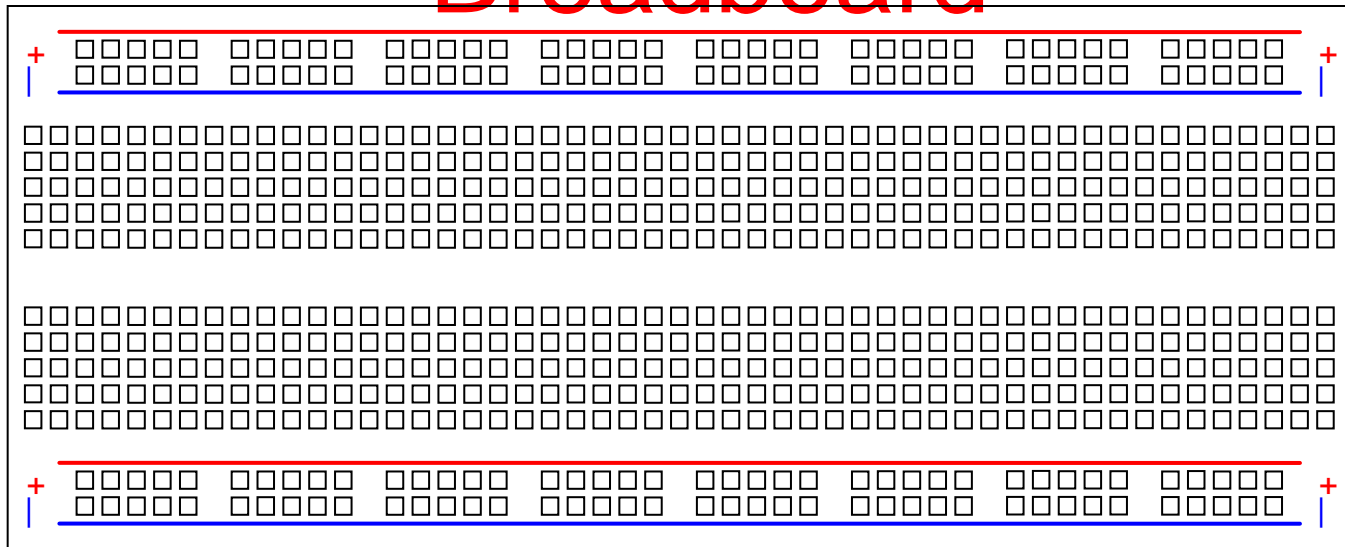


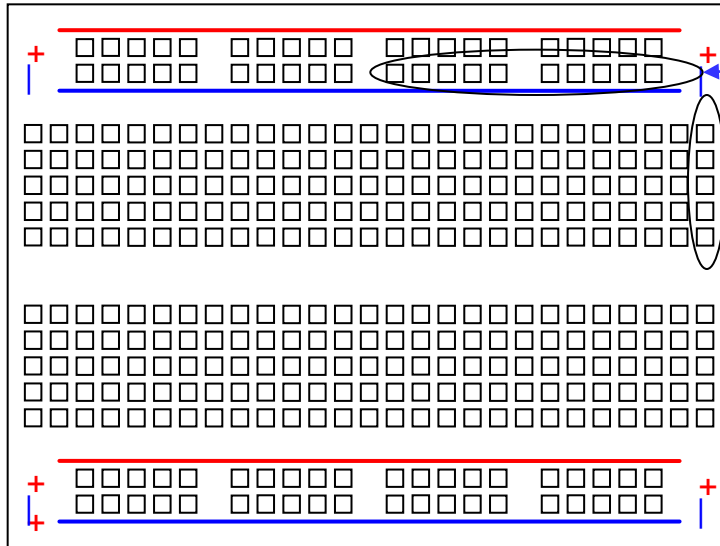
# Build Circuits on a Breadboard



## Advantages

- circuits build quickly
- easy to make modifications
- no mess of soldering / desoldering
- connections are tight
- components may be used over again

# The Breadboard



- These horizontal holes are usually used to supply the voltage to the circuit. The red line is for +V and the blue line is for the -V or ground.
- The vertical holes are used to connect components together. A maximum of 5 leads can be connected together.

