



Overzicht

- 10:00 uur – 13:00 uur
- Praktisch gedeelte zelf/samen aan de slag

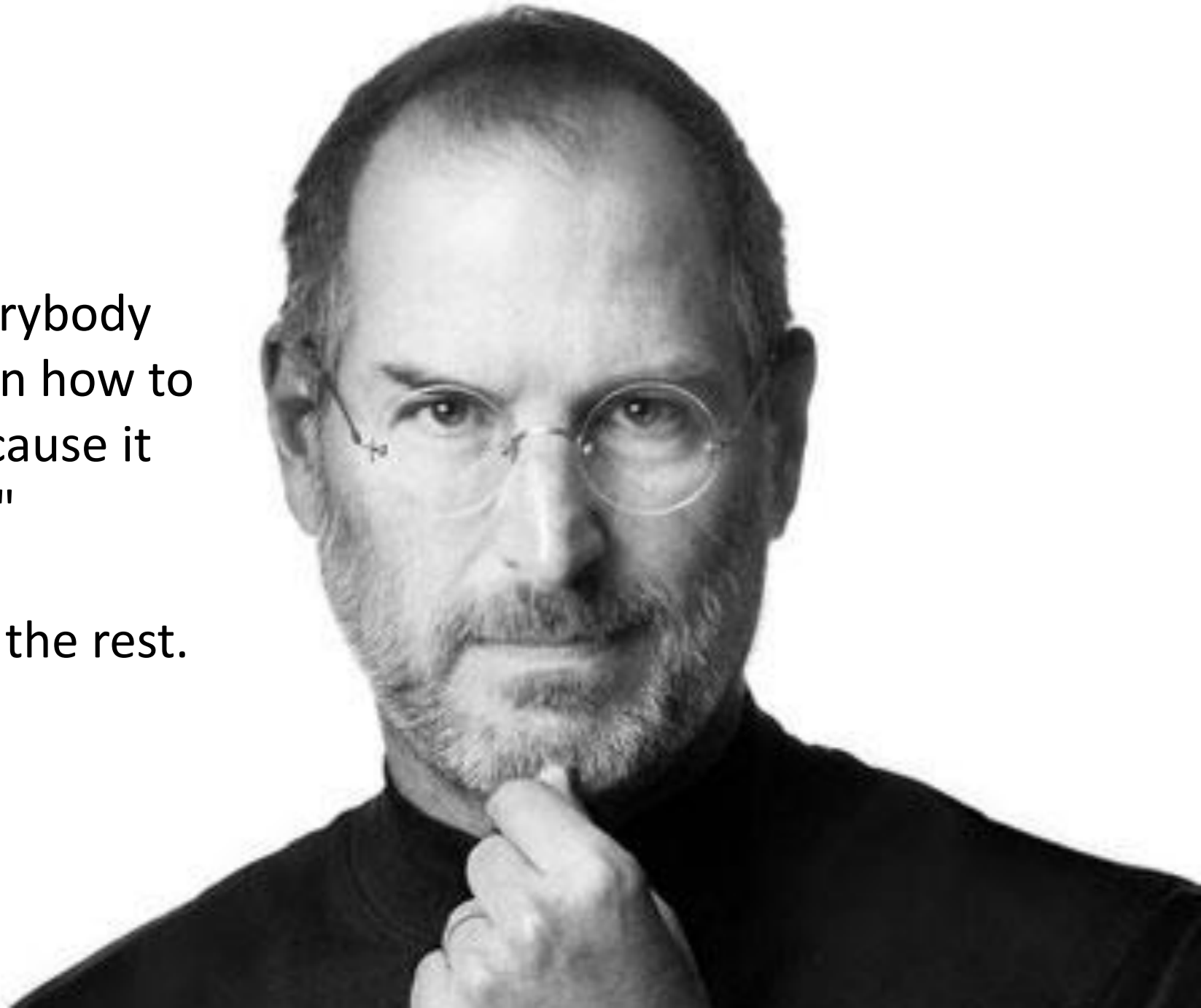
```
table {
  border-collapse: collapse;
  border-spacing: 0;
}
button, input, select, textarea { margin: 0 }
:focus { outline: 0 }
a:link { -webkit-tap-highlight-color: #FF5E99 }
img, video, object, embed {
  max-width: 100%;
  height: auto!important;
}
iframe { max-width: 100% }
blockquote {
  font-style: italic;
  font-weight: normal;
  font-family: Georgia,Serif;
  font-size: 15px;
  padding: 0 10px 20px 27px;
  position: relative;
  margin-top: 25px;
}
blockquote:after {
```

```
font-style: normal;
font-family: arial;
}
small { font-size: 100% }
figure { margin: 10px 0 }
code, pre {
  font-family: monospace,consolas;
  font-weight: normal;
  font-style: normal;
}
pre {
  margin: 5px 0 20px 0;
  line-height: 1.3em;
  padding: 8px 10px;
  overflow: auto;
}
pre {
  padding: 0 8px;
  height: 1.5;
}
pre {
  padding: 1px 6px;
```



Steve Jobs once said, "Everybody in this country should learn how to program a computer... because it teaches you how to think."

Forget the country, follow the rest.



Why should you learn how to program?

- **Coding develops structured and creative thinking**
- **Programming makes things easier for you**
- **Learning to program teaches you persistence**







Cheating Frenchman sues Uber for
tipping off wife about affair

As a hacker, you will need to develop skills that will help you get the job done.

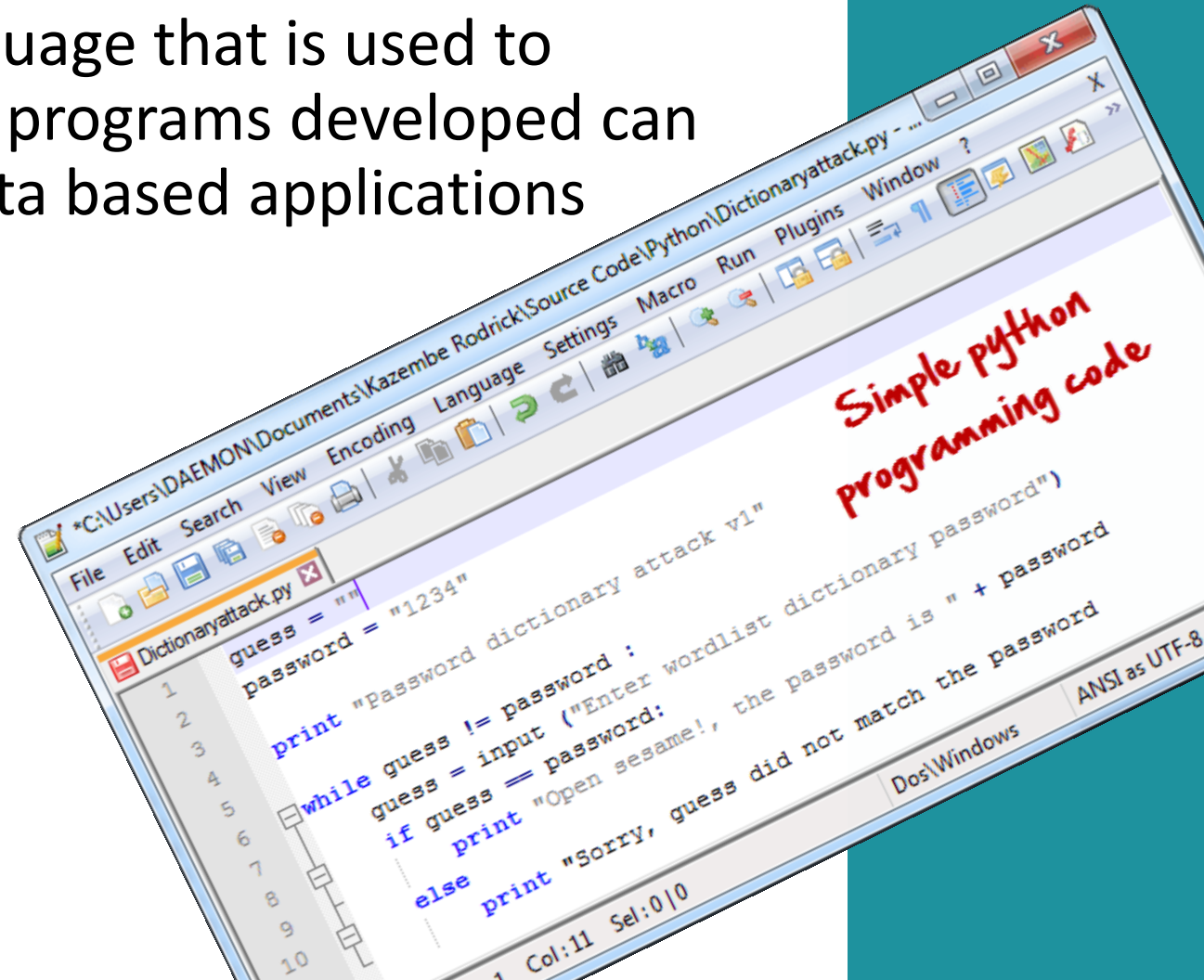
These skills include learning how to program, use the internet, good at solving problems, and taking advantage of existing security tools.

