

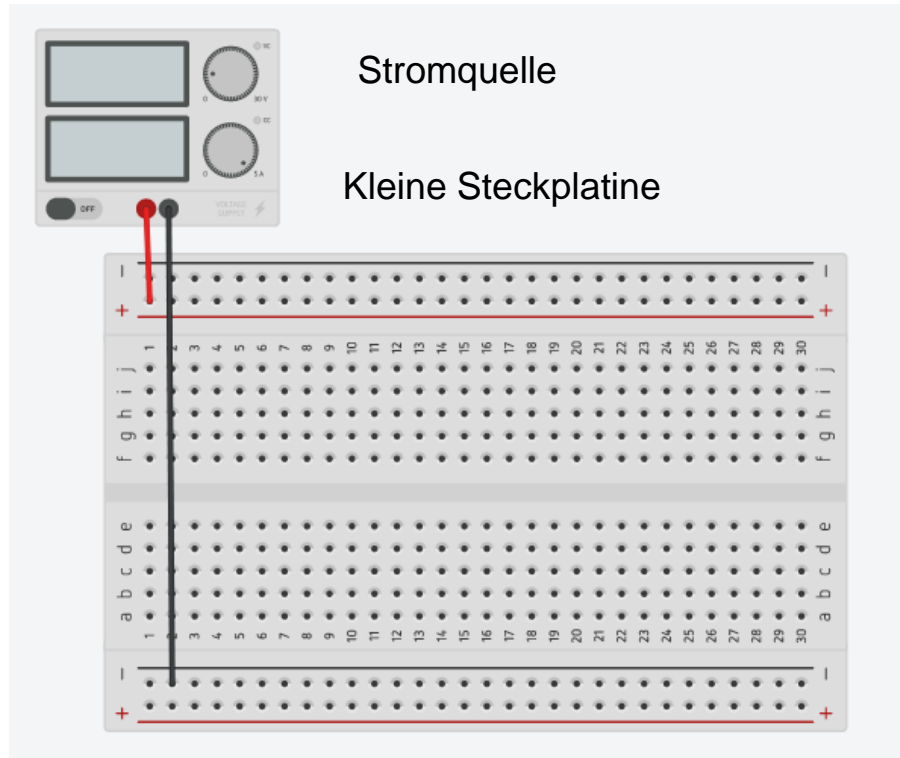
Übungen zur TI

2. Übung

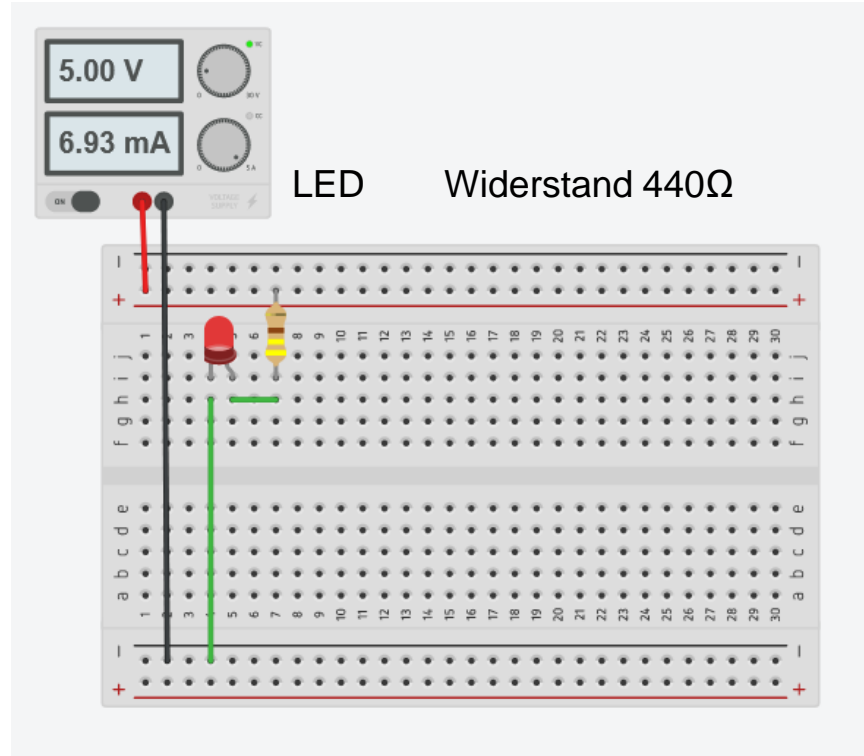
Inhalt

- Transistor
- AND-Gate
- NAND, NOR, XOR, AND, OR, X
- Logic Gates as NAND
- Übung Binärzähler Tabellenkalkulation
- Domino, Lego, Minecraft Computer
- Hausaufgabe Binärzähler

