

## Instruction 'how to connect 1 LED to 12 volts' (20mA leds)

The 470 and 510 ohms resistors are available to connect one LED to 12 volts.

This is how it works:

Plus 12V -----LED-----RESISTOR----- minus

*(The resistor could also be placed at the plus side, it doesn't matter)*

A LED has a long and a short end.

The long end is the plus, the short end is the minus.

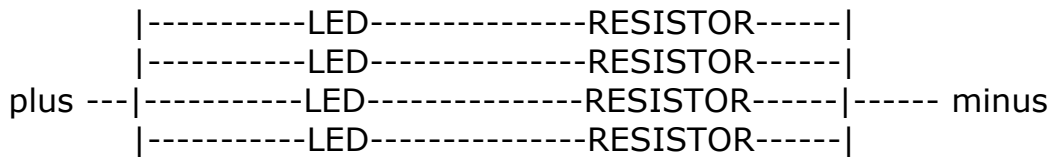
Example:

Take the fact that you'd like to make 4 LEDs working at a 12 volts source.

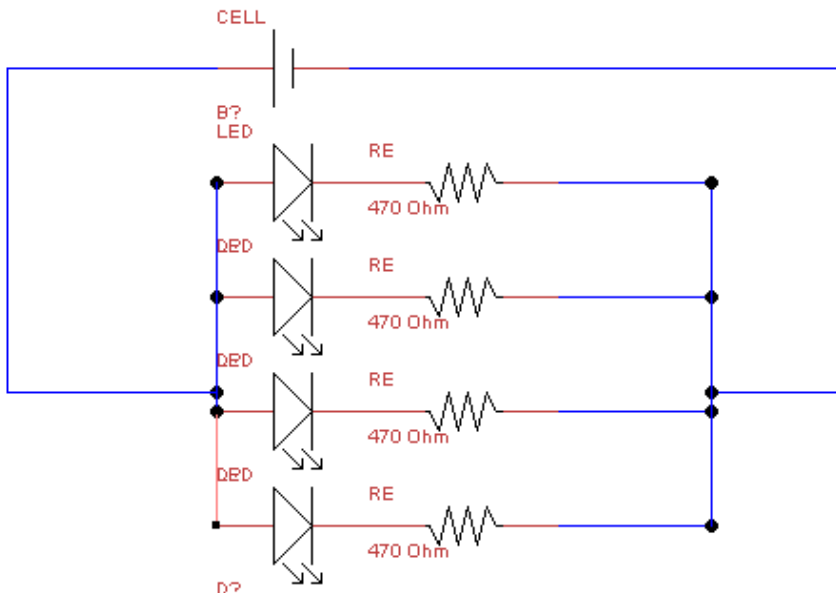
You have to make 4 chains like the one above.

You put those 4 in parallel (like the rails of a train track).

So:



You should connect it like this:



Do you want to make something with a lot more LEDs? Then you should take this strategy, only with more chains.