Computer Science – problem solving



What is a programming language?

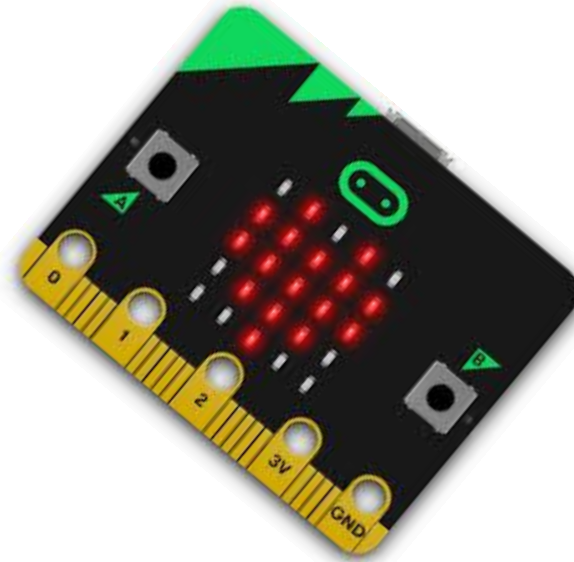
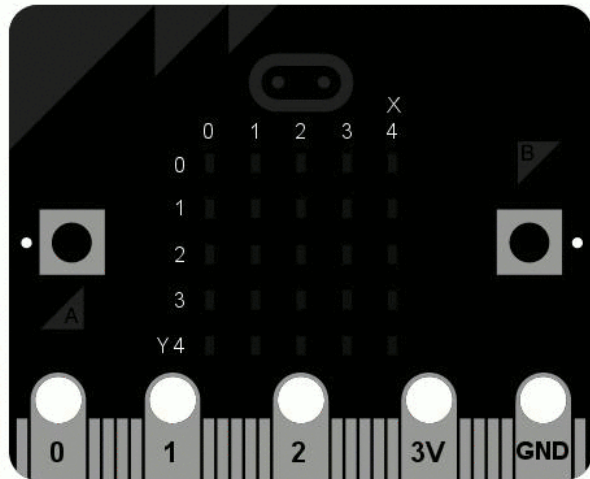
- A programming language is a language that is used to develop computer programs. The programs developed can range from operating systems; data based applications through to networking solutions.

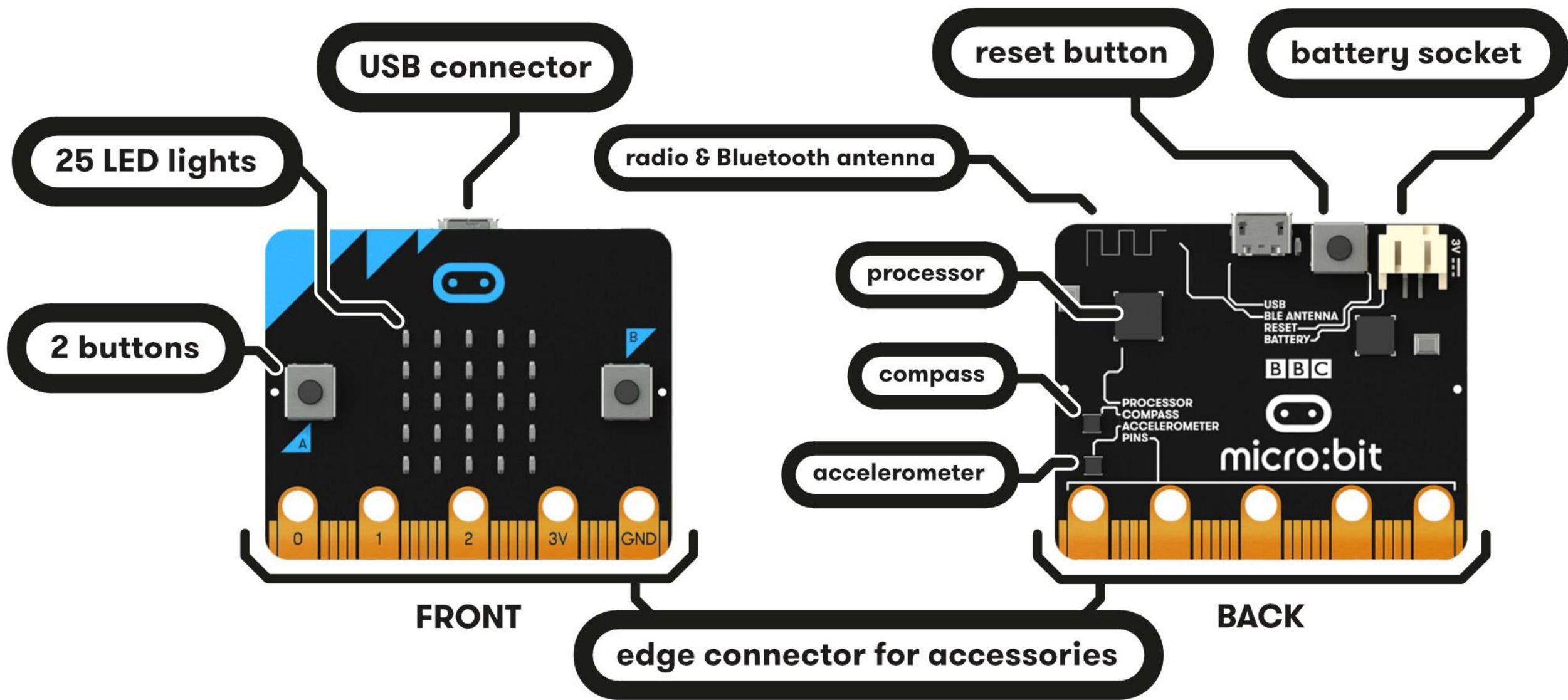


Simple programming

- Start with a MicroBit
- HTML with CSS

- micro:bit is a tiny programmable computer, designed to make learning and teaching easy and fun!



