

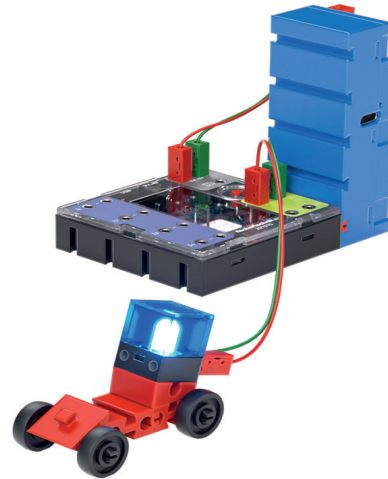
Model 1: Flashing light

Objectives and classification

Overview

The tasks use the example of a flashing light to introduce the concepts of „algorithm“, „programming language“ and „program“ and explain the use of a lamp (LED) on the microcontroller.

Students learn about the structural element **loop** and the **wait command** of Scratch and develop and test their first Scratch Program.



Topics

Discuss in a preparatory lesson: What is an „algorithm“? What is a „programming language“? What is a „program“?

Student tasks in app: Practical use of the terms algorithm, program, programming language, controller. And: How do I make an LED flash in the Scratch programming language?

Learning objectives

- First understanding of the term „algorithm“
- Understanding the term „programming language“
- Development of a first „program“ in a meta language and in Scratch
- Control a lamp (LED) using the fischertechnik controller (ft-Controller) with Scratch

Time required

The explanation of the central terms algorithm, programming language and program using the example tasks takes approx. one lesson.

The construction of the small police vehicle and the connection of the LED and the battery module to the controller according to the building instructions takes approx. 15 minutes including the introduction of the components.

If the students have little or no previous experience, an additional lesson is required for the introduction to Scratch and the first Scratch program.

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Notes and solutions

In preparation, the students could discuss these questions:

A police car drives past! The siren is loud and the lights on the roof are flashing.
Which vehicles still have flashing lights? Write or draw 2 examples down.

Solution:

e.g. ambulance, fire engine, garbage truck, street sweeper, road patrol vehicles

Considered: What steps would the „Computer“ to not only switch on a lamp, but to make it flash? This is how you get to the algorithm of a flashing light.

Proposed solution:

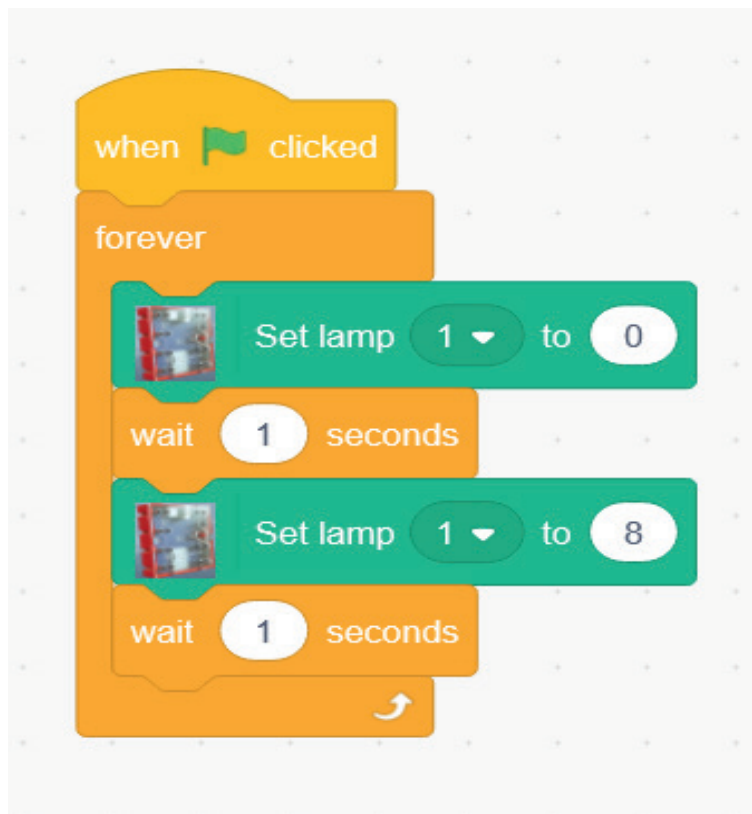
Turn on lamp
Pause
Turn off lamp
Pause
Repeat

Model 1: Flashing light

Solutions and notes

Your first Scratch program

Solution for the first Scratch program flashing light:



flashing light.sb3