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Exp 1: Basic Gates

Aim: Study of basic logic Gates

Apparatus: Digital electronics wires, probes, etc

Component: IC

Theory:

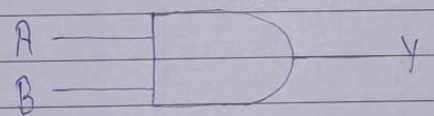
1 AND Gate

Truth table:

A	B	Y = A.B
0	0	0
0	1	0
1	0	0
1	1	1

Equation: Y = A.B

Symbol:



K-map:

B \ A	0	1
0	0	0
1	0	1

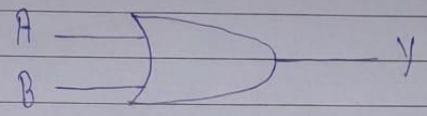
2. OR Gate

Truth Table :

A	B	Y = A+B
0	0	0
0	1	1
1	0	1
1	1	1

Equation : $Y = A+B$

Symbol :



K-map :

B \ A	0	1
0	0	1
1	1	1

3 NAND Gate

Truth Table :

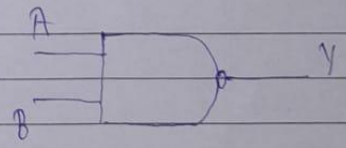
A	B	$Y = \overline{A.B}$
1	1	0
1	0	1
0	1	1
0	0	1

Equation : $Y = \overline{A.B}$

K-map :

B \ A	0	1
0	1	1
1	1	0

Symbol :



4 NOT - Gate

Truth Table:

A	$Y = \overline{A}$
0	1
1	0

Equation: $Y = \overline{A}$

Symbol:

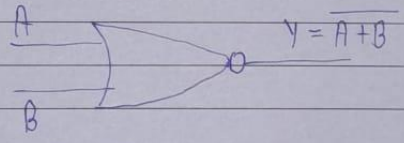
5 NOR Gate

Truth Table:

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

Equation: $Y = \overline{A+B}$

Symbol:



k map:

B \ A	0	1
0	1	0
1	0	0

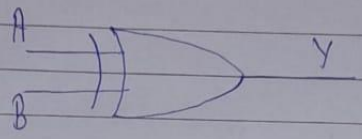
6 X-OR Gate

Truth Table :

A	B	Y = A ⊕ B
0	0	0
0	1	1
1	0	1
1	1	1

Equation : $Y = A \oplus B$

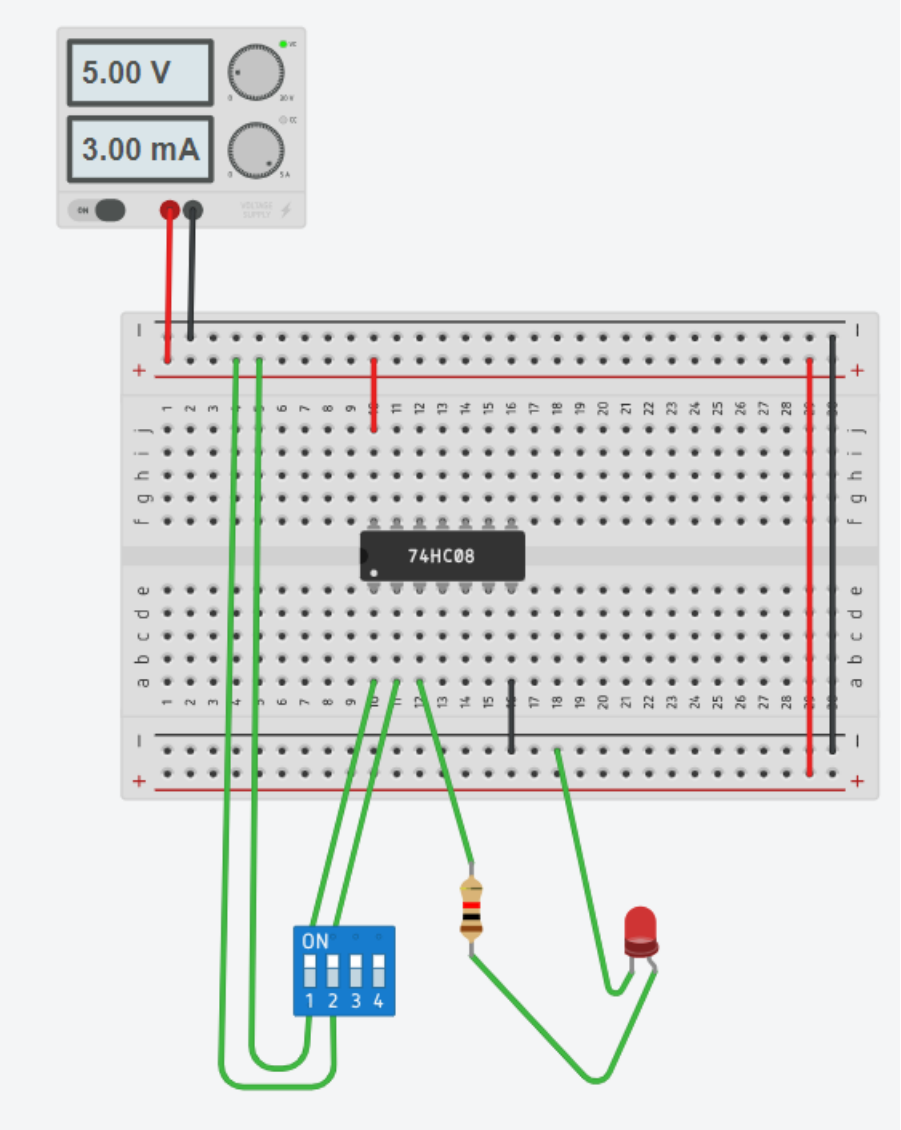
Symbol :



