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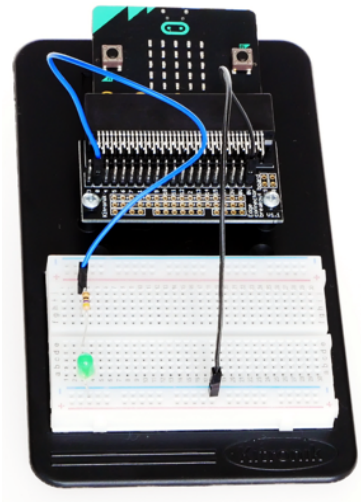
Flashing LED



Goal: Set-up of a flash circuit

Content: LED, series resistor, Ohm's law, digital output, pauses

LESSON 1

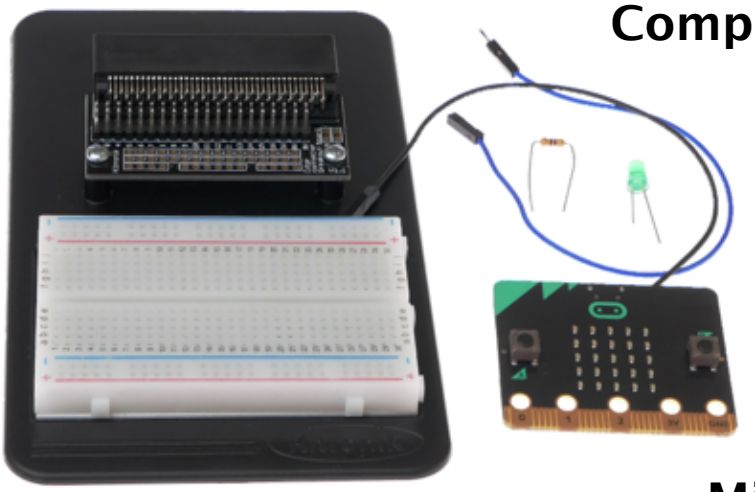
Assignment

Using the Micro Bit and the components of the Inventor's Kit, a flash circuit is to be set up. One LED of your choice should flash every second.

Ingredients

Components + cable

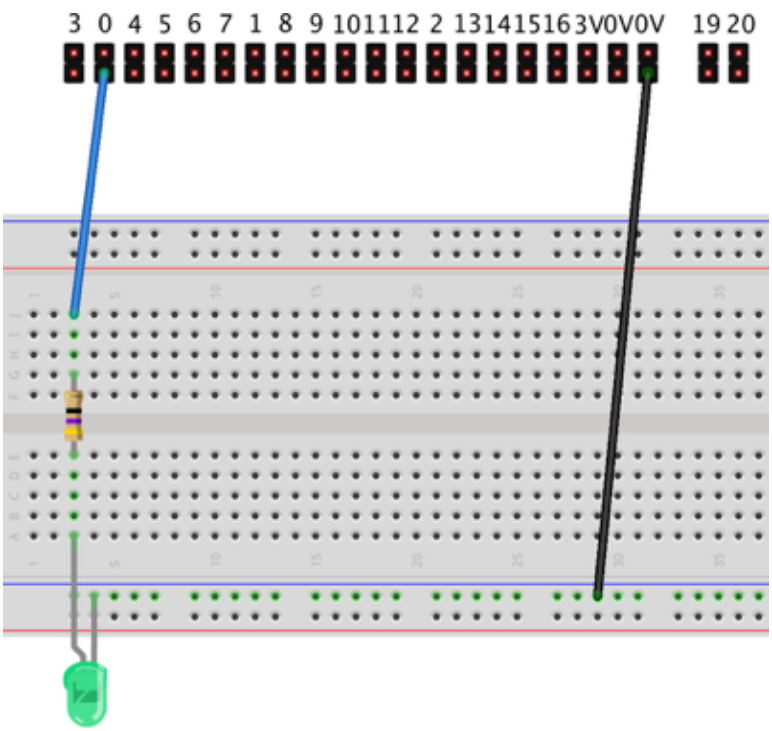
Breadboard

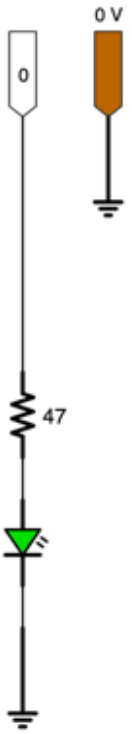


Microbit

LESSON 2

Circuit set-up





- Position the LED as illustrated. The long pin (anode) faces upwards to the series resistor.
- The short pin (cathode) is routed to the common Gnd (- pole).
- The long pin is routed via a series resistor (47 Ohm) to the output pin of the Micro Bit. [**Blue cable - Pin0**]
- In the end, the ground bar (Gnd - 0V) is connected to the Micro Bit. [**Black cable - 0V**]