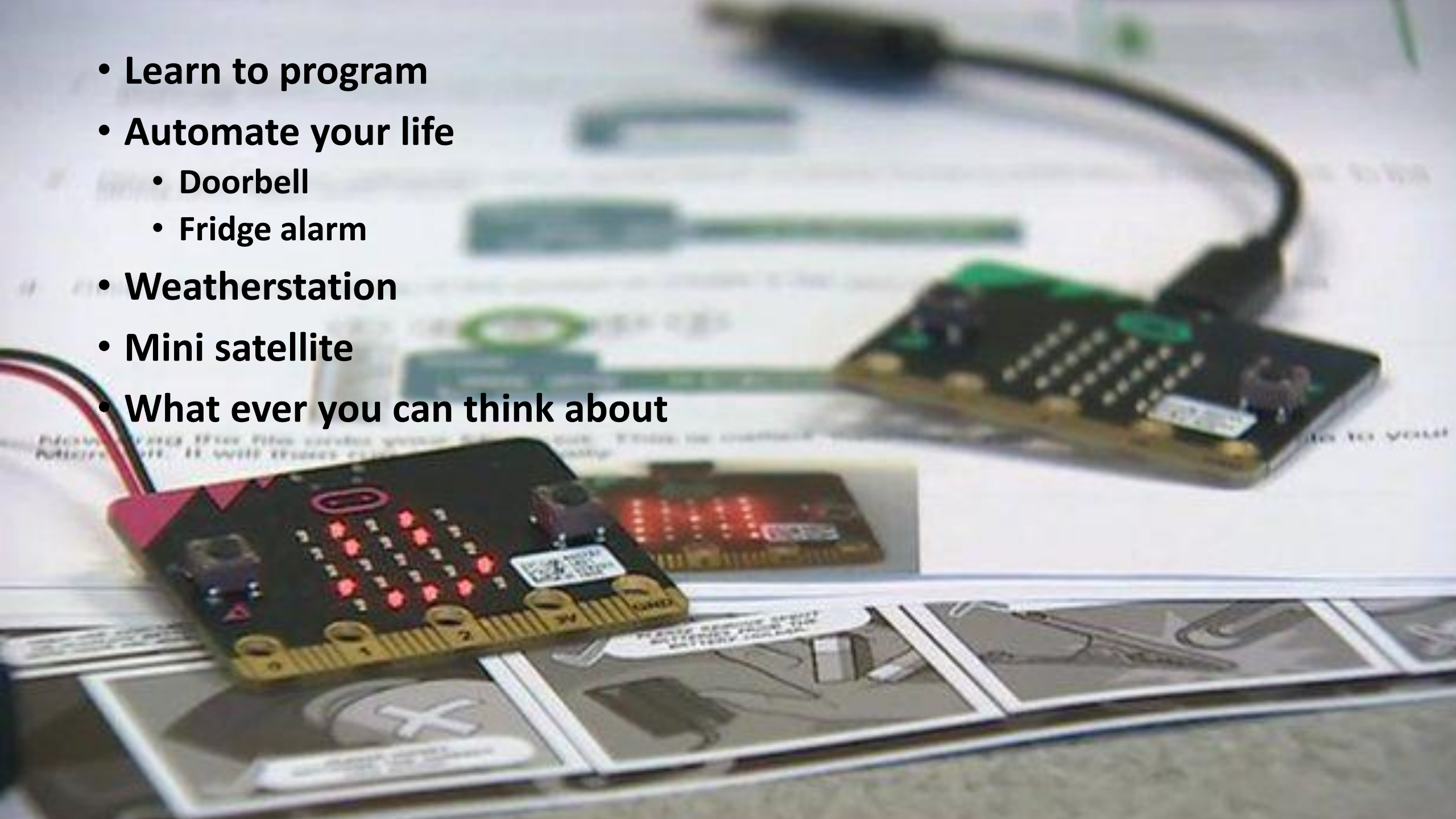


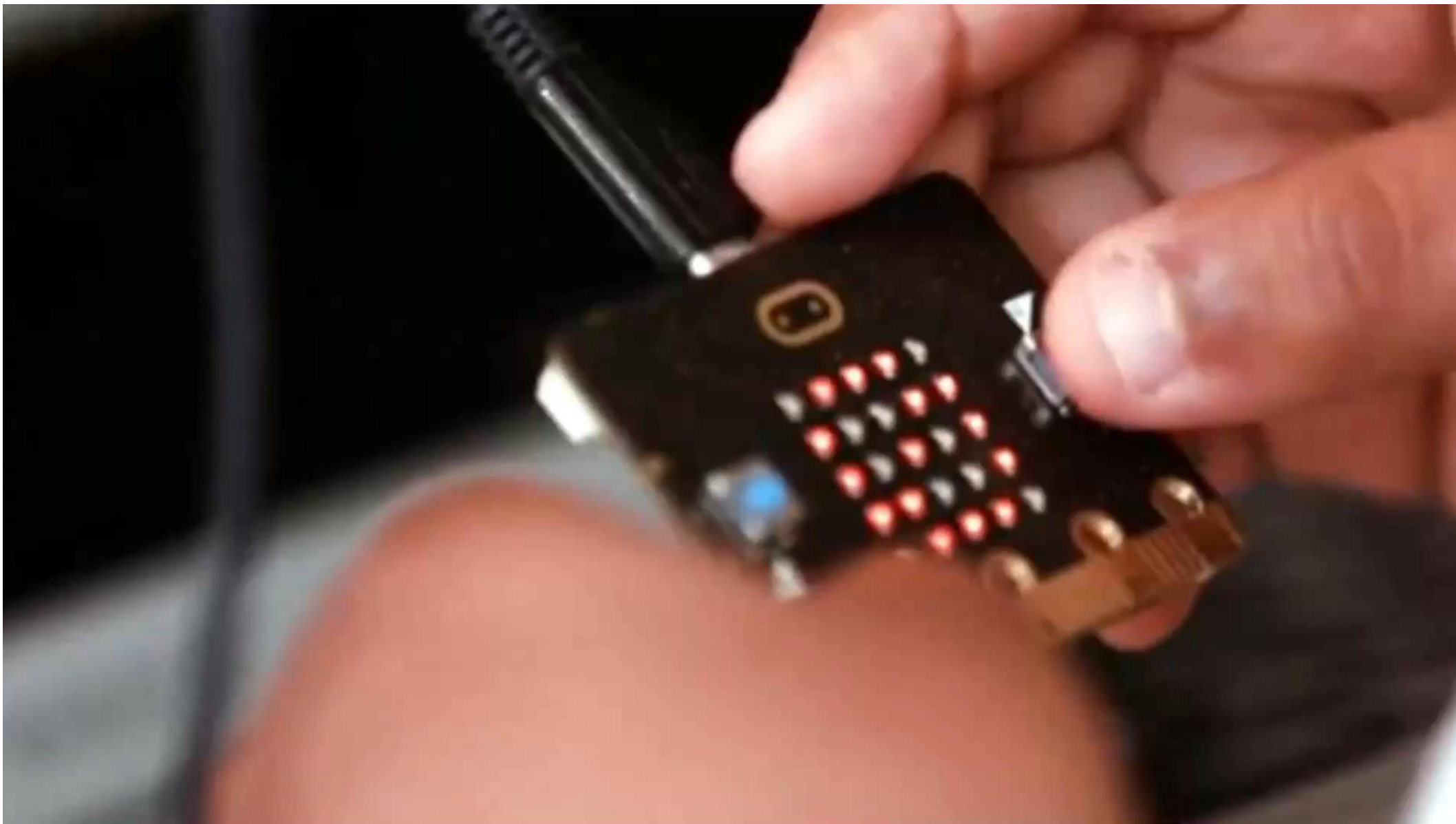


What is a Micro:bit

- Small computer
- Developed by the BBC
- 5x5 Led array
- Buttons
- Bluetooth
- Sensors
 - Light
 - Temperature
 - Motion (3 axis)
 - Compass