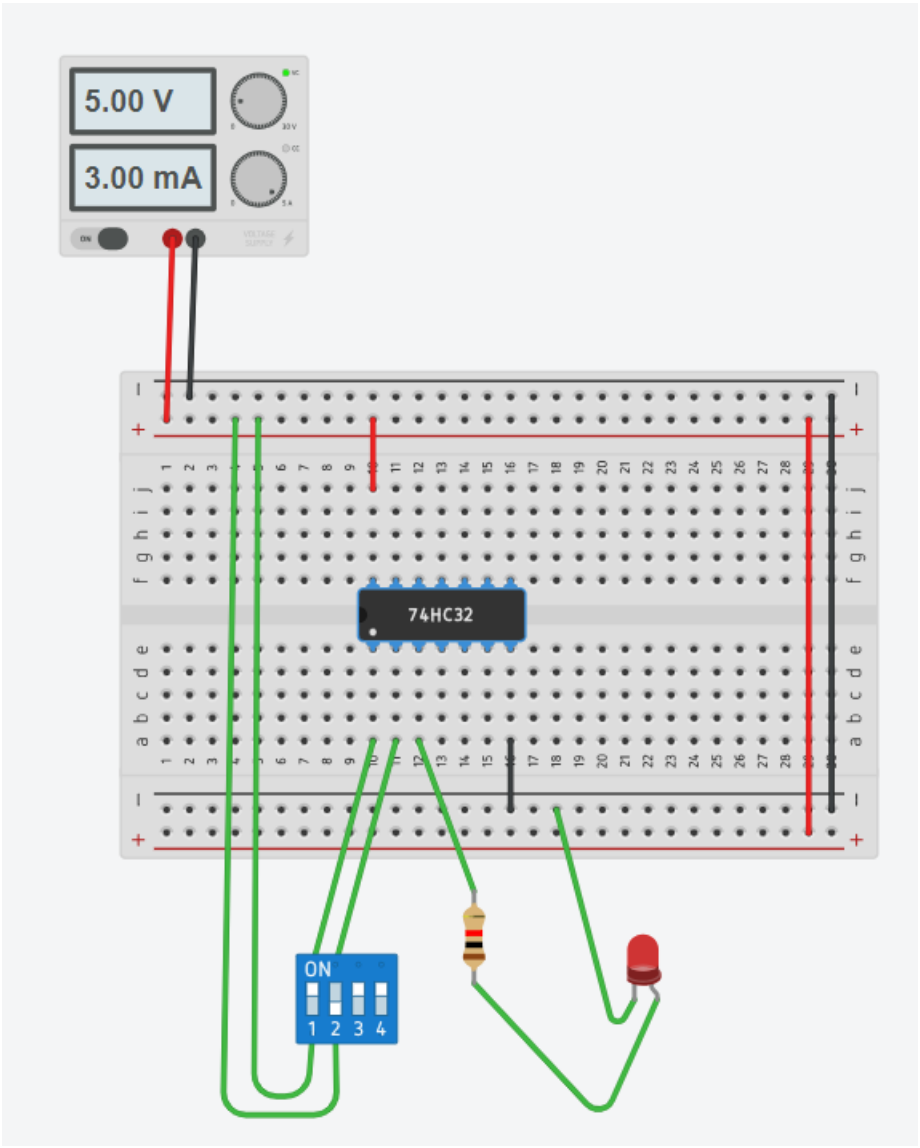
Kmap :