# How a Breadboard is Made

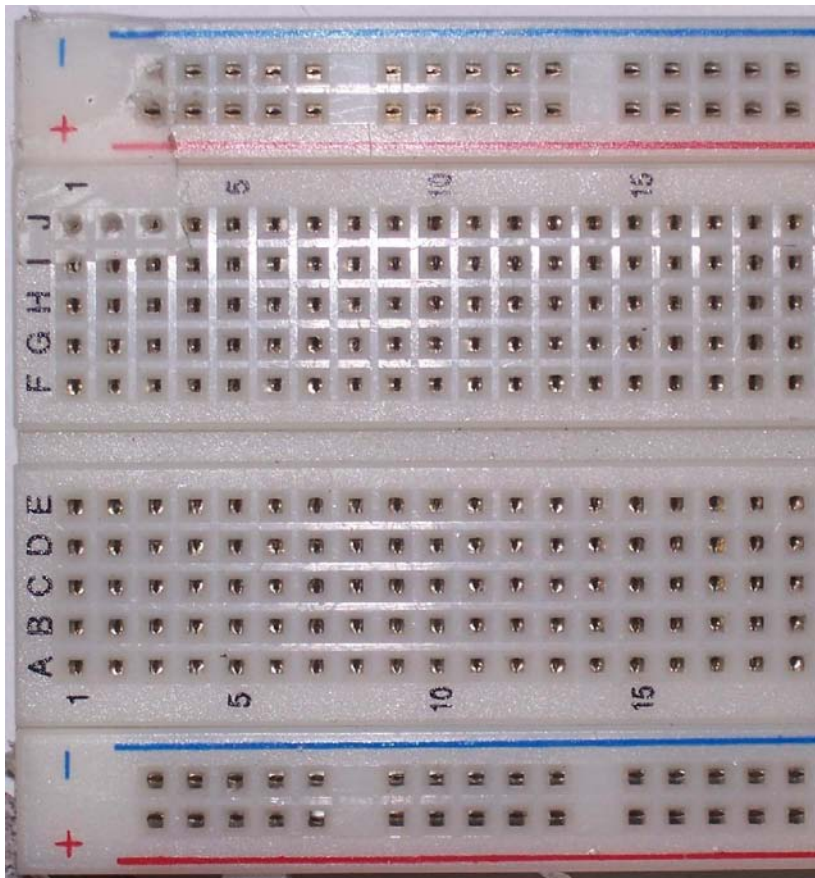
Metal strips are laid along the rows and columns



These strips are embedded into the board.