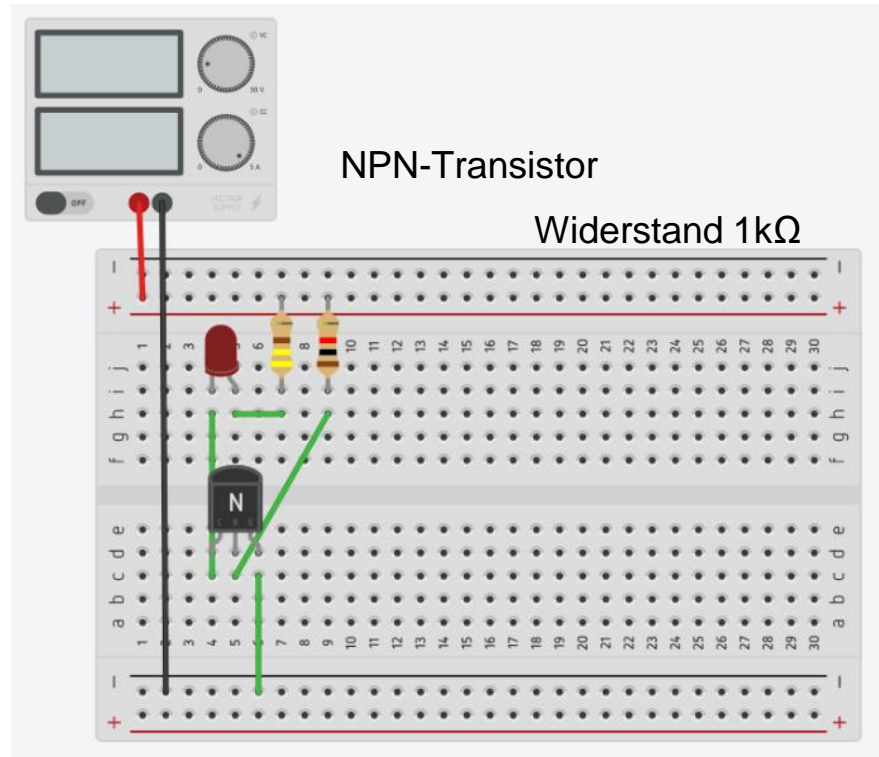
Transistor



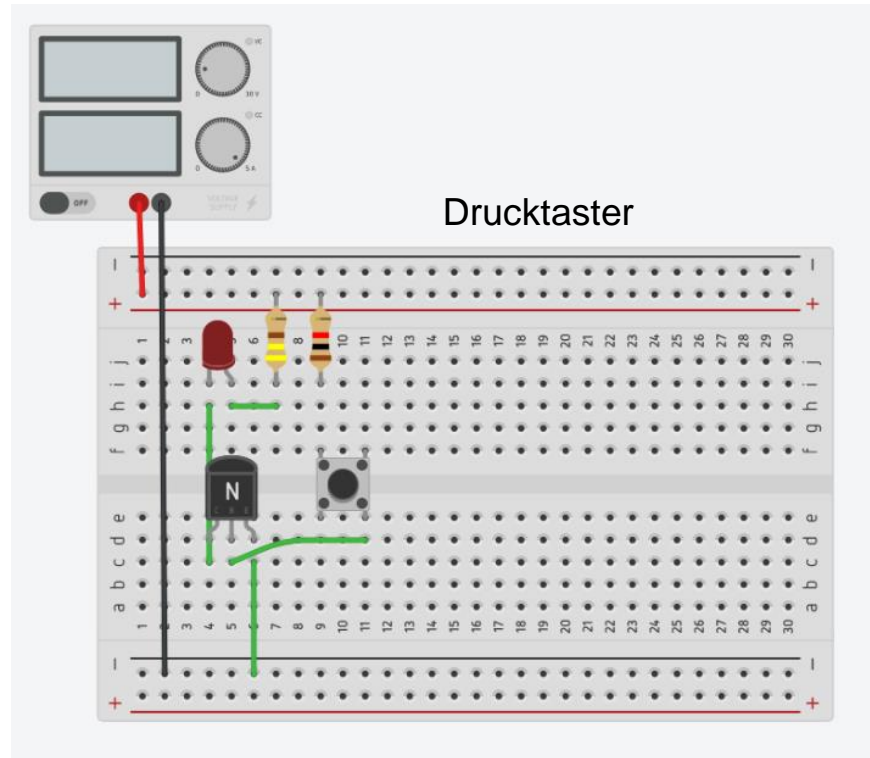