B \ A	0	1
0	0	1
1	1	0

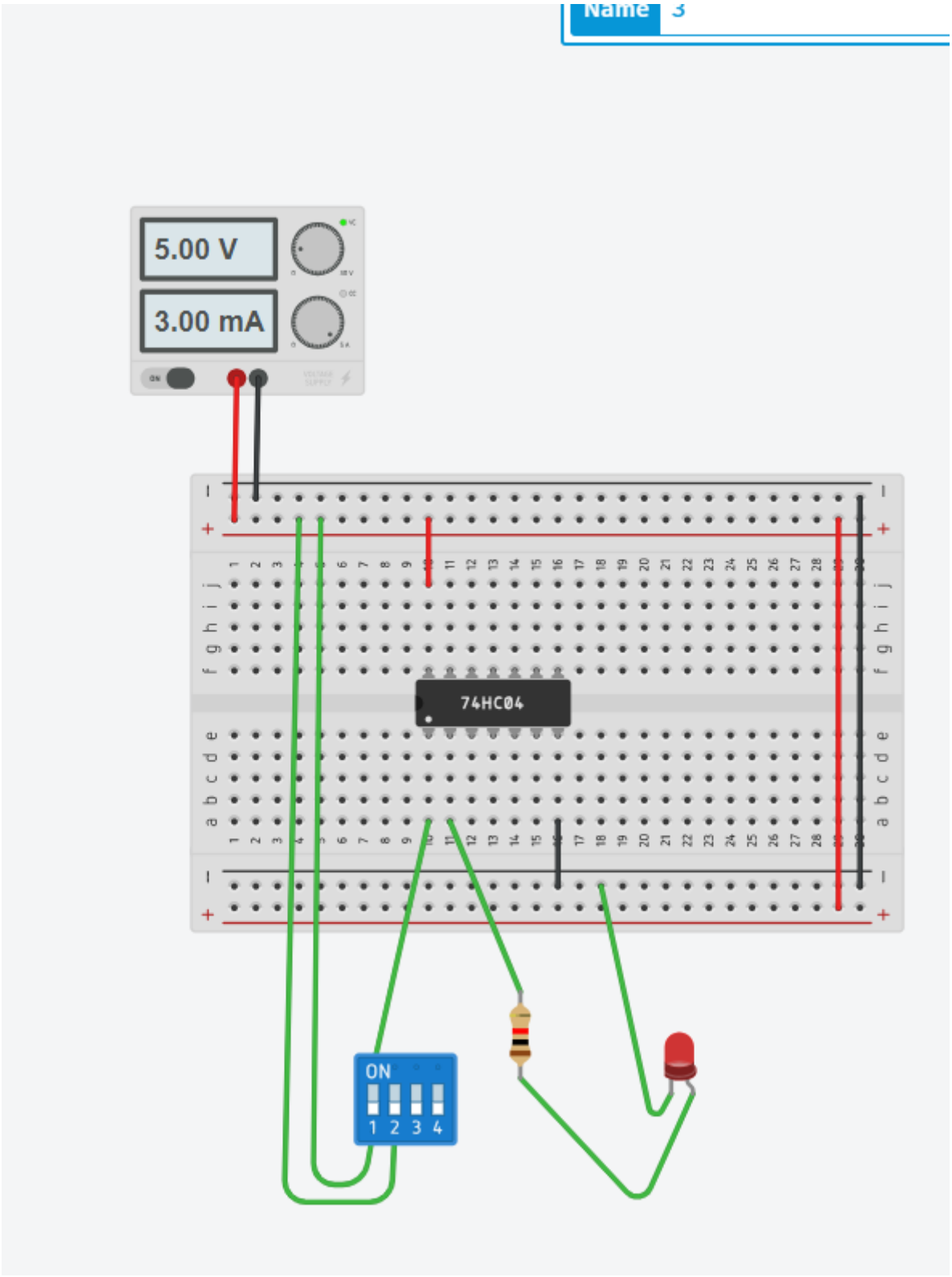
AND Gate



