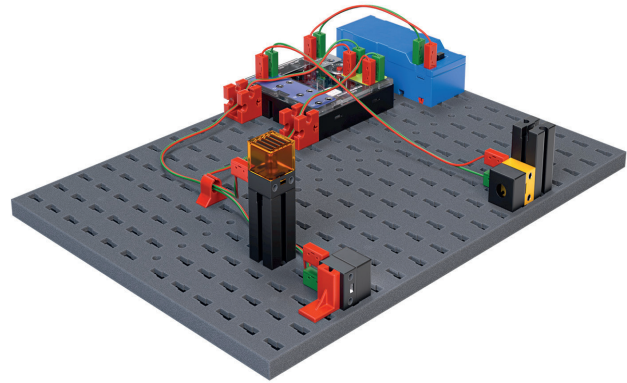


Model 7: Telegraph - Transmit & encode signals

Objectives and classification

Overview

The model provides an introduction to message technology: From a simple light signal to a counting signal to the transmission of a coded message. Subroutines („custom blocks“ in Scratch) are introduced. The task is particularly suitable for working in a group of two with one transmitter and one receiver unit.



Topics

How can you transmit a signal? How do you encode a message? What are subroutines and how do you use them in Scratch? How can you measure time in Scratch?

Learning objectives

- Principle of (asynchronous) signal transmission
- Understanding the coding of a message
- Transmission of a message as a sequence of characters
- Using and programming subroutines in Scratch
- Timekeeping in Scratch

Time required

It only takes a few minutes to set up the transmitter and receiver. In the rest of the lesson, the first two tasks „transmitter-receiver“ and „transmitter-receiver“ can be completed.

Program and solve the „number-transmitter-receiver“.

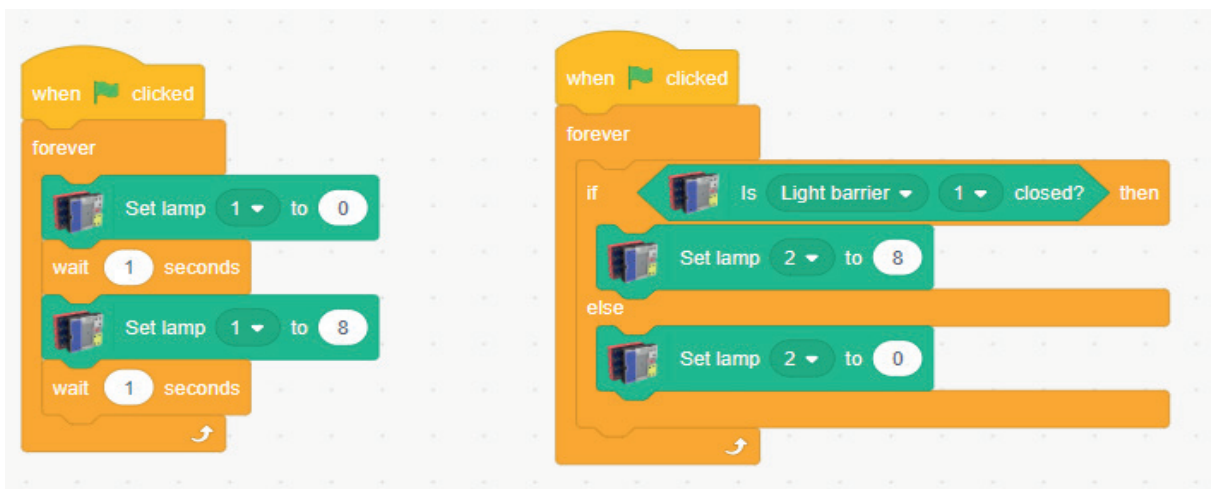
The next two tasks, „number-transmitter-number-receiver“ and „number-code-transmitter“, should take another lesson.

The experimental task is simply an application of the programs from the „numerical code - transmitter - number - receiver“ tasks, but the manual coding of the message takes time. Therefore, an additional lesson should be set aside for working on this task