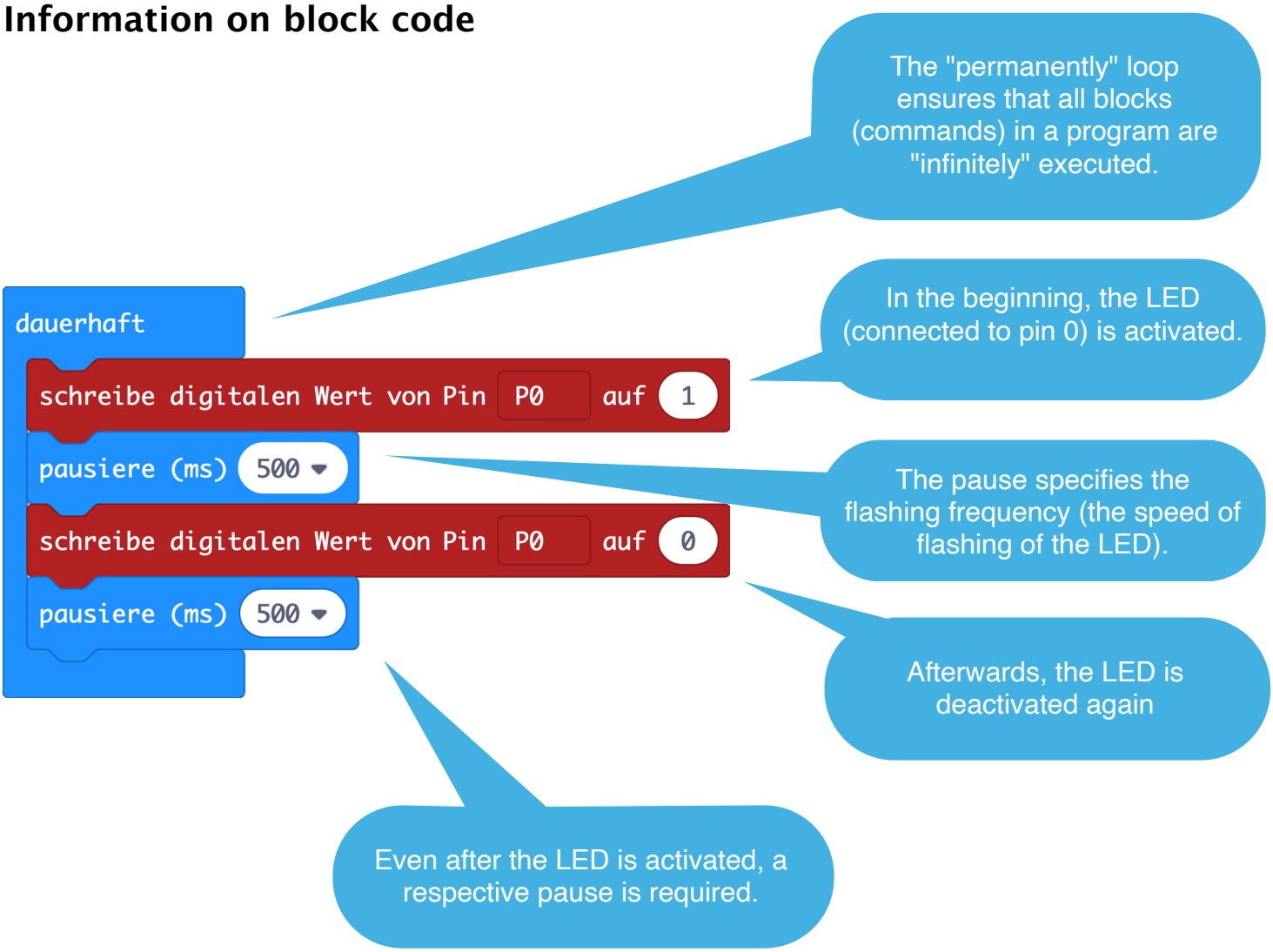
Info

Detailed information on the term "**series resistor**" will be the topic of other lessons.

LESSON 3

Block code of the flashing LED

Information on block code



LESSON 4

optional:
Calculation of series resistors of LEDs

Ohm's law → R = U / I

LEDs must not be directly connected to the voltage source as this would destroy it.
Series resistors limit the voltage as well as the current flow through the LED.
The admissible voltage and current rating of the LED can be found in the data sheet.

Example

Voltage source: 5V

LED: U = 2V
I = 20mA

The voltage, which has to "get rid of", is converted into heat => 5V – 2V = 3V

R[Ohm] = U[V] / **I**[A]

R = 3 / 0,02 = 300 / 2 = **150**