Transistor



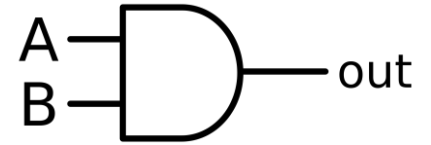
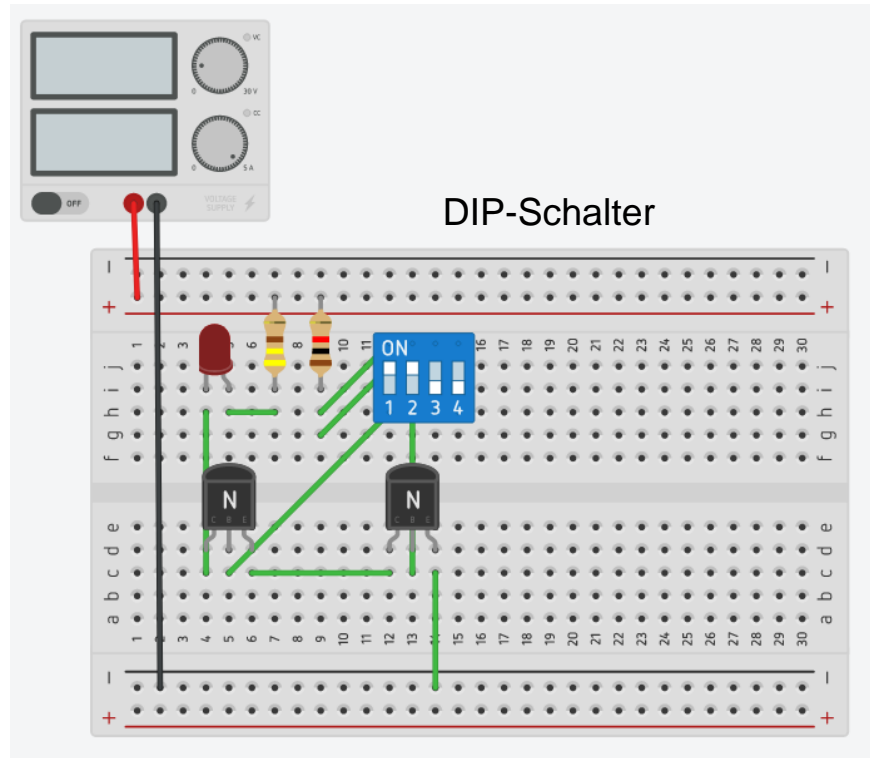
Transistor



