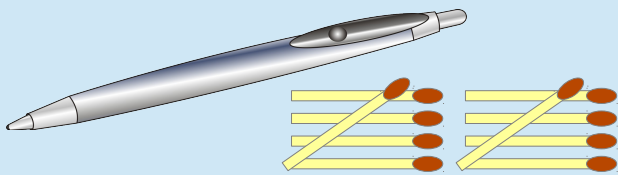


Know-How Computer

Commands (OpCodes)	Line
	1
	2
	3
	4
	5
	6
	7
	8
	9
	10
	11
	12
	13
	14
	15
	16

What you need to program:

1. A Pen or Pencil
(as your Program Counter)
2. Matches
(to be placed in the data register to represent the value it contains)



The Commands

- + xx = add 1 match to the contents of data register xx and increase the program counter (PC) by 1
- xx = subtract 1 match from data register xx and Increase the PC by 1
- J xx = set the PC to line number xx
- 0 xx = check if data register xx is zero (0). If it is, increase PC by 2, otherwise increase PC by 1
- Stop = stop the program.

Data Registers	Regi
	1
	2
	3
	4
	5
	6
	7
	8

Example Programs

Try out these little example programs to get the hang of using the Know-How Computer.

Take the logic of these small programs and extend them: create a program that multiplies 3x3 by adding 3+3+3.

Create a program that potentiates 3³ by multiplying 3x3x3.

If the space on your Know-How Computer is not enough to fit all the program lines, simply take a normal piece of paper and write down your program line by line.

If you need more data registers, simply create a sheet with more boxes to put your matches in – or use empty match boxes, write a number on it to identify which data register they represent, and use these on your desk.

You can also replace the program counter with other items: instead of a pen, simply use a twig – or a little arrow you have cut out from cardboard.

Instead of matches, you can also use buttons, pebbles, marbles, paper clips or whatever else you have in larger numbers to be used as "data" in your Know-How Computer.

Does your program have an error? Find it and discuss how to fix it!

Addition

DR1 + DR2 => DR3

```
J 4
+ 1
- 2
0 2
J 2
Stop
```

Delete

DR1 => DR1

```
J 3
- 1
0 1
J 2
Stop
```

Copy

DR2 => DR1

```
J 3
- 1
0 1
J 2
J 9
+ 1
+ 3
- 2
0 2
J 6
J 14
+ 2
- 3
0 3
J 12
Stop
```

Subtraction

DR1 – DR2 => DR1

```
J 4
- 1
- 2
0 2
J 2
Stop
```

Have Fun!