# An Actual Breadboard

Top of Breadboard

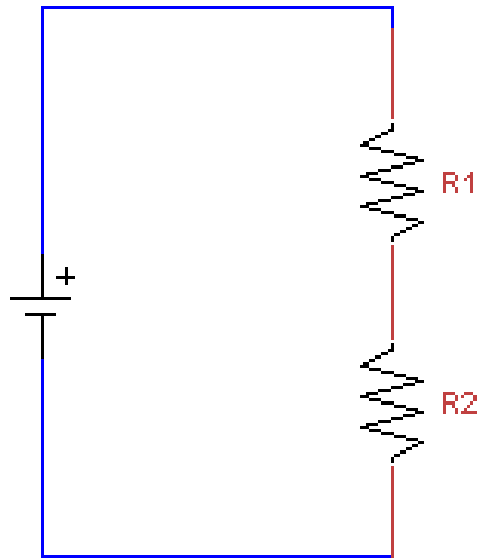


Bottom of Breadboard



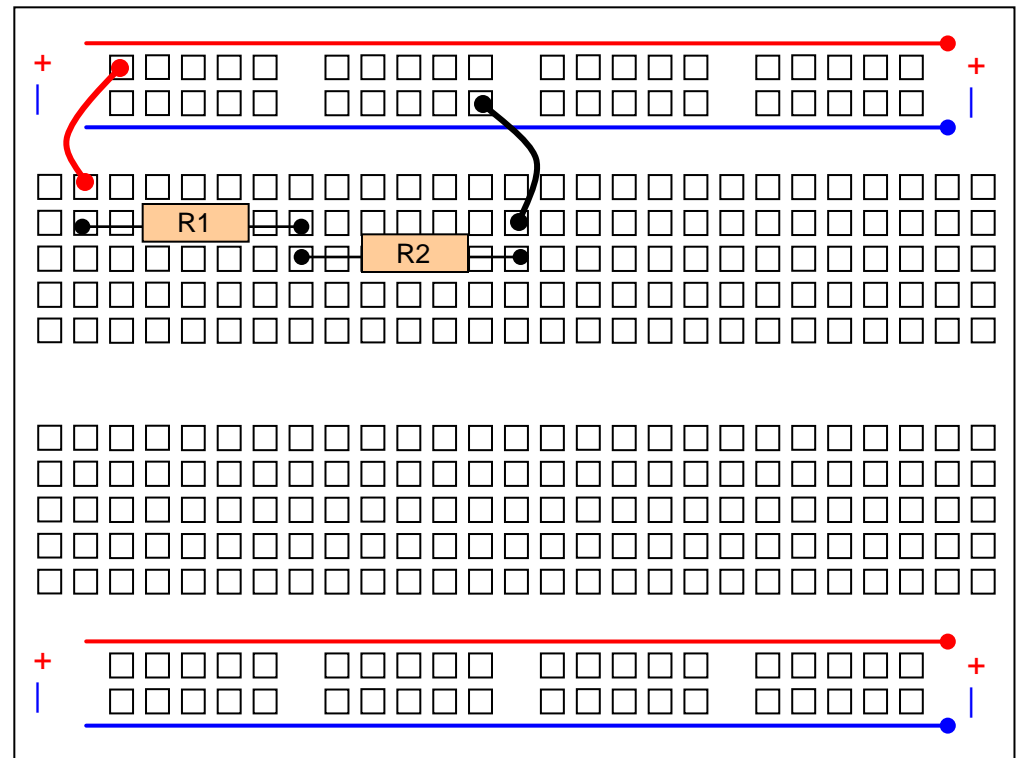
# Building a Circuit from a Schematic

Schematic



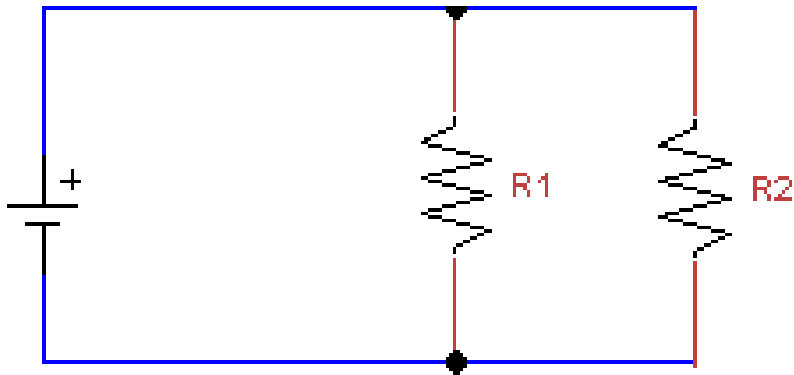