Transistor

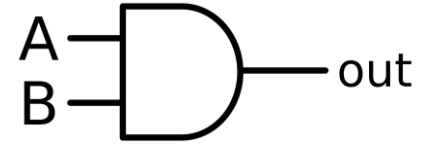
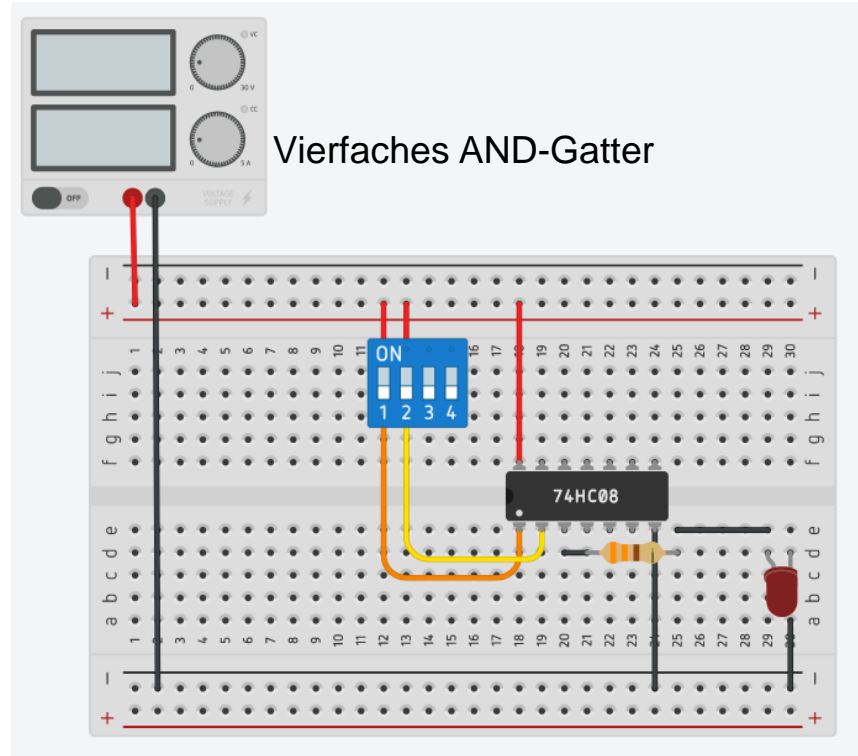


AND-Gate



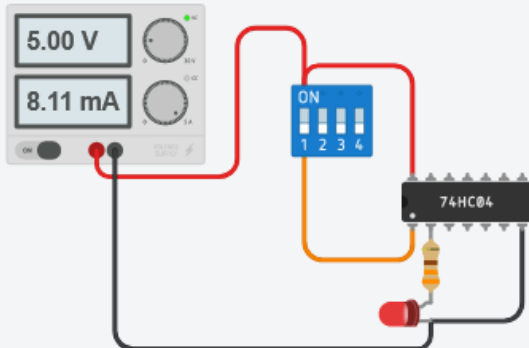
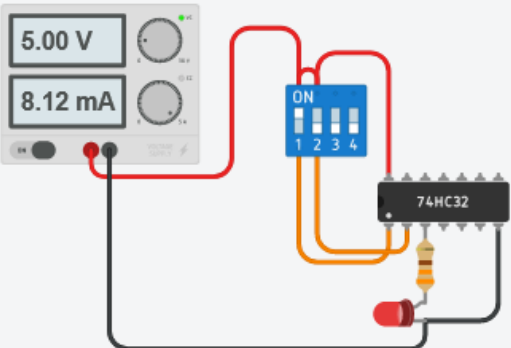
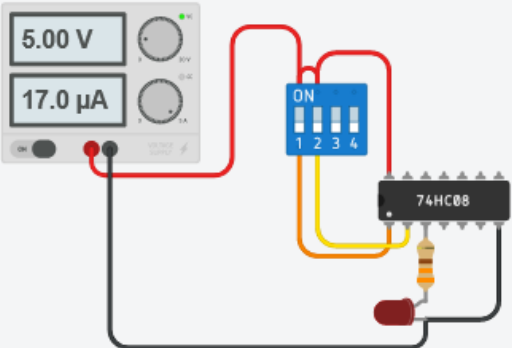
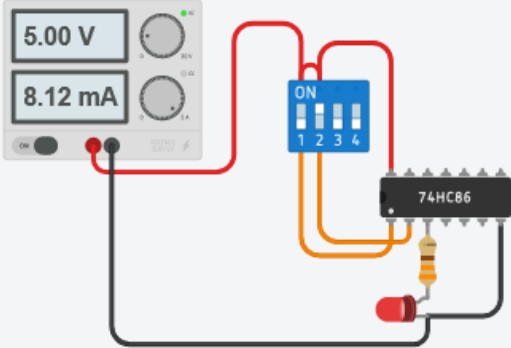
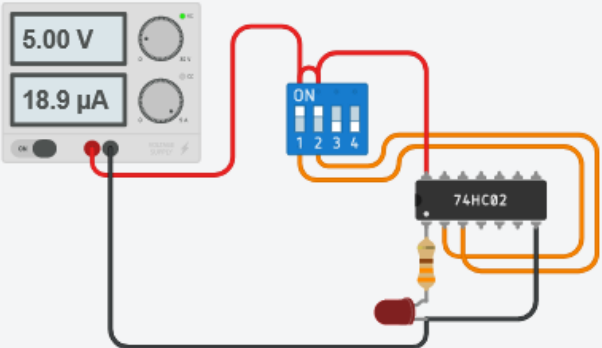
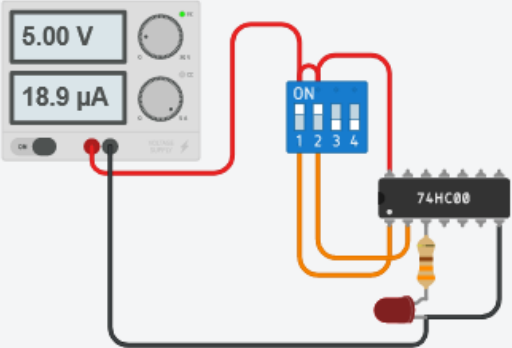
A	B	Output
0	0	0
0	1	0
1	0	0
1	1	1