- Learn to program
- Automate your life
 - Doorbell
 - Fridge alarm
- Weatherstation
- Mini satellite
- What ever you can think about





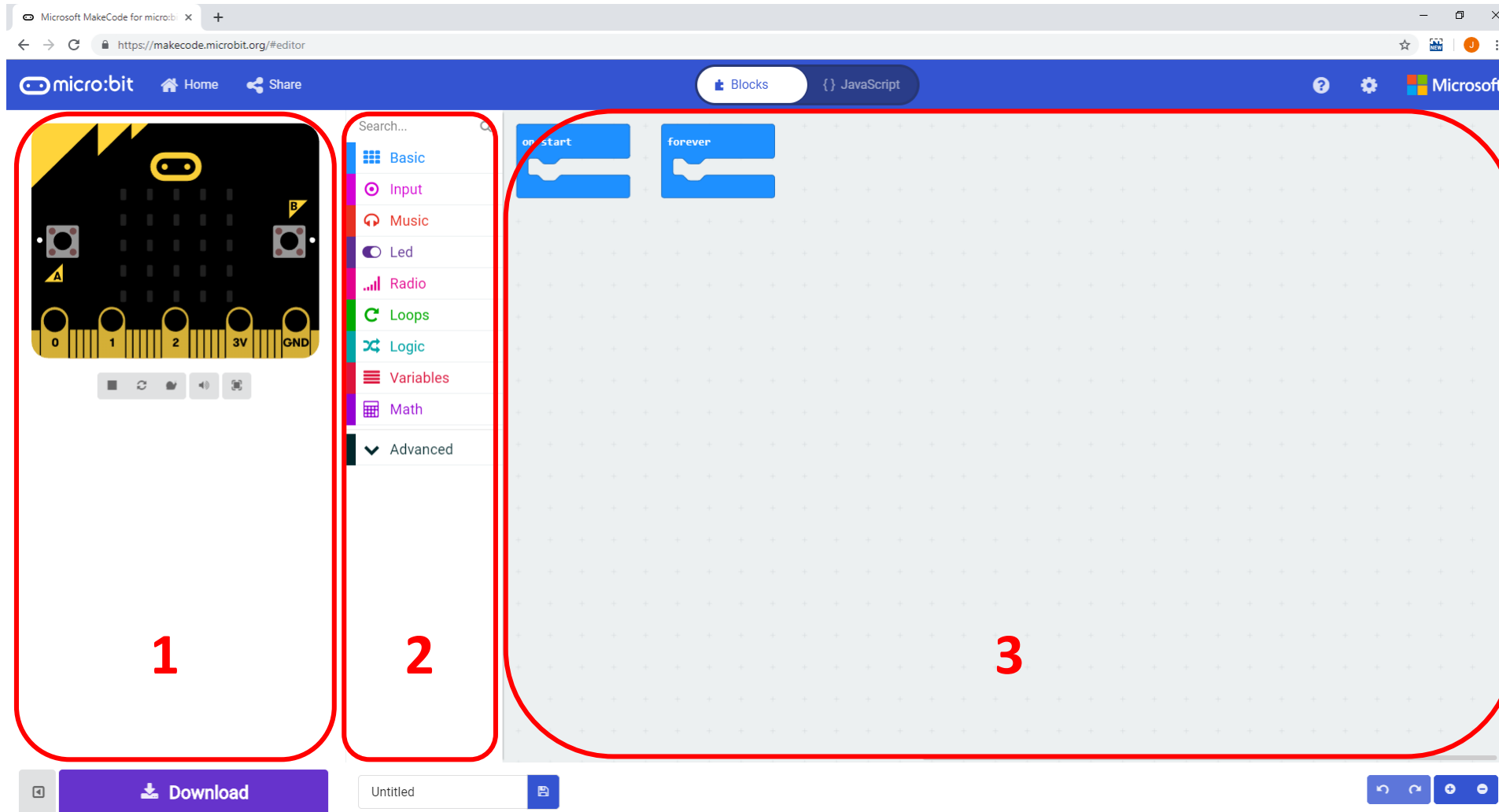
How to program the Micro:bit

- Online
 - MakeCode Editor
 - Python Editor
- Offline
 - Different apps (also for Phone)



Demonstration

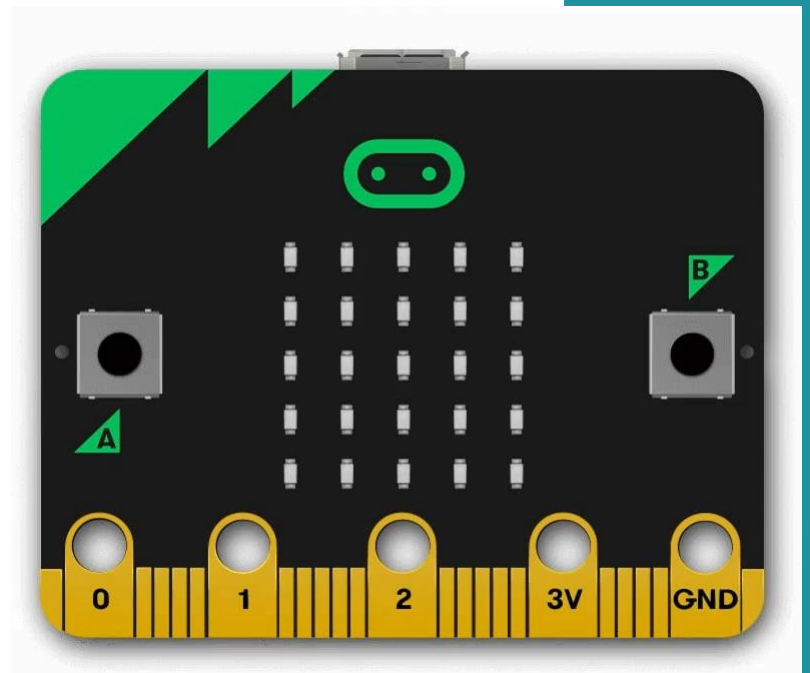
- <https://github.com/jeroenpijpker/Presentations/blob/master/Lesson%204.pdf>
- <https://bit.ly/2Sn54OC>



