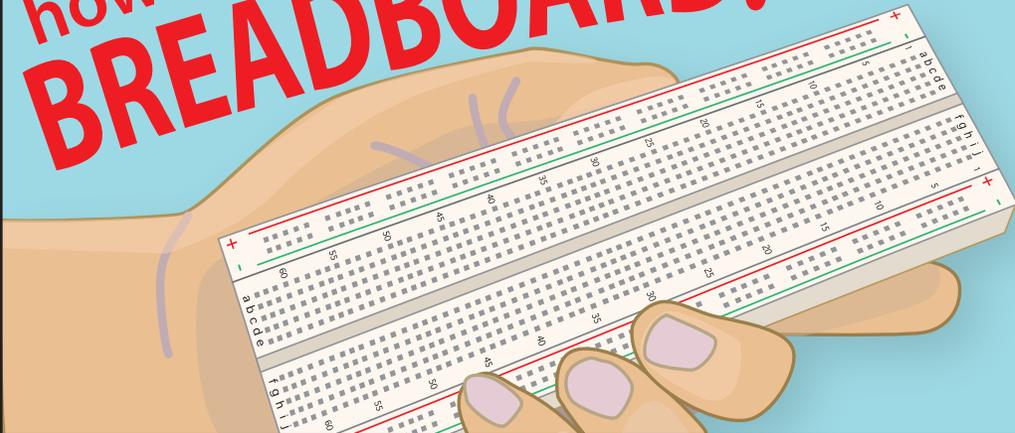
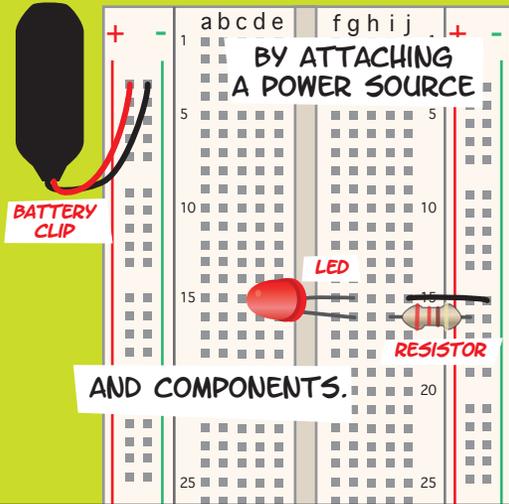


how to use a **BREADBOARD!**



A **SOLDERLESS BREADBOARD** IS A PLASTIC BOX FULL OF METAL STRIPS, WITH A GRID OF HOLES ON TOP.

IT IS USED TO BUILD AND TEST CIRCUITS QUICKLY



AND COMPONENTS.

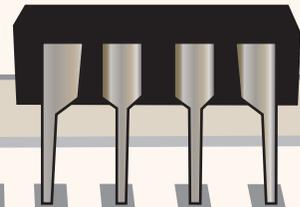
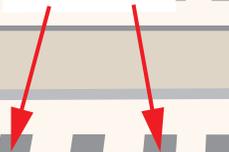
TRENCH



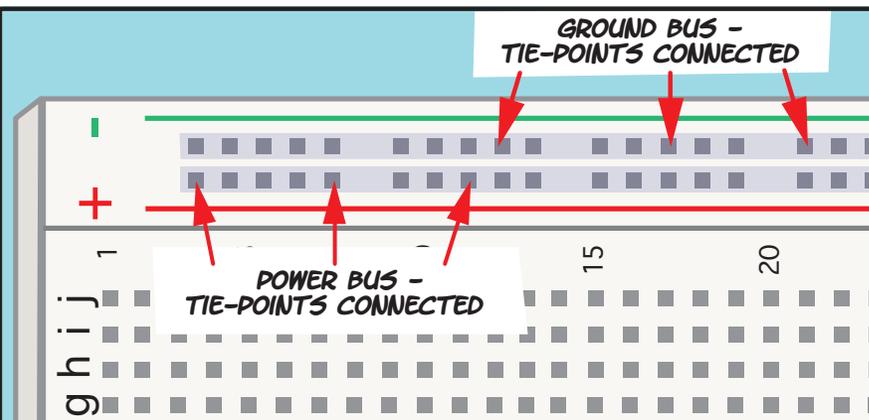
INTEGRATED CIRCUIT

USUALLY A BREADBOARD HAS A SLOT DOWN THE MIDDLE CALLED A **TRENCH**. THE WIDTH IS DESIGNED SO MANY **INTEGRATED CIRCUITS (ICs)** FIT RIGHT ACROSS IT.