AND-Gate

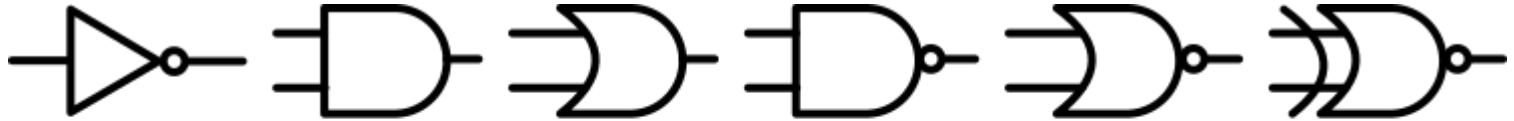


A	B	Output
0	0	0
0	1	0
1	0	0
1	1	1

NAND, NOR, XOR, AND, OR, X



Logic Gates



NOT

AND

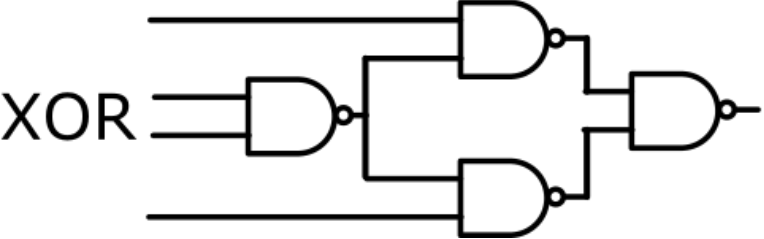
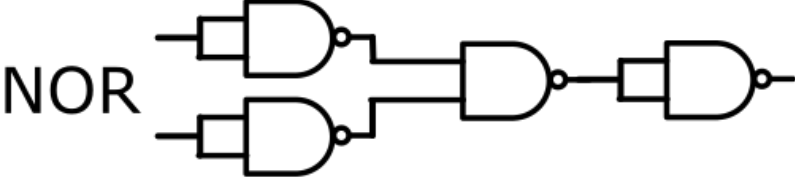
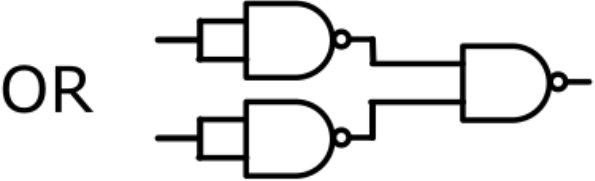
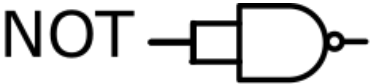
OR

