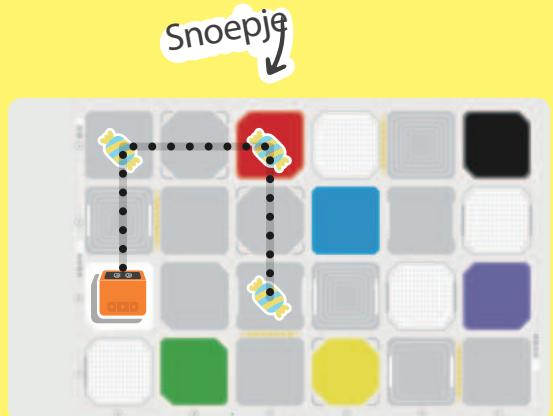
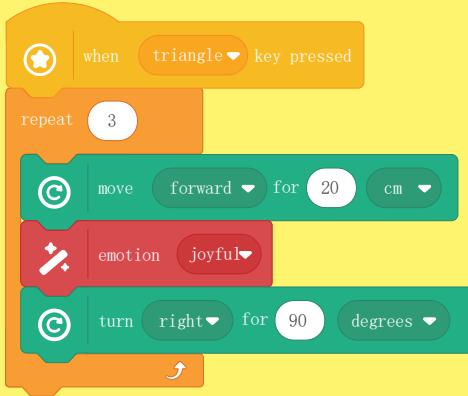
z Z



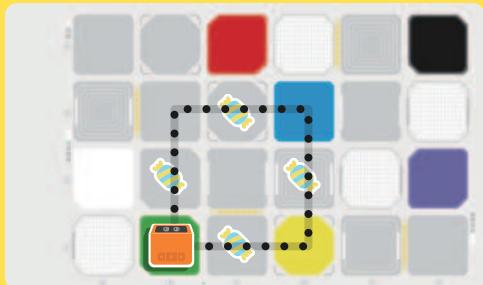
```
when triangle key pressed
repeat (5)
  show image [zzz.v] for 1 seconds
  show image [orange bed.v] for 1 seconds
  show image [alarm clock.v]
  say: Ik ben slaperig until done
  turn left 1080 degrees
  say: Het is slaaptijd until done
turn off screen
```

05

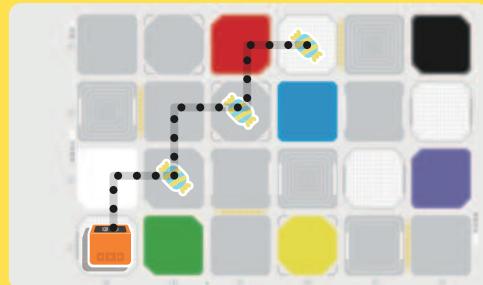
Snoepreis



Uitdaging 01

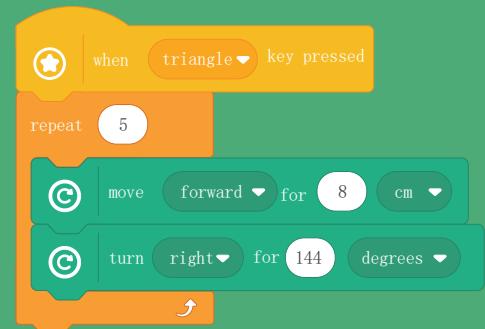
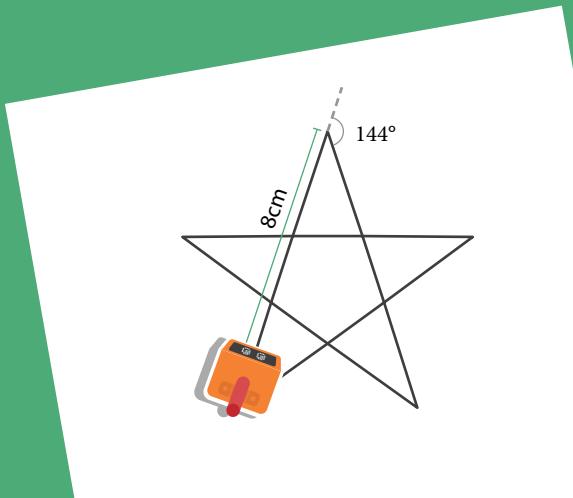


Uitdaging 02

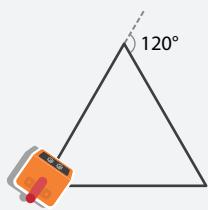


06

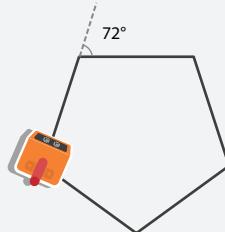
VinciBot is een Artiest !