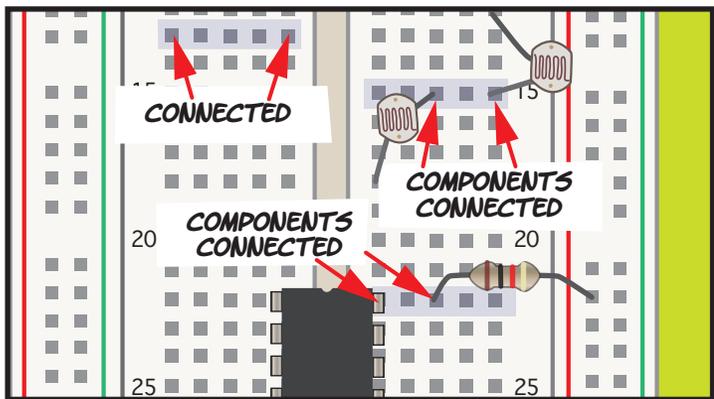
TIE-POINTS



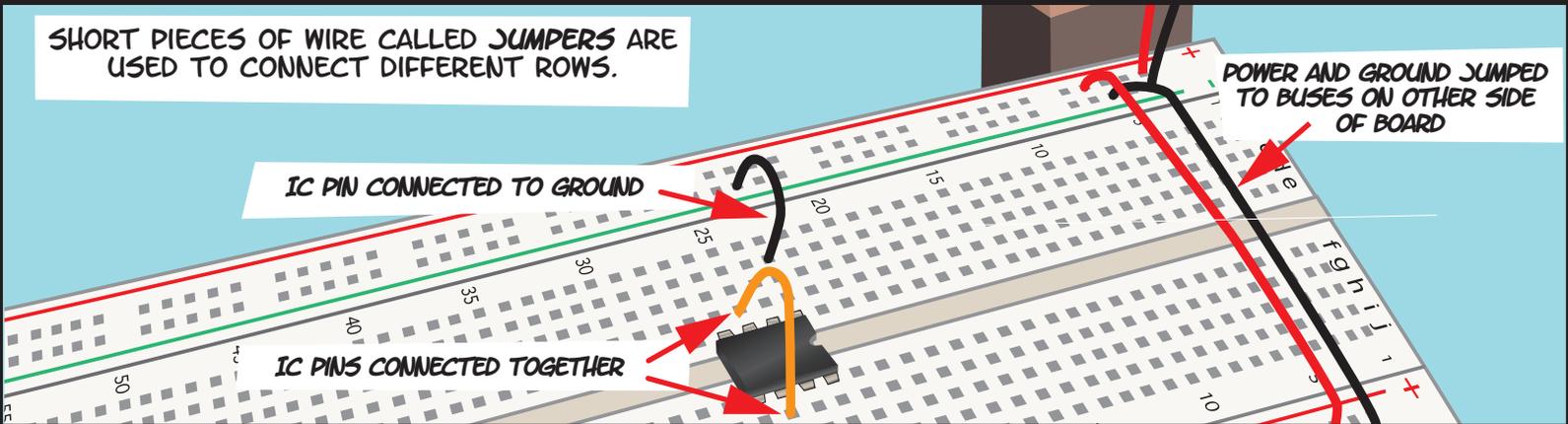
THE HOLES, CALLED **TIE-POINTS**, ARE THE SAME DISTANCE APART AS THE PINS ON MANY **ICs** AND OTHER COMPONENTS.



A BREADBOARD'S LONG EDGE USUALLY HAS TWO DISTRIBUTION BUSES FOR CONNECTING POWER AND GROUND.



ROWS OF CONNECTED HOLES RUN PERPENDICULAR TO THE BUSES. TO CONNECT COMPONENT LEADS, PUT THEM IN THE SAME ROW.



USING A SOLDERLESS BREADBOARD ALLOWS YOU TO GET YOUR CIRCUIT UP AND RUNNING QUICKLY SO YOU CAN TEST IT. ONCE YOU HAVE IT JUST RIGHT, YOU CAN BUILD A MORE PERMANENT VERSION ON PERFBORAD OR A PCB!