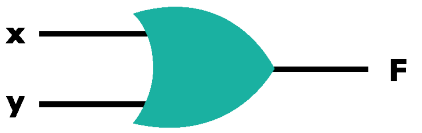
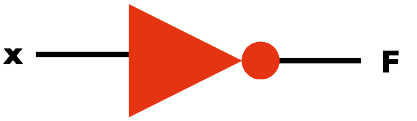
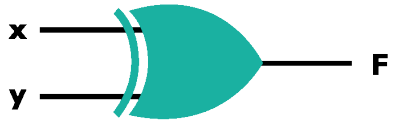
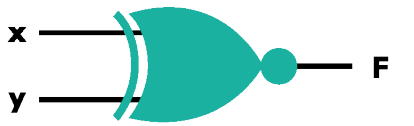
Logic gates explained

Use this handy guide to learn how logic gates work.

Scouts

Name	Diagram	Truth Table	Description
AND		x y F 0 0 0 0 1 0 1 0 0 1 1 1	The **AND** gate requires signals from **both** inputs (x **and** y) to activate the output (F).
OR		x y F 0 0 0 0 1 1 1 0 1 1 1 1	The **OR** gate requires signals from **one or both** inputs (x **and or** y) to activate the output (F).
NOT		x F 0 1 1 0	The **NOT** gate is an inverter. When it receives a signal from its input (x) it does not activate the output (F). When it **doesn't receive a signal**, it activates the output.
Advanced gates			
NAND		x y F 0 0 1 0 1 1 1 0 1 1 1 0	The **NAND** gate is an inverter. When it receives a signal from **either or neither** input (x **or** y) it will activate the output (F). If it receives a signal from both it will not activate the output.
NOR		x y F 0 0 1 0 1 0 1 0 0 1 1 0	The **NOR** gate is an inverter. When it receives a signal from **neither** input (x) it will activate the output (F). If it receives any signals from either or both inputs, it will not activate.
XOR		x y F 0 0 0 0 1 1 1 0 1 1 1 0	The **XOR** gate is an exclusive gate, this means it will only activate the output (F) when it receives **one signal** from the **chosen** input (x)
XNOR		x y F 0 0 1 0 1 0 1 0 0 1 1 1	The **XNOR** gate is an exclusive gate, this means it will only activate the output (F) when **both** inputs provide a signal, or provide no signal.

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