Uitdaging 01



Uitdaging 02



Uitdaging 03



07

《Twinkle Twinkle Little Star》

Twinkle Twinkle Little Star, How I wonder what you are!
Up above the world so high, like a diamond in the sky.

5 5 | 4 4 | 3 3 | 2 - | 5 5 | 4 4 | 3 3 | 2 - |
Up a - bove the sky so high, like a dia-mond in the sky.



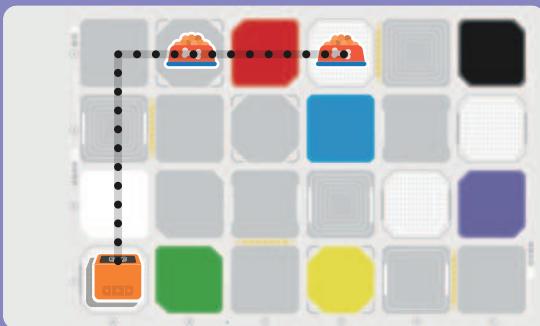
```

when robot start
forever
  show image [twinkie v1.png] for 1 seconds
  show image [twinkie v2.png] for 1 seconds
repeat (2)
  when triangle key pressed
    De eerste 2 regels
    play note 67 for 0.25 beats
    play note 67 for 0.25 beats
    play note 65 for 0.25 beats
    play note 64 for 0.25 beats
    play note 64 for 0.25 beats
    play note 62 for 0.25 beats
    play note 62 for 0.25 beats
    play note 60 for 0.5 beats
  end
  The first 2 lines
  play note 60 for 0.25 beats
  play note 60 for 0.25 beats
  play note 67 for 0.25 beats
  play note 67 for 0.25 beats
  play note 69 for 0.25 beats
  play note 69 for 0.25 beats
  play note 67 for 0.5 beats
  play note 65 for 0.25 beats
  play note 65 for 0.25 beats
  play note 64 for 0.25 beats
  play note 64 for 0.25 beats
  play note 62 for 0.25 beats
  play note 62 for 0.25 beats
  play note 60 for 0.5 beats
end

```

08

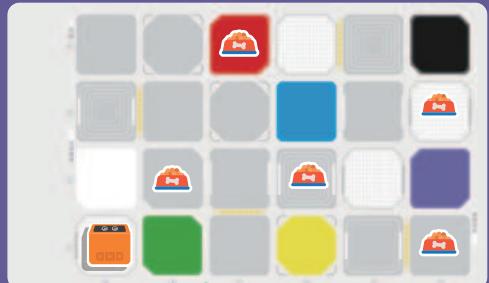
De schattige puppy



```

when green flag clicked
repeat (5)
  move forward 10 degrees
  turn right 180
end
sound [animal dog v]
end
  
```

Uitdaging



```

define puppy's performance
repeat (5)
  move forward 10 degrees
  turn right 180
end
sound [animal dog v]
end
  
```

09

Mag ik je vriend zijn?



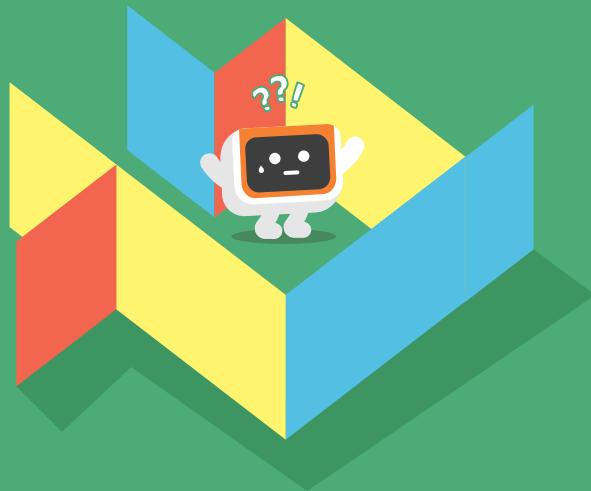
```
[when triangle key pressed]
[show image [friend.png]]
[start moving forward with 100% speed]
```

```
[when obstacle distance > 10]
[stop moving]
[write Hi]
[Say: Mag ik je vriend zijn? until done]
[emotion happy]
[turn off screen]
```