NAND

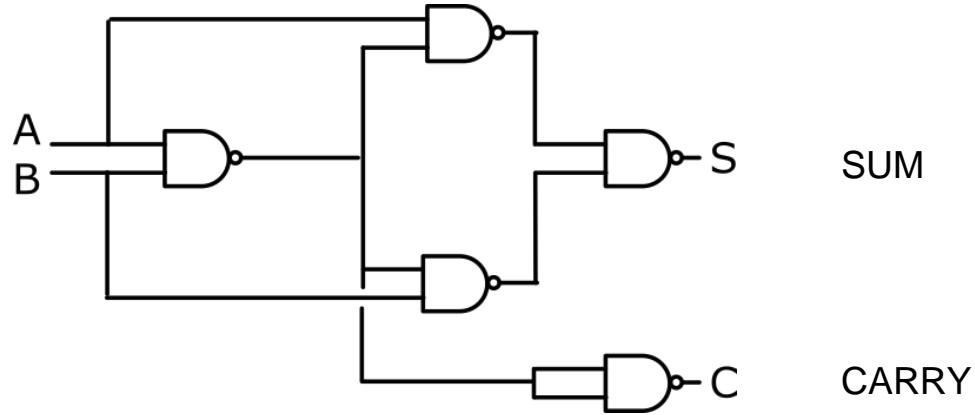
NOR

XOR

Logic Gates as NAND

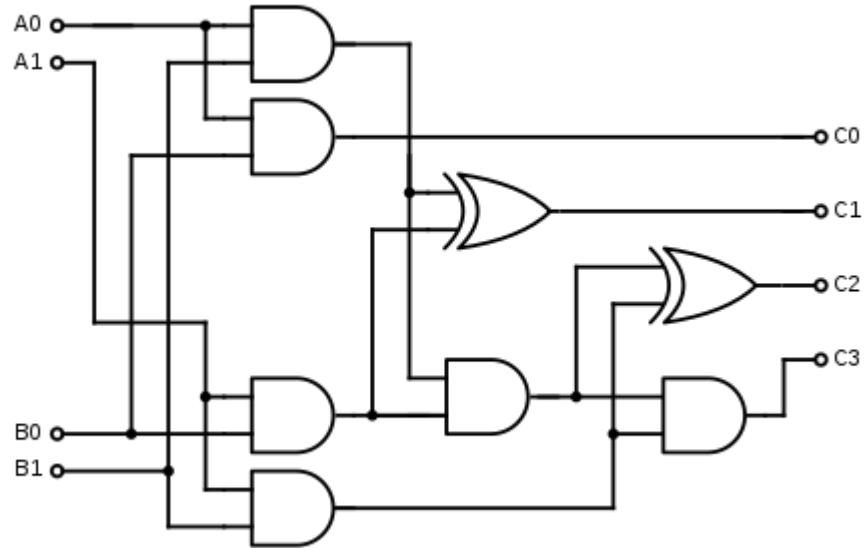


Addierer

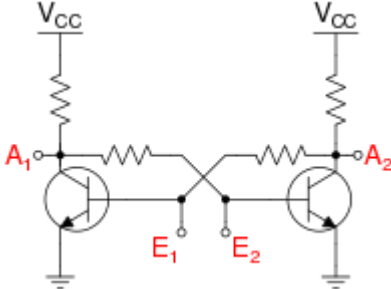
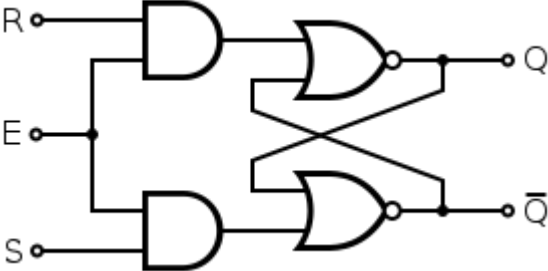