**Series Circuit**

Circuit



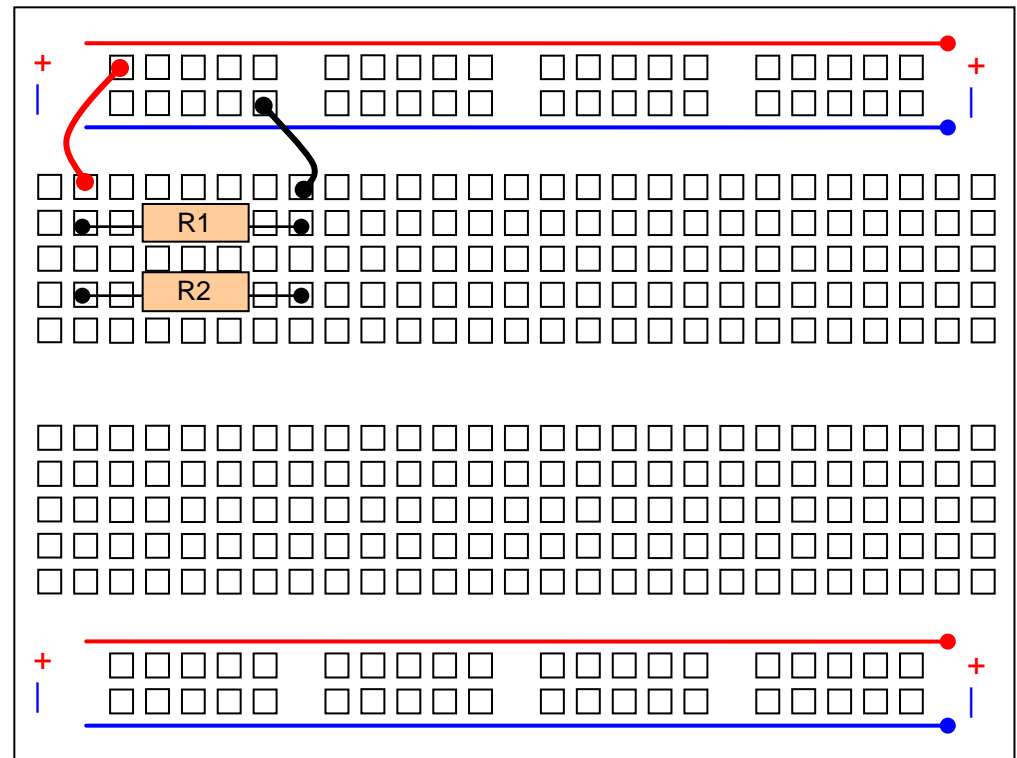
# Building a Circuit from a Schematic

Schematic



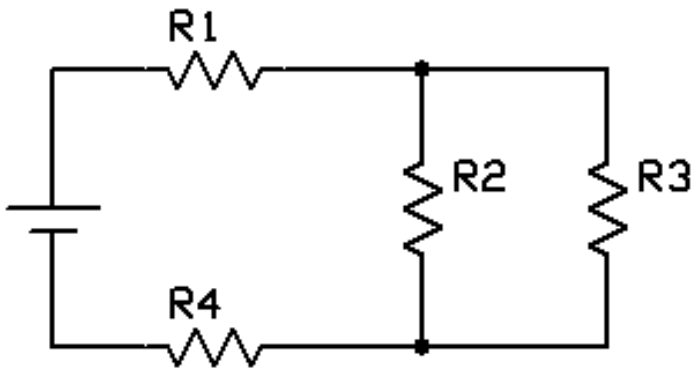
**Parallel  
Circuit**

Circuit



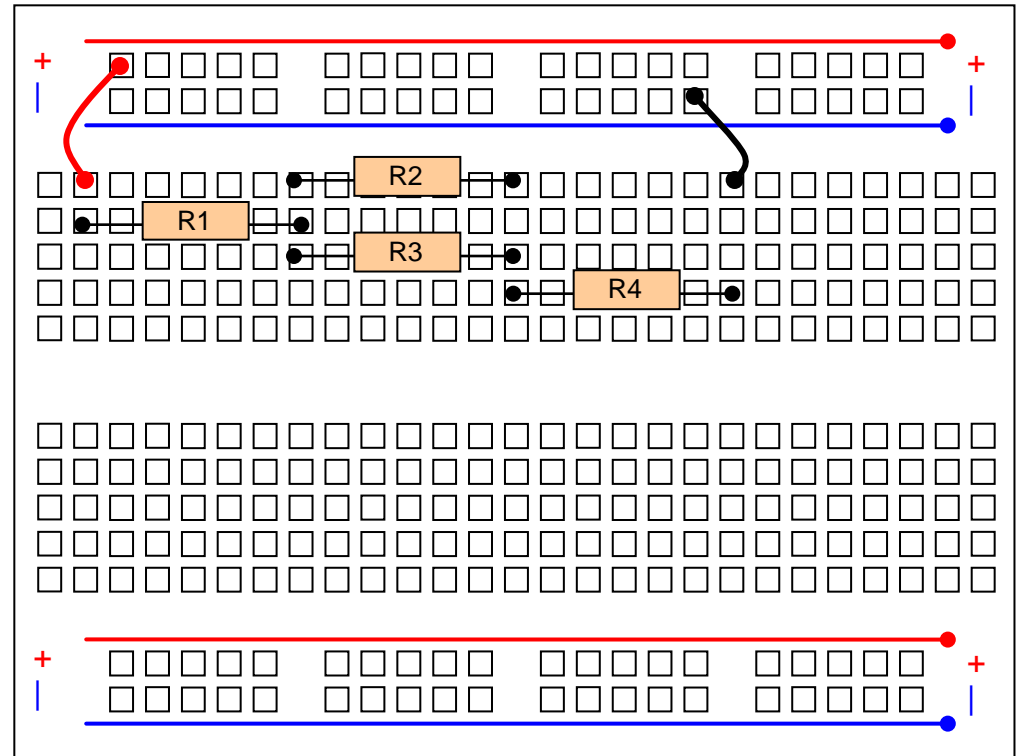