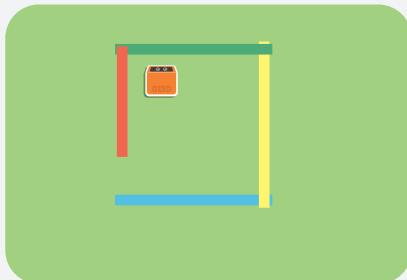
10

Ontsnap uit het doolhof



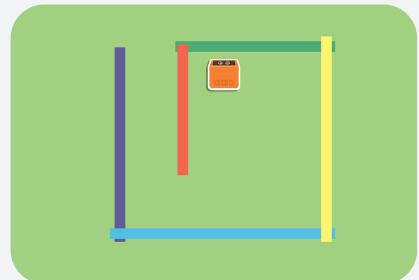
```
when triangle key pressed
forever
  if (get obstacle distance) > 10 then
    turn right for 90 degrees
  else
    start moving forward with 80 % speed
```

Doolhof 01



Bouw een doolhof

Doolhof 02



11

Volg mij!

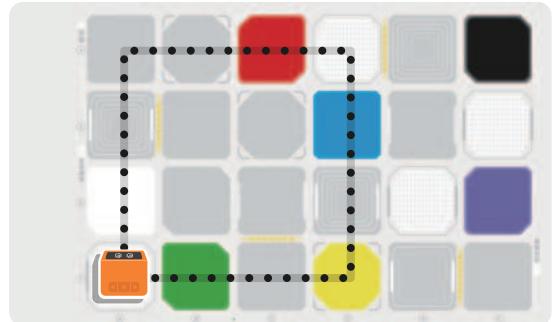


```
when triangle key pressed
forever
  if (get obstacle distance) < 5 then
    start moving forward with 100 % speed
  else
    stop moving
  repeat (2)
    show image [car] for 0.5 seconds
    show image [boat] for 0.5 seconds
  end
  emotion surprised
  say: Waar ben je?
```



12

Het kleurenbeest

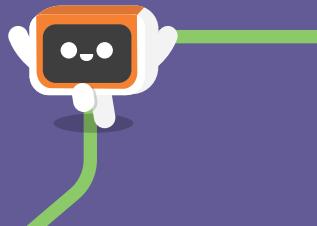


```
when triangle key pressed
forever
  move forward for 30 cm voor 60 % speed
  turn right for 90 degrees
  if ((o)) is color red detected? then
    sound emotion sad
  end
  if ((o)) is color green detected? then
    sound emotion hum
  end
  if ((o)) is color yellow detected? then
    sound emotion laugh
  end
end
```



13

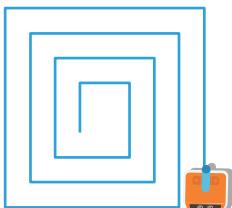
Lijn volgen



```
when triangle key pressed
forever
  if (left reflection light) > 200 and (right reflection light) > 200 then
    set [A speed to -100%]
    set [B speed to 100%]
  else
    if (left reflection light) > 200 and (right reflection light) < 200 then
      set [A speed to 100%]
      set [B speed to -100%]
    else
      if (left reflection light) > (right reflection light) then
        set [A speed to -80%]
        set [B speed to 50%]
      else
        if (left reflection light) < (right reflection light) then
          set [A speed to -50%]
          set [B speed to 80%]
        else
          set [A speed to 0%]
          set [B speed to 0%]
```

14

Spiraalpatroon



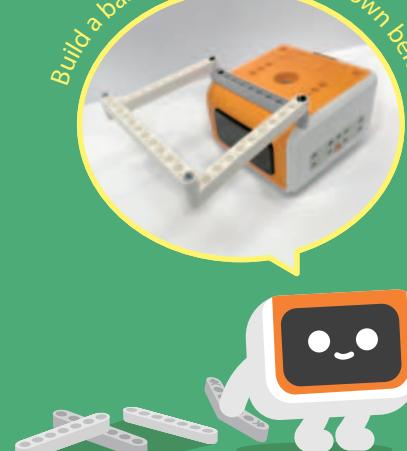
```
when triangle key pressed
set [x] to [3]
repeat (10)
  repeat (2)
    [move forward [x] cm] 
    [turn right [90] degrees]
  end
  change [x] by [2]
```

```
when triangle key pressed
set [x] to [2]
repeat (30)
  [move forward [x] cm] 
  [turn right [72] degrees]
  change [x] by [0.5]
```

```
when triangle key pressed
set [x] to [3]
repeat (20)
  [move forward [x] cm] 
  [turn right [120] degrees]
  change [x] by [2]
```