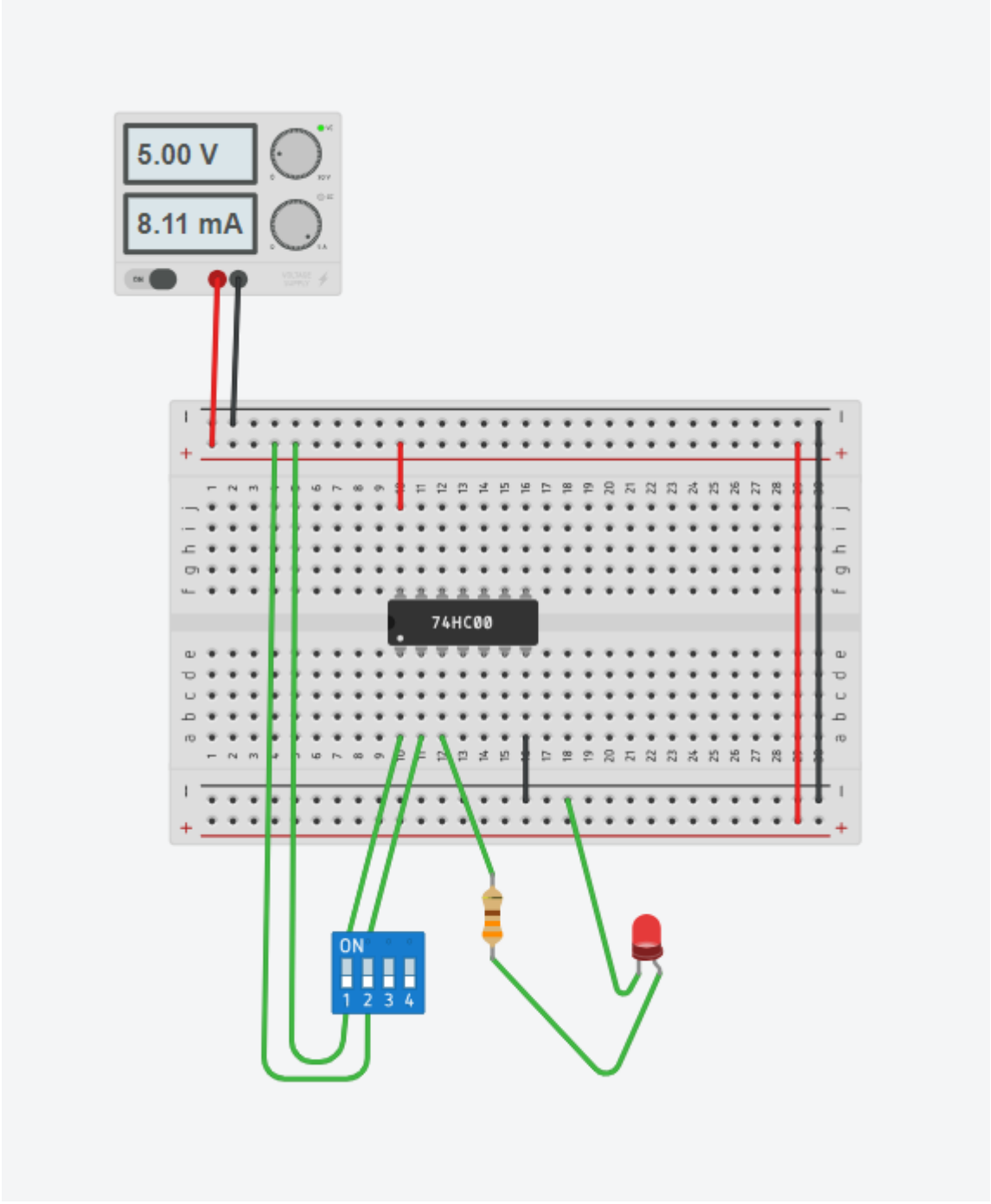
OR Gate



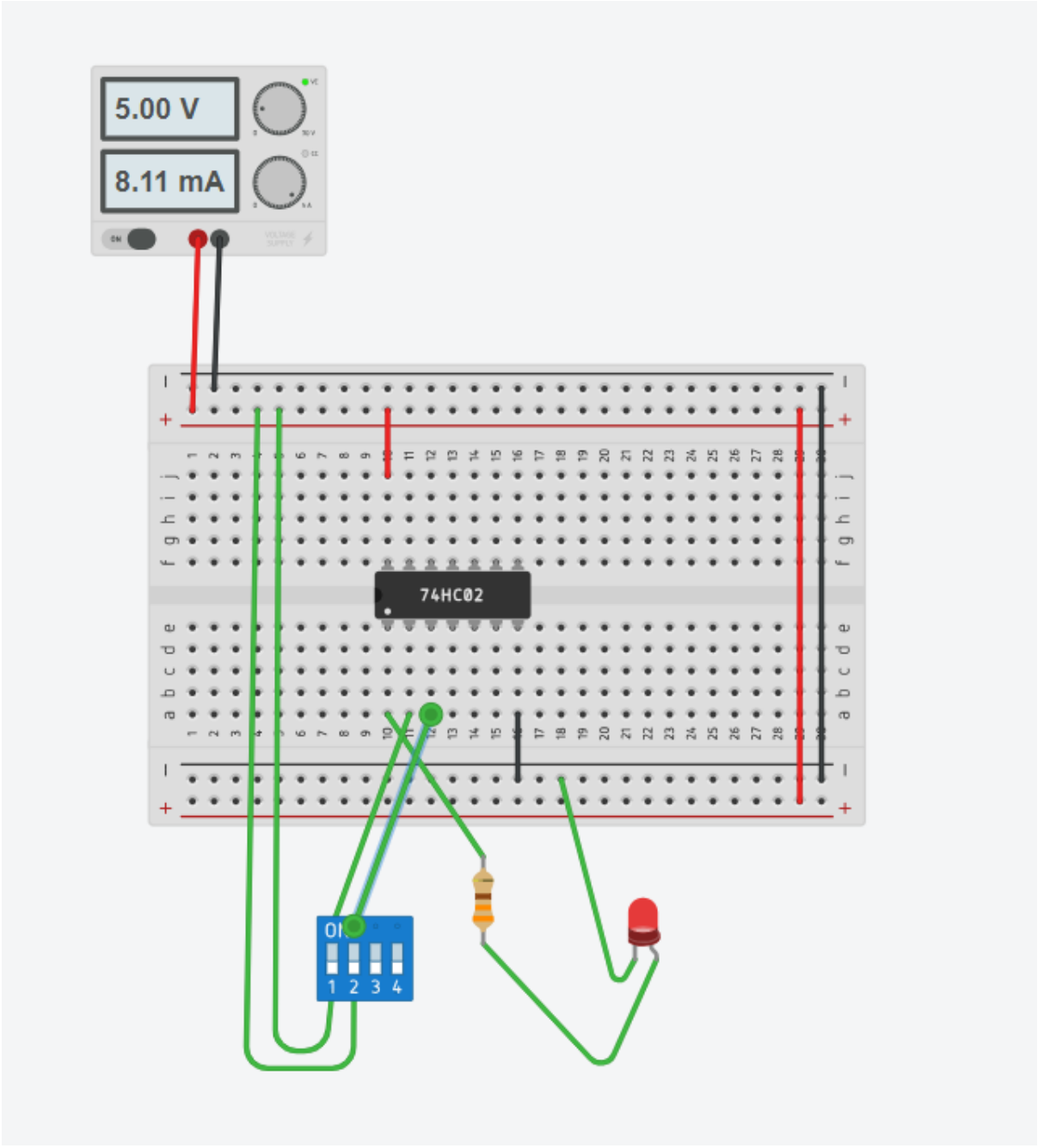