# Building a Circuit from a Schematic

## Schematic



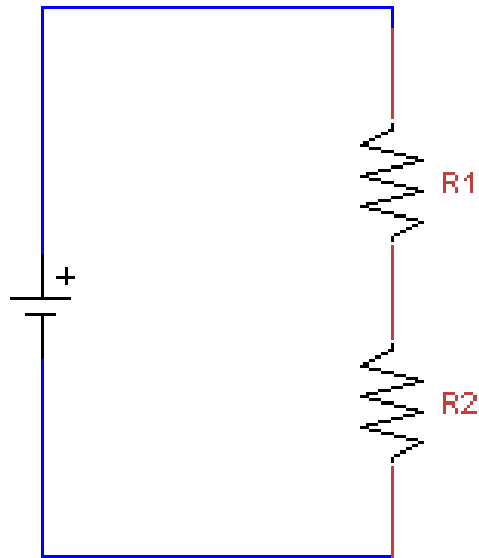
**Combination  
Circuit**

## Circuit



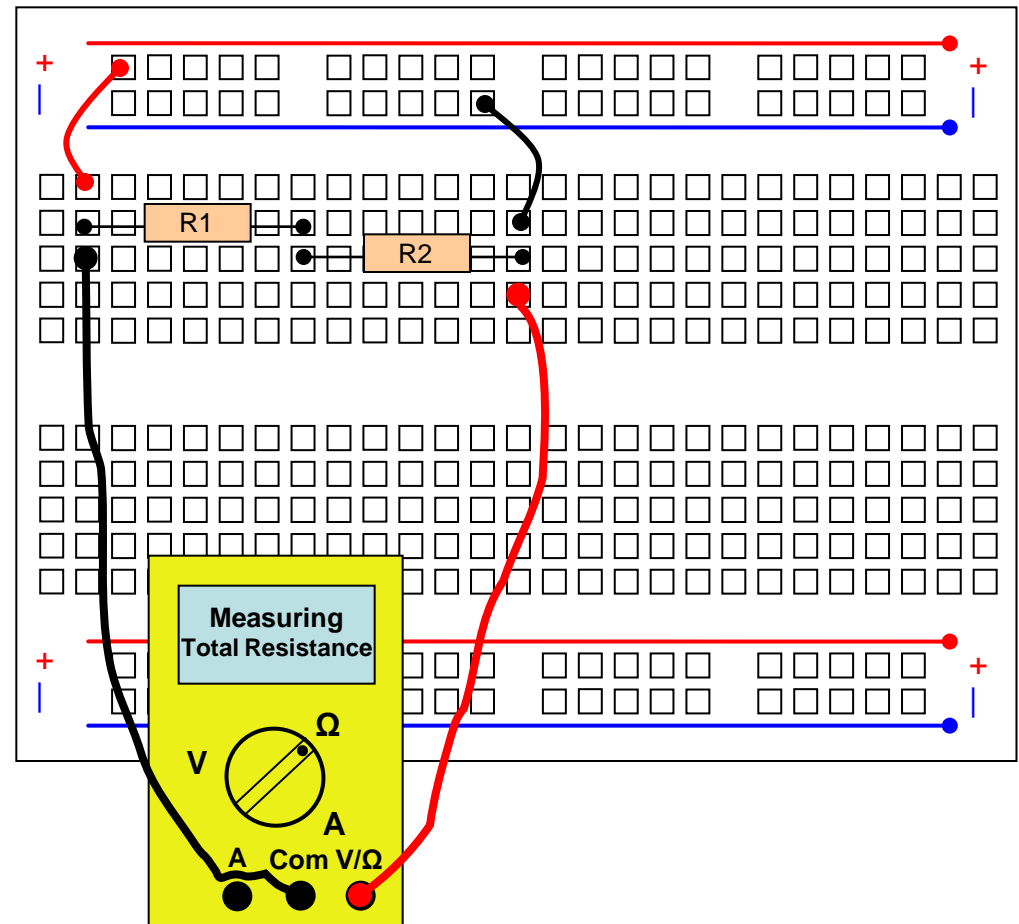
# Measuring Total Resistance in a Circuit

