

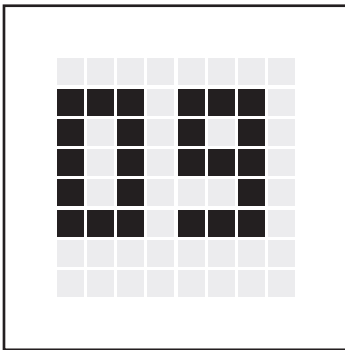
WORKSHEET W007

MULTIPLICATION

The computer does what you teach it; even the multiplication table.

EXERCISE

We program a loop and let the computer count up the nine times table and display the numbers from 9-90 on the display.

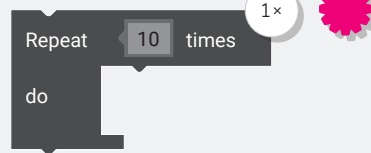


First, your program should display a 9, then an 18, then a 27, and so on.

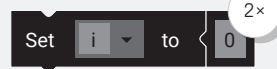
HINT

Use a variable for this (e.g. «i»). With the command «Repeat ,x' times» you can run a part of the program several (x) times. With the command «Set» you can assign a value to the variable. With «Draw number» you can display the number on the LED matrix.

LOGIC



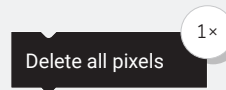
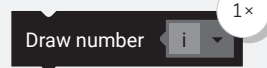
VARIABLES



TIME



MATRIX



PARTS LIST

LIST OF BLOCKS TO BE USED



LEVEL INTERMEDIATE

ADDITIONAL TASK:

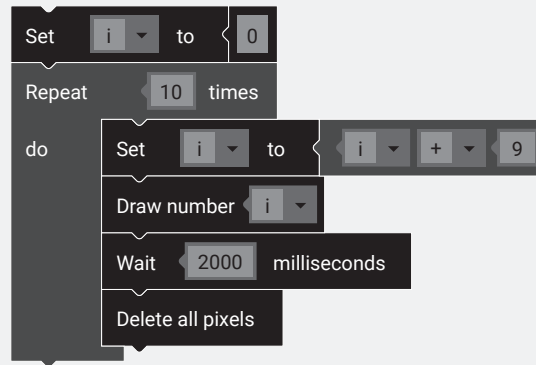
Your program should now only count at the push of a button.

WORKSHEET W007

MULTIPLICATION

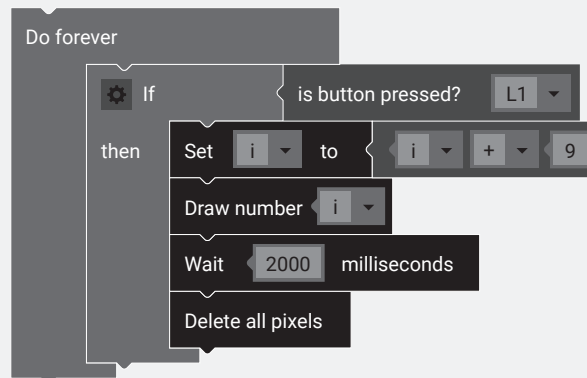
SOLUTION

PROPOSED SOLUTION



ADDITIONAL TASK

PROPOSED SOLUTION



WORKSHEET W007

MULTIPLICATION

Learning objective:

Capacity to use variables and loops.

WHAT TO DO

1. First a variable is defined and initialized with 0.
2. Then comes the «Repeat x times» block.
3. In this block the variable is first recalculated ($i=i+9$), then output with the «Draw number» block and deleted again after a few seconds.



This is an «Expert-Block» and is only displayed if «Settings» – «Activate the Expert-Mode» is set.

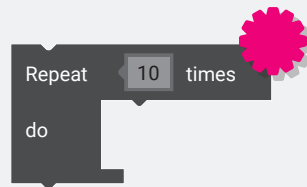
Click on «Settings» in the lower left corner ...



Settings

... and select «Activate the Expert-Mode».

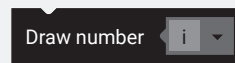
NEW COMMANDS



This block generates a loop. All blocks placed in the «do» section will be repeated as often as defined above.



With this block you can perform the basic arithmetic operations.
Hint: You can also drag the same block into the gaps of this block to make more complex calculations.



The «Draw number» block can be used to output numbers on the LED matrix. Numbers larger than 99 are automatically output with a special scrolling text technique.



This block is used to define a variable and/or assign a value.

ADDITIONAL INFORMATION: VARIABLES

A variable is a name for a reserved space. Depending on the initialization, a variable can store different datatypes, but here we want to concentrate on integers.

As a rule, only lower case letters are used as names for the variables. A variable name should be as meaningful as possible. In our example we take the number «i» (for index), which is often used for loop counters. In previous worksheets we also used «x» and «y». However, we could have called these variables «column» and «row».