NOT Gate



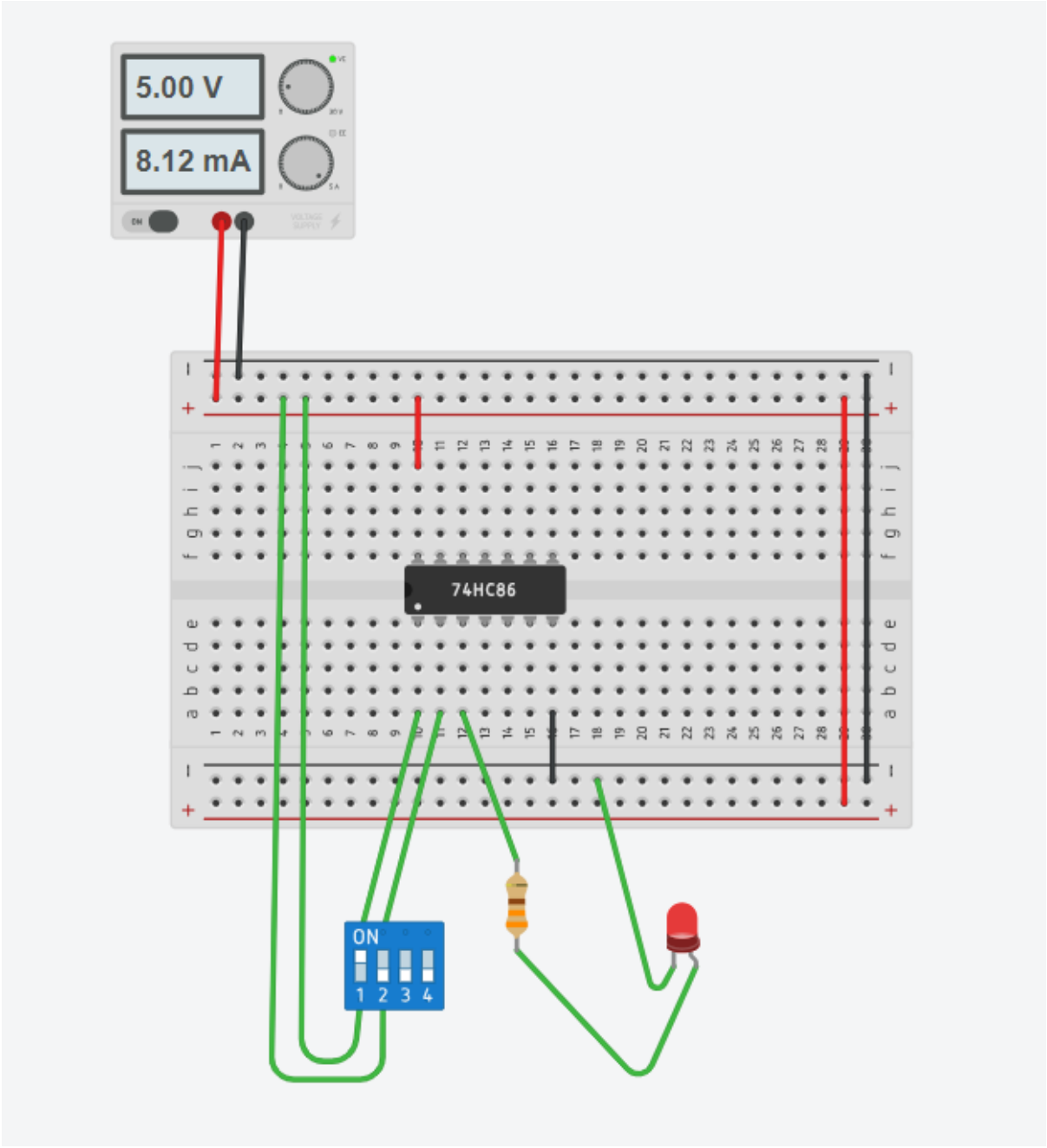
NAND Gate



NOR Gate



XOR Gate



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