1. Simulator
2. The pallet
3. The coding Area

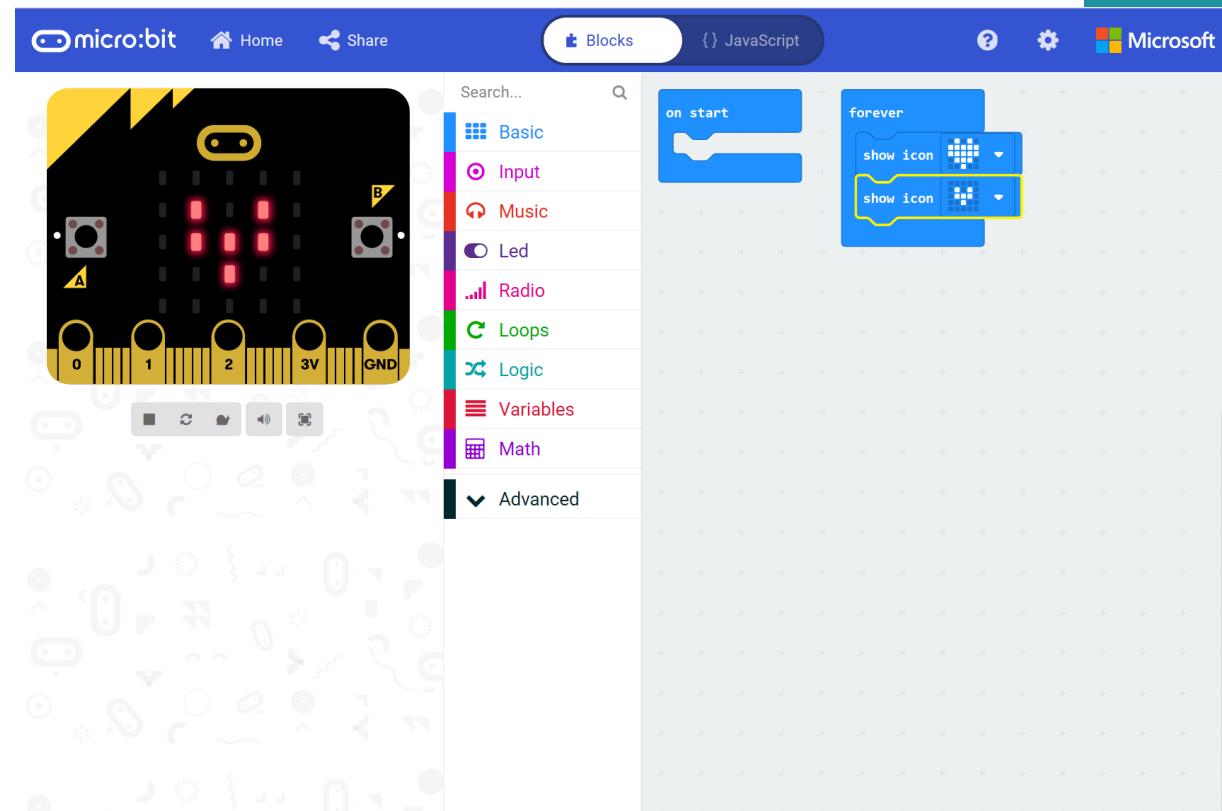
Step 1: Connect IT

- Connect the micro:bit to your computer via a micro USB cable. (Macs, PCs, Chromebooks and Linux systems (including Raspberry Pi) are all supported. It comes with a fun application, give it a try!)
- Your micro:bit will show up on your computer as a drive called 'MICROBIT'. Watch out though, it's not a normal USB disk!



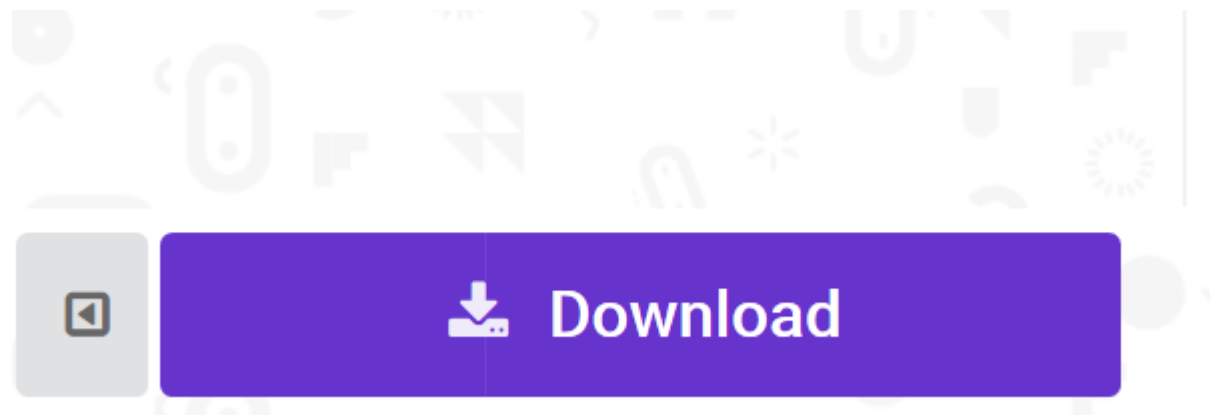
Step 2: Program It

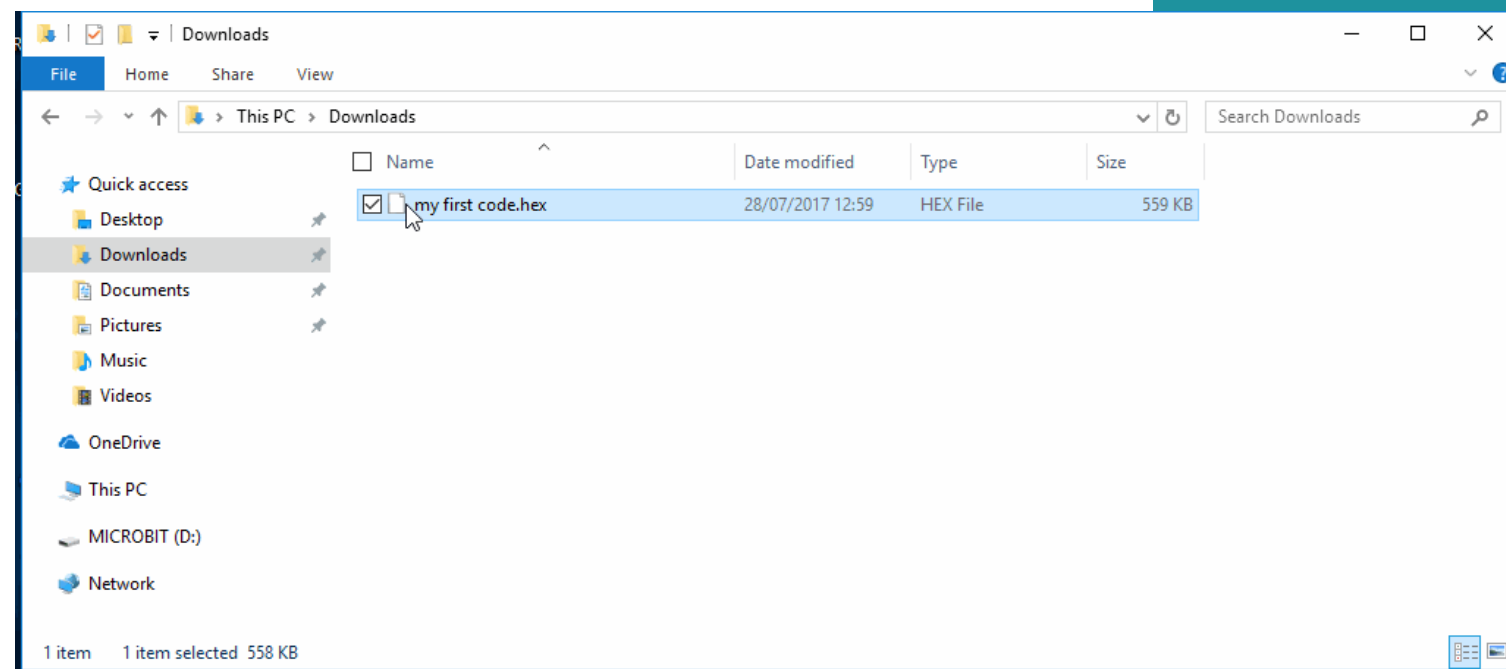
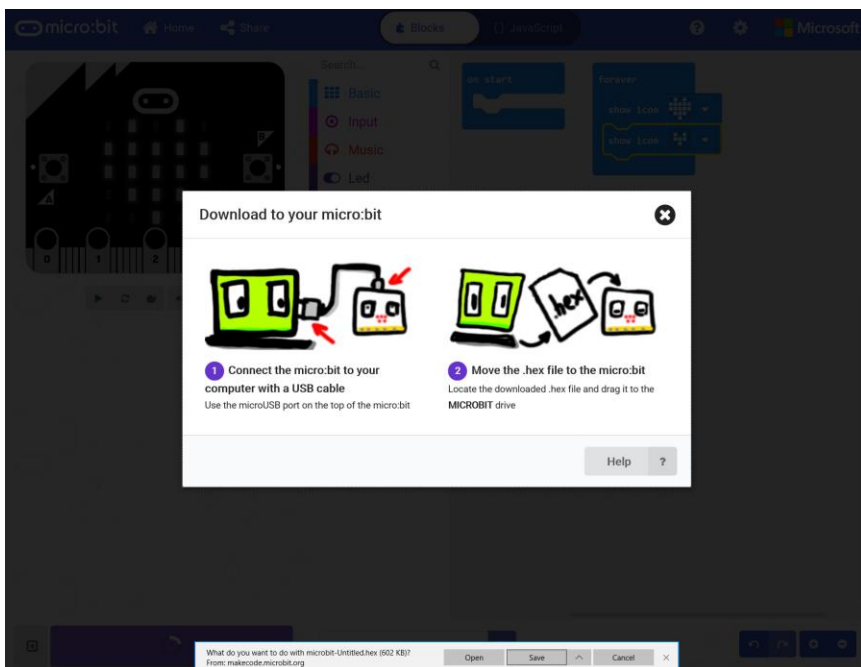
- We are going to use the Micro:bit code editor.
<https://makecode.microbit.org/#editor>
- For example drag and drop some blocks and try your program on the Simulator in the MakeCode Editor, like in the image below that shows how to program a Flashing Heart.



