

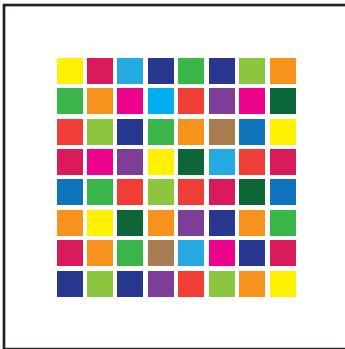
# WORKSHEET W009

## RANDOM

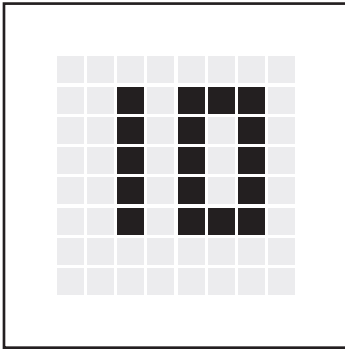
We would like to introduce you to another concept without which almost no game would work: random numbers.

## EXERCISE

Program a randomly colored pixel to light up at a random position, creating a moving mosaic.



Your matrix should look something like this when the random program is running.

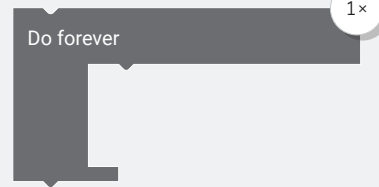


The additional task draws numbers on the matrix.

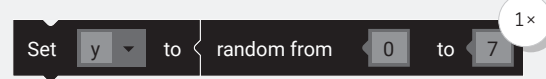
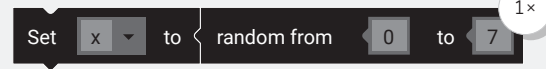
## HINT

Use the blocks «random» and «Set random pixel color»

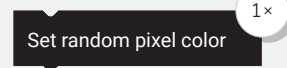
### LOGIC



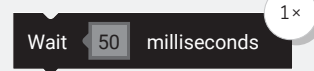
### VARIABLES



### MATRIX



### TIME



### PARTS LIST

LIST OF BLOCKS TO BE USED



LEVEL INTERMEDIATE

## ADDITIONAL TASK: +

Output random numbers between 0 and 20 on the oxocard.

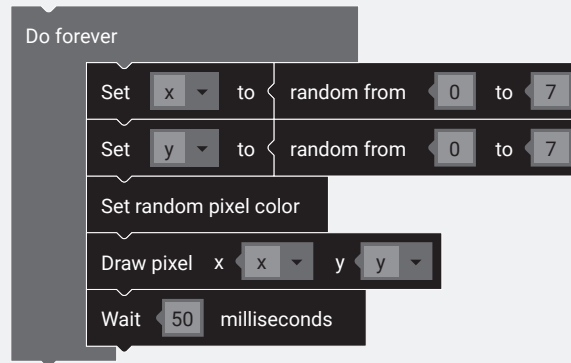
**Hint:** Use a «Draw number» block.

# WORKSHEET W009 RANDOM

## SOLUTION

PROPOSED SOLUTION

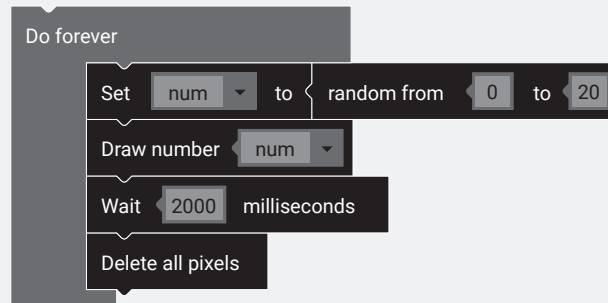
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## ZUSATZAUFGABE

PROPOSED SOLUTION

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# WORKSHEET W009

## RANDOM

### Learning objective:

Capacity to deal with random numbers.

## WHAT TO DO

1. First the «Do forever» loop is needed again. All blocks must be positioned in this loop.
2. Then you need the two random blocks. The variables are set to x and y.
3. Next comes the «Set random pixel color» block.
4. Now we draw the pixel. For the position we choose our variables x and y.
5. Finally, we program a waiting time of 50 milliseconds until the program starts again from the beginning.

## NEW COMMANDS



The «random» block returns a number from the defined range. In this example, a value between 0 (with) and 7 (with).

## ADDITIONAL INFORMATION: RANDOM

How are random values generated in the computer? If someone asks us for a random number, we can spontaneously name one. What is simple for us is usually associated with computing effort. There are two ways to determine a random number in a computer: In the first case, you read a random value from the environment, e.g. the room temperature, time or the current cursor position. If all this is not at hand, you have to proceed algorithmically. A series of (seemingly) random subsequent values is determined from an initial value. Many games work according to this principle. The sequence is random, but the same after each restart.