15 Schiet machine

Build a basket on VinciBot as shown below

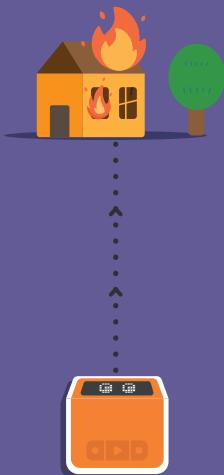


```
when triangle key pressed
turn off screen
set [X] to [0]
forever
  if (get [obstacle distance v.] < [5]) then
    sound [game v.]
    change [X] by [1]
    write [X]
    wait [1] seconds
end
```



16

Brandweerauto



```
when triangle key pressed
  set x to 0
  wait 1 seconds
forever
  if (loudness > 70) and (x = 0) then
    set x to 1
    sound traffic fire engine bell
    start moving forward with 100 % speed
  if (get obstacle distance < 5) then
    stop moving
    action look around
    sound others water flow until do
      stop all
  end
end
```

A cartoon illustration of a white mouse wearing a red fire helmet and a blue firefighter's uniform. The mouse is holding a yellow hose that ends in a blue spray of water. It has a small red water gun in its other hand.

17

Markeer lichten



The image shows a Scratch script consisting of two main parts: a hat block and a forever loop.

Hat Block: when triangle key pressed

- turn off screen
- show image []

Forever Loop:

- set **x** to **0**
- set **y** to **1**
- forever
- wait (0.1) seconds
- set pixel at **x** **y** to **100**
- set pixel at **x** **y** to **0**
- change **x** by **1**
- if **x > 15** then
- change **y** by **1**
- set **x** to **0**
- if **y > 7** then
- show image []
- set **y** to **1**

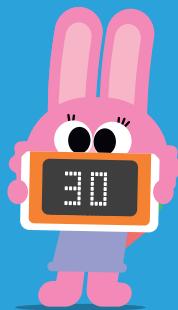
A yellow arrow at the bottom indicates the script should be run.

18

Spirometer



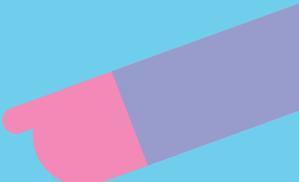
1

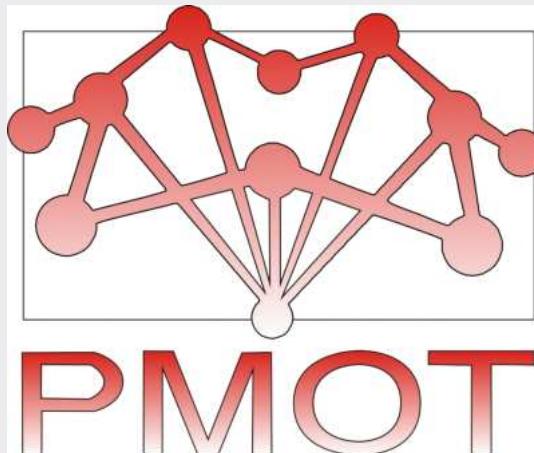


2

A Scratch script for a Spirometer project. It starts with a 'when green flag clicked' hat, followed by a 'turn of screen' control block. Inside a 'forever' loop, it checks if the 'loudness' sensor is above 40. If so, it sets the pixel at position (X, Y) to 100. It then waits 0.2 seconds, changes X by 1, and checks if X is greater than 15. If true, it changes Y by 1 and sets X back to 0. Finally, it checks if the 'volume' sensor is above 20, waits 1 second, and writes the value of Y multiplied by 16 plus X to the screen. The script concludes with a 'stop all' control block.

```
when green flag clicked
  turn of screen
  set [X v] to [0]
  set [Y v] to [0]
  wait [0.5] seconds
  forever
    if [loudness v] > [40] then
      set pixels at x: [X] y: [Y] to [100]
      wait [0.2] seconds
      change [X v] by [1]
      if [X > 15] then
        change [Y v] by [1]
        set [X v] to [0]
      end
      if [volume v] > [20] then
        wait [1] seconds
        write ( [Y * 16] + [X] )
      end
    end
  stop all
```





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