Step 3: Download It

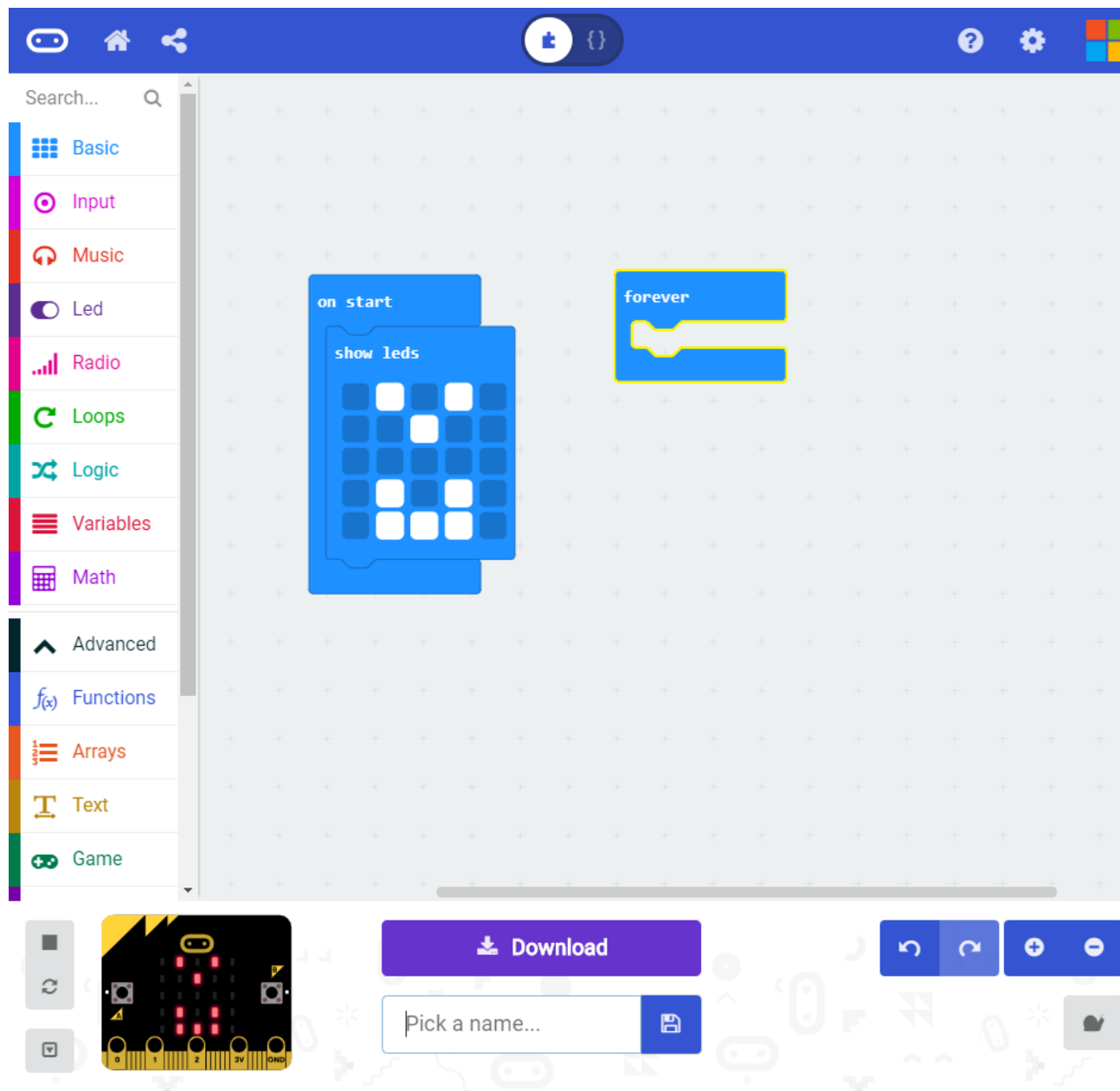
- Click the Download button in the editor. This will download a 'hex' file, which is a compact format of your program that your micro:bit can read. Once the hex file has downloaded, copy it to your micro:bit just like copying a file to a USB drive. On Windows you can right click and choose "Send To→MICROBIT."





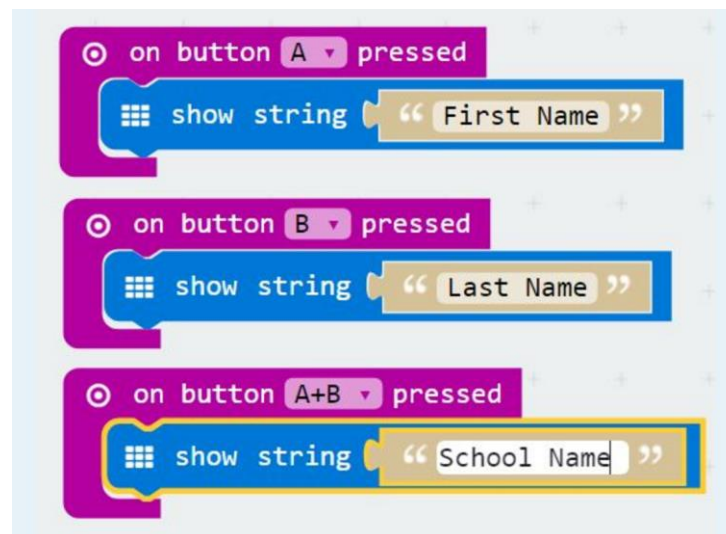
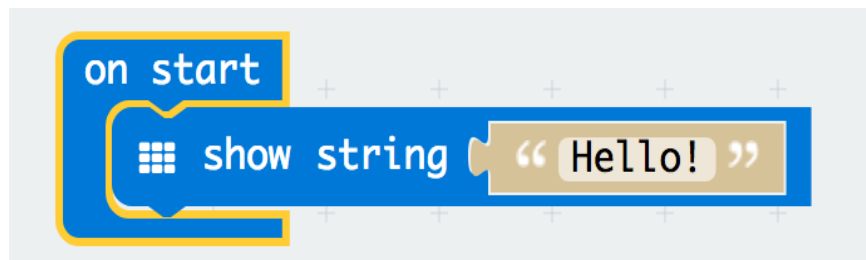
Emulator – Getting to know the Micro:Bit (Basic commands)

- Smiley face
- **Task:** Make a smiling face, then run it on the emulator. What other shapes, pictures can you get it to display?