A+B	S	C
0+0	0	0
0+1	1	0
1+0	1	0
1+1	0	1

Multiplizierer



Flip Flop

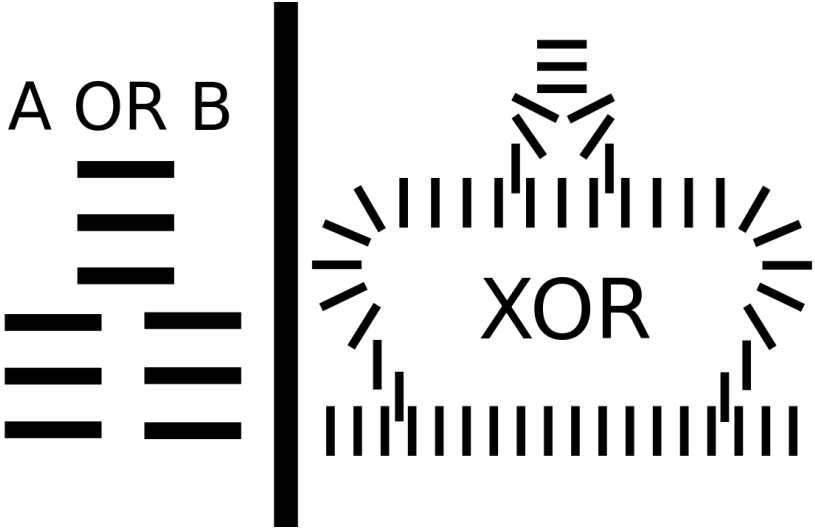


Übung

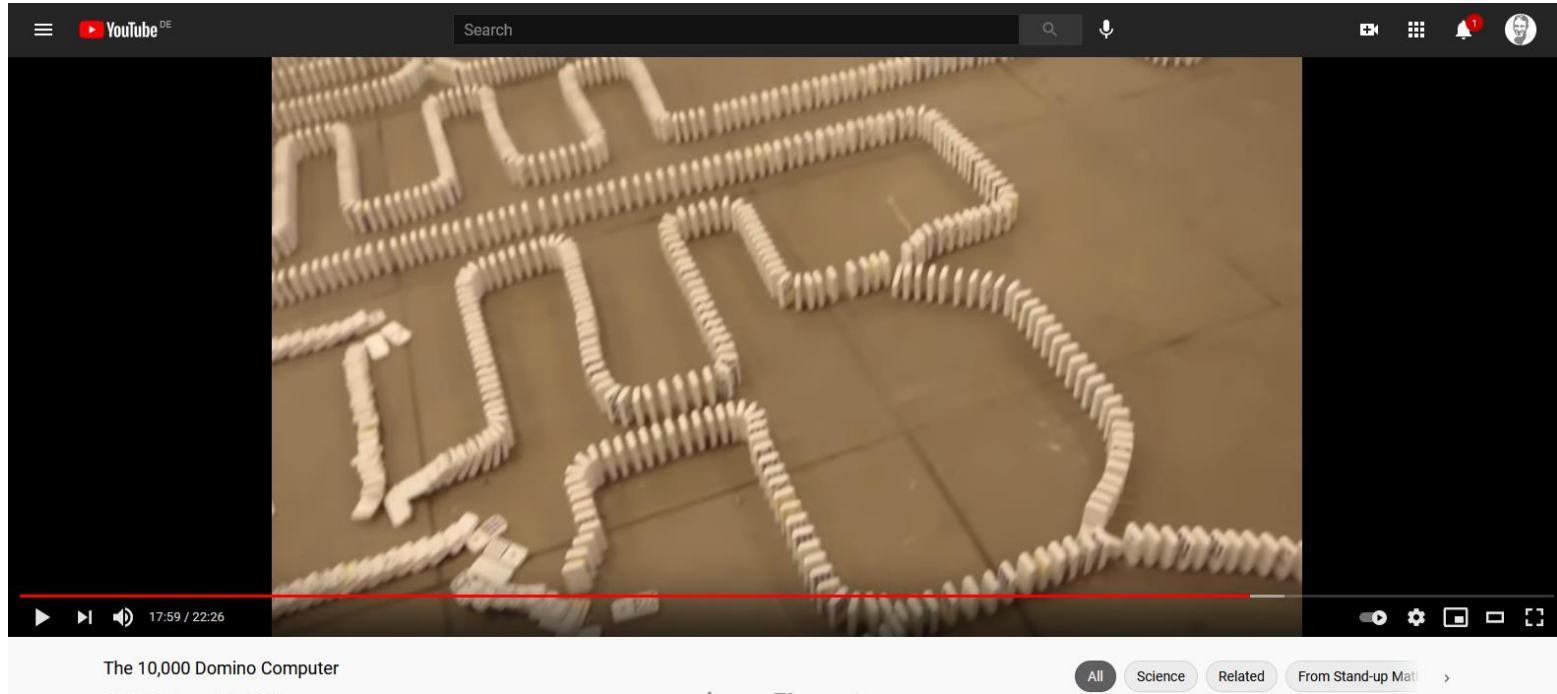
Wie kann man die Dezimal-Binär Umwandlung am PC machen?

