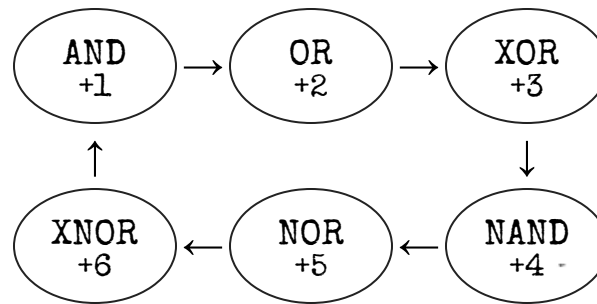
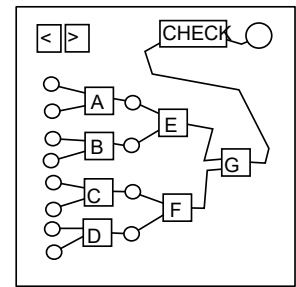


On the Subject of Logic Gates

There are only 10 types of bomb experts: those who understand logic gates, and those who don't.

The module contains a circuit of 7 logic gates, lettered A through G. Logic gates are explained on the second page. The circuit has 8 inputs and 1 output. Determine all gate types and find an input configuration that will set the final output to on.



- The first row of 8 LEDs tell you the input states. The second row of 4 LEDs tell you the output states of gates A through D. Use the arrow buttons to cycle through different input configurations, and determine the gate types of the first four gates.
- One gate type will occur twice on the circuit, all others once. In the following rules, if the found gate type already occurs, and you already found the duplicate, continue taking single steps until you find an available gate type.
- To find the gate type of gate E:
 - Start at the gate type of gate A in the diagram above.
 - Take the +n number of the gate type of gate B. Take that many steps following the arrows.
- To find the gate type of gate F:
 - Start at the gate type of gate E in the diagram above.
 - Take the +n number of the gate type of gate C. Take that many steps.
- To find the gate type of gate G:
 - Start at the gate type of gate F in the diagram above.
 - Take the +n number of the gate type of gate D. Take that many steps.
- Once you've established all gate types, cycle to an input configuration that will set the final output to on. Press 'CHECK'. If the output is off, you've earned a strike.

A logic gate is an elementary building block of a digital circuit. Most logic gates have two inputs and one output. At any given moment, every input and every output is either off (0, false) or on (1, true).

There are seven basic logic gates: NOT, AND, OR, XOR, NAND, NOR and XNOR. The NOT gate has one input and one output. The others have two inputs and one output. Inputs are normally drawn on the left, outputs on the right.

NOT	Has only one input. True becomes false, false becomes true. This gate will not be used on the module directly.
AND	When both inputs are true, the output is true. Otherwise, the output is false.
OR	When either or both inputs are true, the output is true. When both inputs are false, the output is false.
XOR	(Exclusive-OR) If either, but not both, inputs are true, the output is true. If neither or both inputs are true, the output is false.
NAND	It operates as an AND gate followed by a NOT gate. When both inputs are true, the output is false. Otherwise, the output is true.
NOR	It operates as an OR gate followed by a NOT gate. When either or both inputs are true, the output is false. When both inputs are false, the output is true.
XNOR	(Exclusive-NOR) It operates as an XOR gate followed by a NOT gate. If either, but not both, inputs are true, the output is false. If neither or both inputs are true, the output is true.

INPUT		OUTPUT					
		AND	OR	XOR	NAND	NOR	XNOR
0	0	0	0	0	1	1	1
0	1	0	1	1	1	0	0
1	0	0	1	1	1	0	0
1	1	1	1	0	0	0	1