Input Commands

- Activity 3: Scrolling name badge
- **Task:** Make yourself a scrolling name badge! How about using a different command (e.g. 'on shake').



Try some of the online lessons

- https://microbit.org/en/2017-03-07-javascript-block-resources/#lessons_a

Next step: real coding in Python

- MicroPython is a lean and efficient implementation of the [Python 3](#) programming language that includes a small subset of the Python standard library and is optimised to run on microcontrollers and in constrained environments.

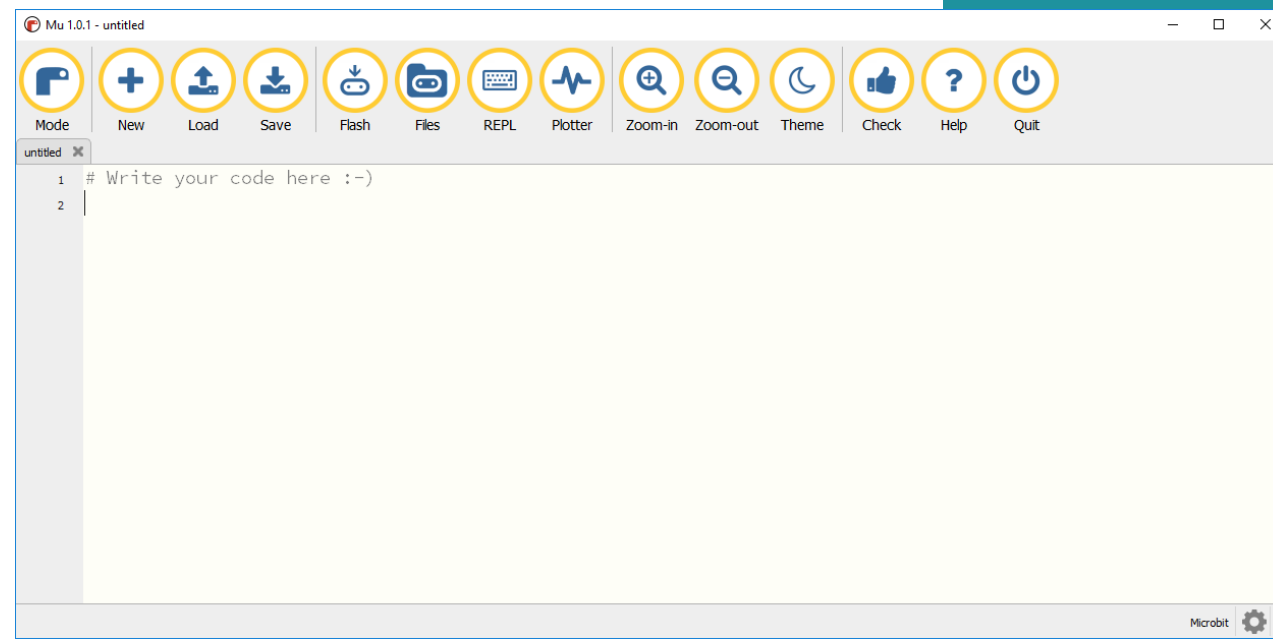


- Workshop MicroPython

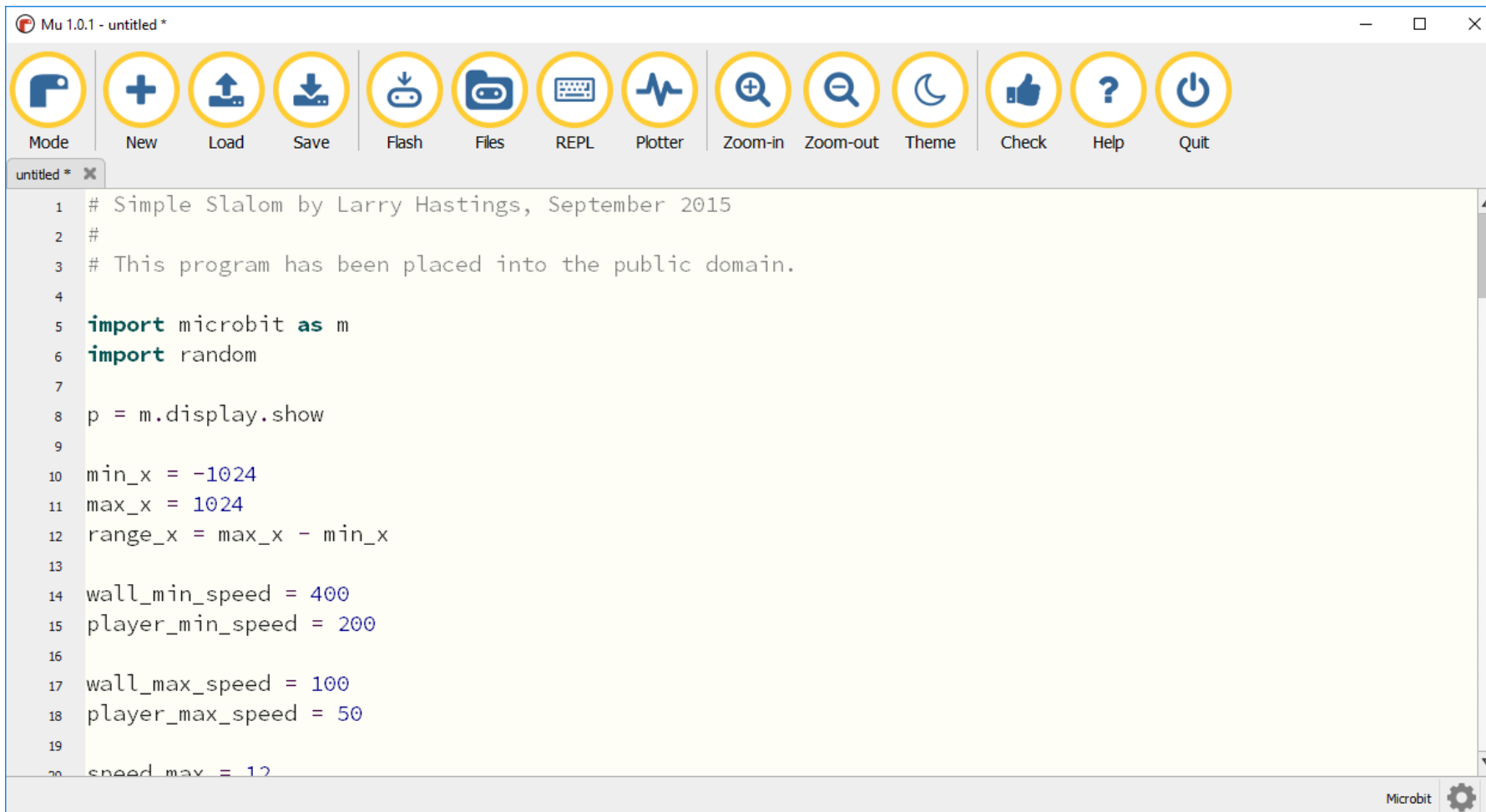
<https://microbit-micropython.readthedocs.io/en/latest/tutorials/introduction.html>

- Need to install Mu editor to write python code

<https://codewith.mu/en/download>



Example 😊



The screenshot shows the Mu Python IDE window titled "Mu 1.0.1 - untitled *". The interface includes a toolbar with icons for Mode, New, Load, Save, Flash, Files, REPL, Plotter, Zoom-in, Zoom-out, Theme, Check, Help, and Quit. Below the toolbar is a tab labeled "untitled *". The code editor contains the following Python code:

```
1 # Simple Slalom by Larry Hastings, September 2015
2 #
3 # This program has been placed into the public domain.
4
5 import microbit as m
6 import random
7
8 p = m.display.show
9
10 min_x = -1024
11 max_x = 1024
12 range_x = max_x - min_x
13
14 wall_min_speed = 400
15 player_min_speed = 200
16
17 wall_max_speed = 100
18 player_max_speed = 50
19
20 speed_max = 12
```

At the bottom right of the window, there is a "Microbit" button and a settings gear icon.