Solutions and notes

Programming tasks Model 7: Telegraph

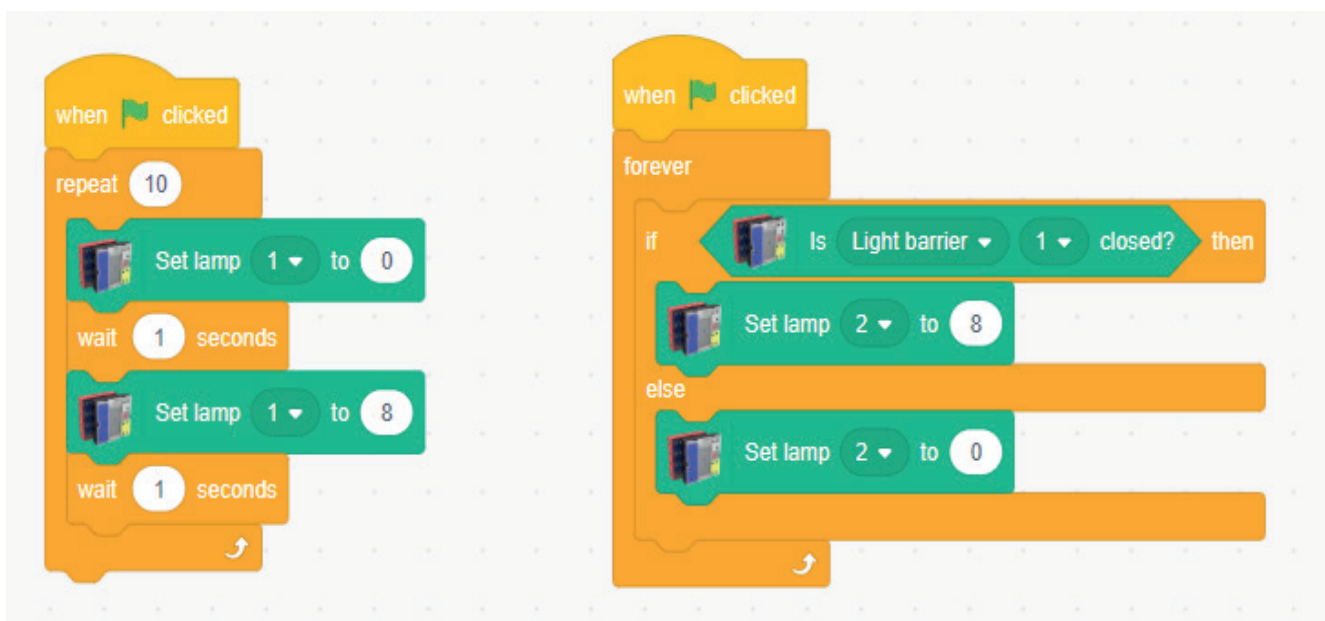
Solution:



The image shows two Scratch code snippets. The left snippet, titled 'Sender-Receiver.sb3', starts with a 'when green flag clicked' block followed by a 'forever' loop. Inside the loop, it sets 'lamp 1' to 0, waits 1 second, sets 'lamp 1' to 8, and waits 1 second. The right snippet starts with a 'when green flag clicked' block followed by a 'forever' loop. Inside the loop, it has an 'if' block: 'if Is Light barrier 1 closed? then' followed by 'Set lamp 2 to 8', and an 'else' block followed by 'Set lamp 2 to 0'.

Sender-Receiver.sb3

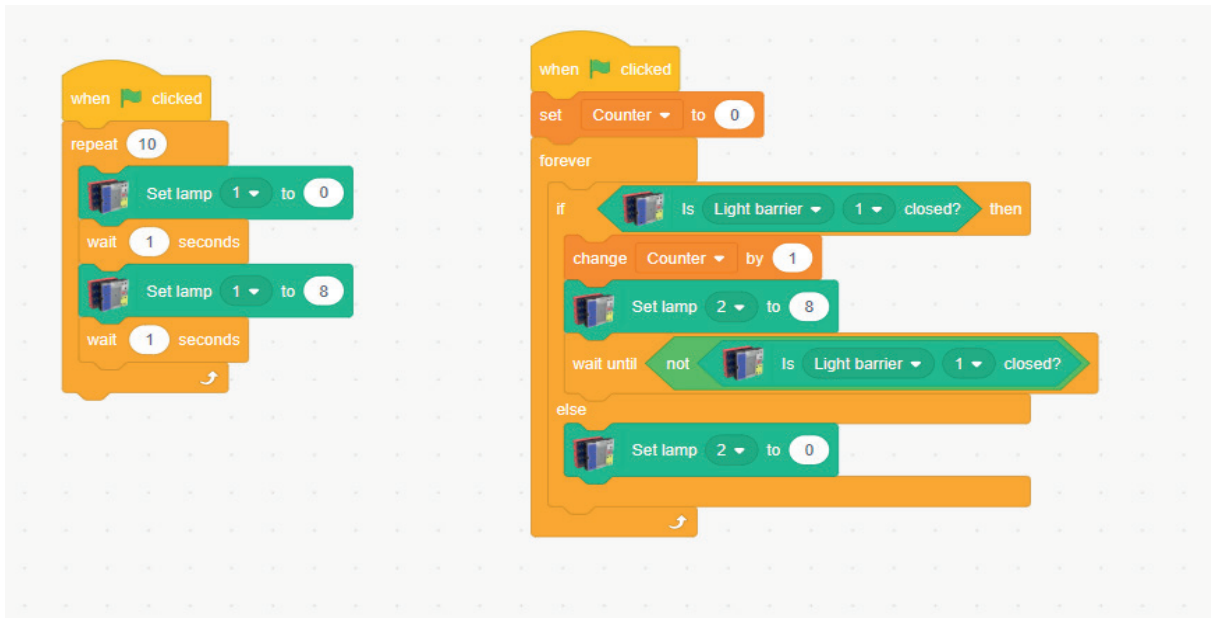
Solution Transmission of information:



The image shows two Scratch code snippets. The left snippet starts with a 'when green flag clicked' block followed by a 'repeat 10' block. Inside the repeat block, it sets 'lamp 1' to 0, waits 1 second, sets 'lamp 1' to 8, and waits 1 second. The right snippet starts with a 'when green flag clicked' block followed by a 'forever' loop. Inside the loop, it has an 'if' block: 'if Is Light barrier 1 closed? then' followed by 'Set lamp 2 to 8', and an 'else' block followed by 'Set lamp 2 to 0'.

Number sender-receiver.sb3

Titel

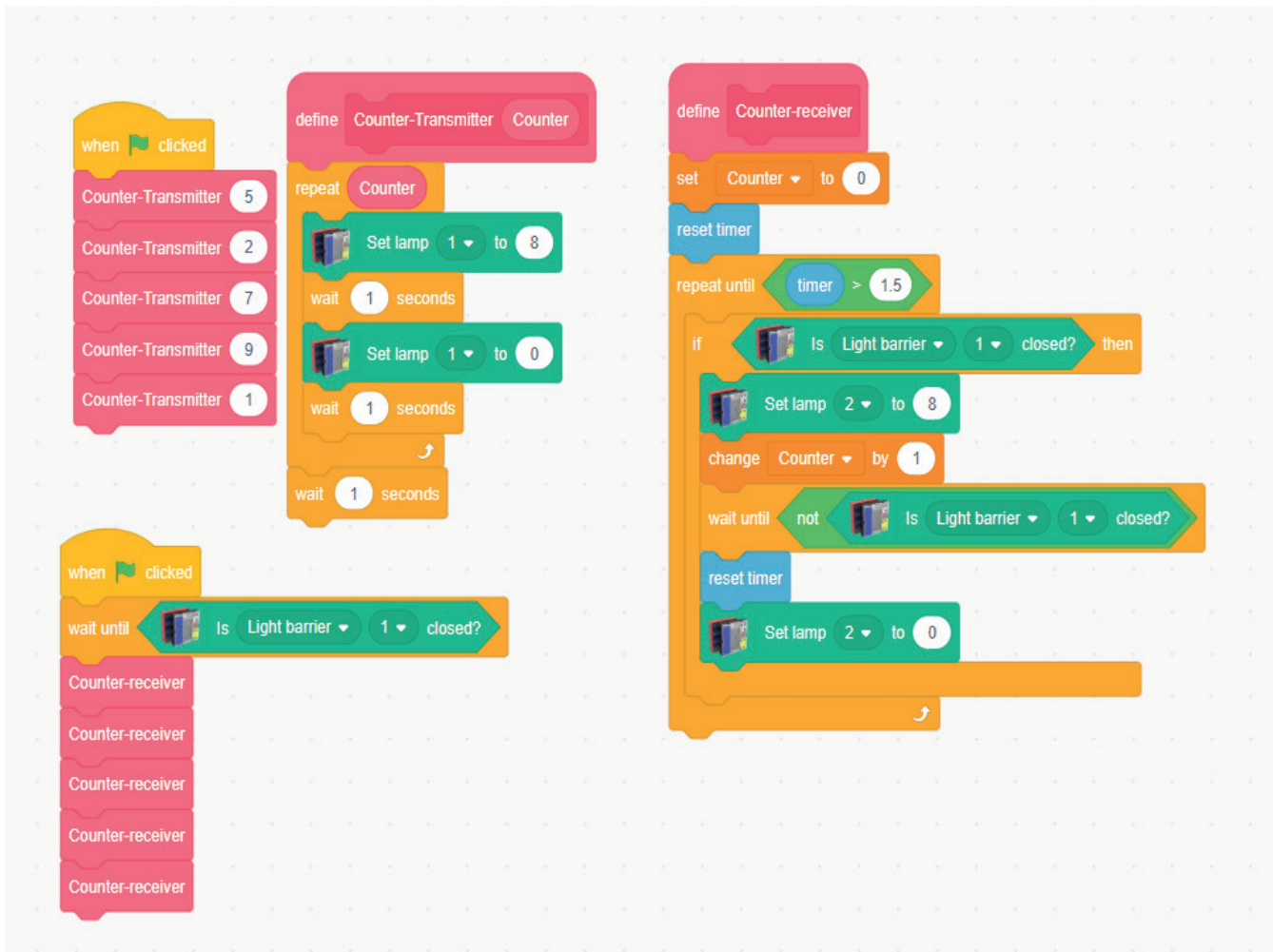


Number sender - number receiver.sb3

Solutions and notes

Programming tasks Model 7: Telegraph

Solution Number code transmitter and receiver:



number code transmitter - number code receiver.sb3