- Mit einer Tabellenkalkulation (Excel, Google Sheets, Open Office Calc, Numbers, etc.)
- (keine Umrechnungsfunktion nutzen, sondern “händisch”)
- 15 Minuten Zeit!

Domino OR, XOR




Boolsche Algebra



Matt Parker: The 10,000 Domino Computer

https://youtu.be/OpLU_bhu2w

Boolsche Algebra



The image shows a YouTube video player interface. The main video content displays a complex water-based circuit on a white board, with orange frames and clear tubes. A name tag on the board reads "STEVE MOULD". Two inset video windows show Steve Mould speaking. The video player includes a search bar, navigation icons, and a progress bar at the bottom. The video title is "I Made A Water Computer And It Actually Works".

I Made A Water Computer And It Actually Works

All 3D printing Computers Related >

Steve Mould: I Made A Water Computer And It Actually Works

<https://youtu.be/lxXaizglscw>

Boolsche Algebra



Minecraft - Programmable 8-bit Computer - YouTube

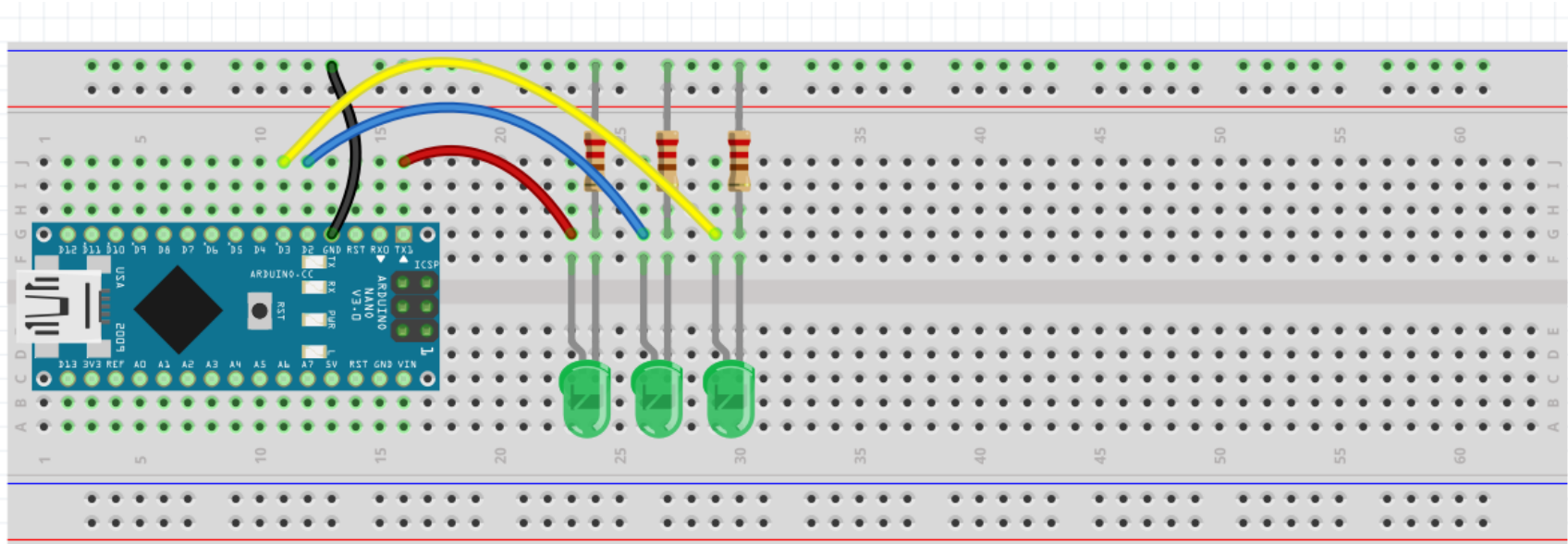
YouTube · Michael Roberts

<https://youtu.be/ydd6l3iYOZE>

<https://eater.net/8bit>

Testat

Binär-Zähler von 0-7



Vielen Dank fürs Mitmachen!

Ferdinand Meier
FME@hsrw.eu

Bis übernächste Woche!