Website

HyperText Markup Language

- HyperText Markup Language is een op SGML gebaseerde opmaaktaal voor de specificatie van documenten, voornamelijk bedoeld voor het wereldwijde web. Het is de standaard opmaaktaal voor webpagina's. Documenten in HTML kunnen geopend en gelezen worden door een webbrowser om vervolgens als webpagina weergegeven te worden. Bron [Wikipedia](#)



```
1 <!DOCTYPE html PUBLIC "-//W3C//DTD HTML
2 <html>
3   <head>
4     <title>Example</title>
5     <link href="screen.css" rel="sty
6   </head>
7   <body>
8     <h1>
9       <a href="/">Header</a>
10    </h1>
11    <ul id="nav">
12      <li>
13        <a href="one/">One</a>
14      </li>
15      <li>
16        <a href="two/">Two</a>
17      </li>
```

Versions of HTML

- HTML 1.0 (1989-1994)
 - The first public version of HTML supported images and text controls.
- HTML 2.0 (1995)
 - The first version supported by all graphical browsers.
- HTML 3.0 (1997)
 - better tables, better form options.
- HTML 4.01 (1999)
 - Added support for style sheets.
 - New features for tables and forms.
 - Expanded HTML's scripting capability.
 - Increased support for multimedia.
- HTML 5 (started in 2004), Candidate Recommendation (2013)
 - APIs.
 - Video, audio playback.
 - Drag-and-drop.
 - consideration for other devices (smartphones, tablets, etc.).

The reason behind the development of HTML is computers to communicate with each other across distances, But you maybe wondering how computers can communicate with each other using HTML? when you enter `www.facebook.com` in the browser address bar the browser first resolve(convert) `www.facebook.com` into something that it knows which is ip address "`173.252.110.27`", then browser communicate to the server that serves "Facebook" and displays the website in front of a user.

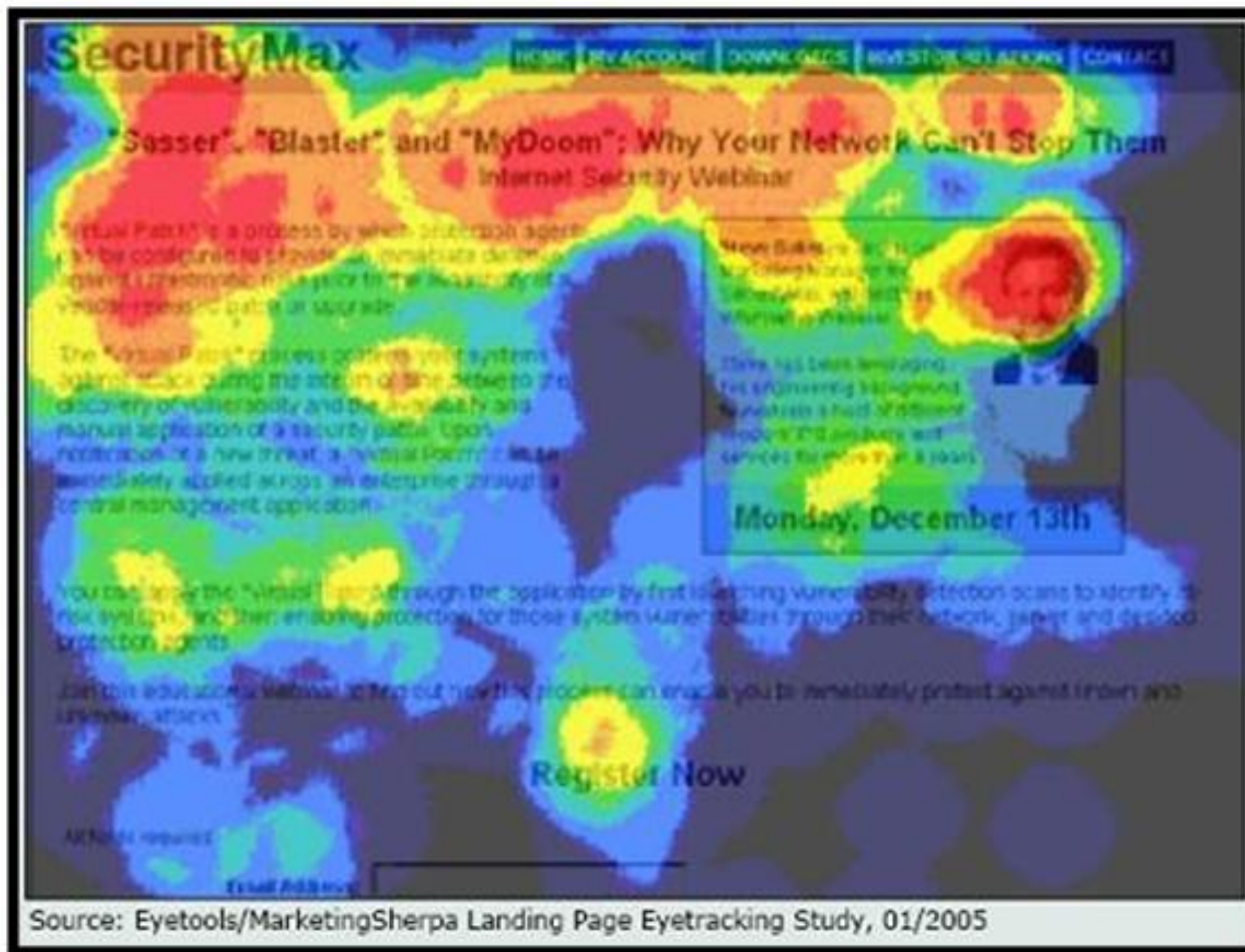
Website

- A Web page is stored on a Web server also called an HTTP server.
- To view a Web page, the user runs a software called a **Web browser**.
- Folder with collection of files
- Possible files:
 - Web pages: htm / html
 - Stylesheets: css files
 - Images: jpg, png
 - Media files: movies, sound
 - Scripts: java, ajax scripts

Web Browsers

- Microsoft Edge
- Firefox
- Chrome
- Safari
- ...

Webpage – usability / eye-tracking



Source: Eyetools/MarketingSherpa Landing Page Eyetracking Study, 01/2005

[illegible]

```
<!DOCTYPE html
PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
  <head>
    <title> document's title </title>
    <meta http-equiv="Content-Type"
      content="text/html; charset=UTF-8">
  </head>
  <body>
    your document's content goes here
  </body>
</html>
```

- Spend some time looking for a good tutorial...

- Found it:

<https://internetingishard.com/html-and-css/basic-web-pages/>

[https://developer.mozilla.org/en-US/docs/Learn/Getting started with the web](https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web)

<https://www.khanacademy.org/computing/hour-of-code/hour-of-html/v/making-webpages-intro>

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By working through the articles listed below in order, you will go from nothing to getting your first webpage online. Let's go!

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- Questions