Schematic



**Series Circuit**

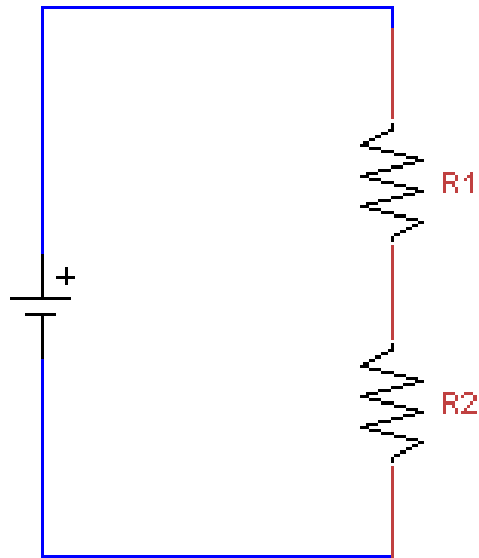
Circuit





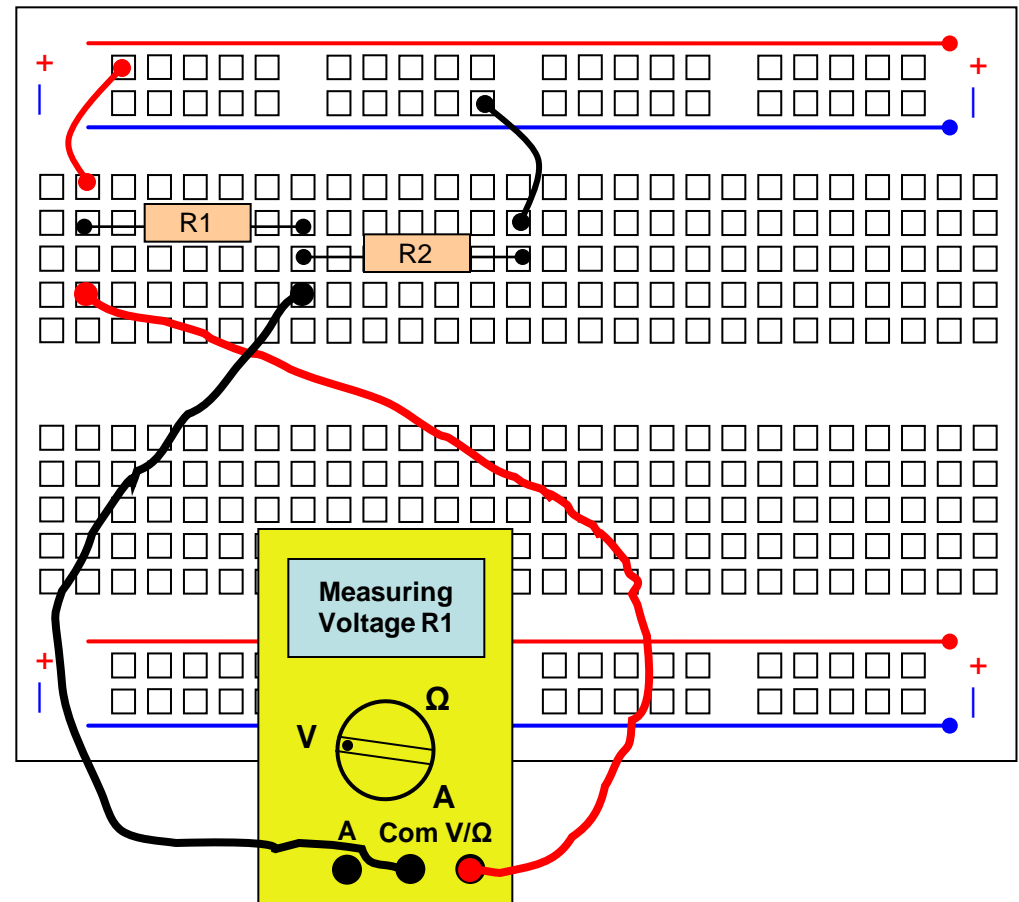
# Measuring Voltage in a Circuit

Schematic



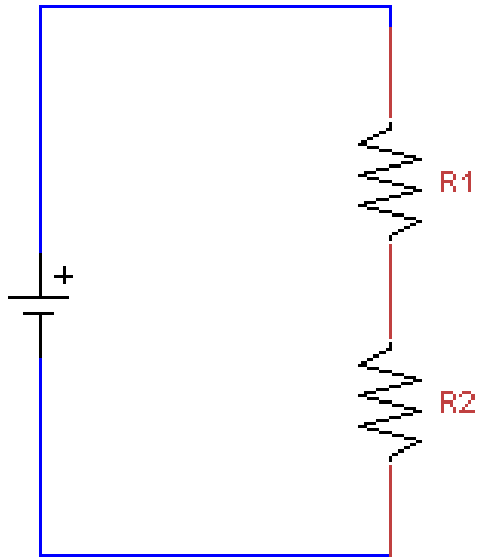
**Series Circuit**

Circuit



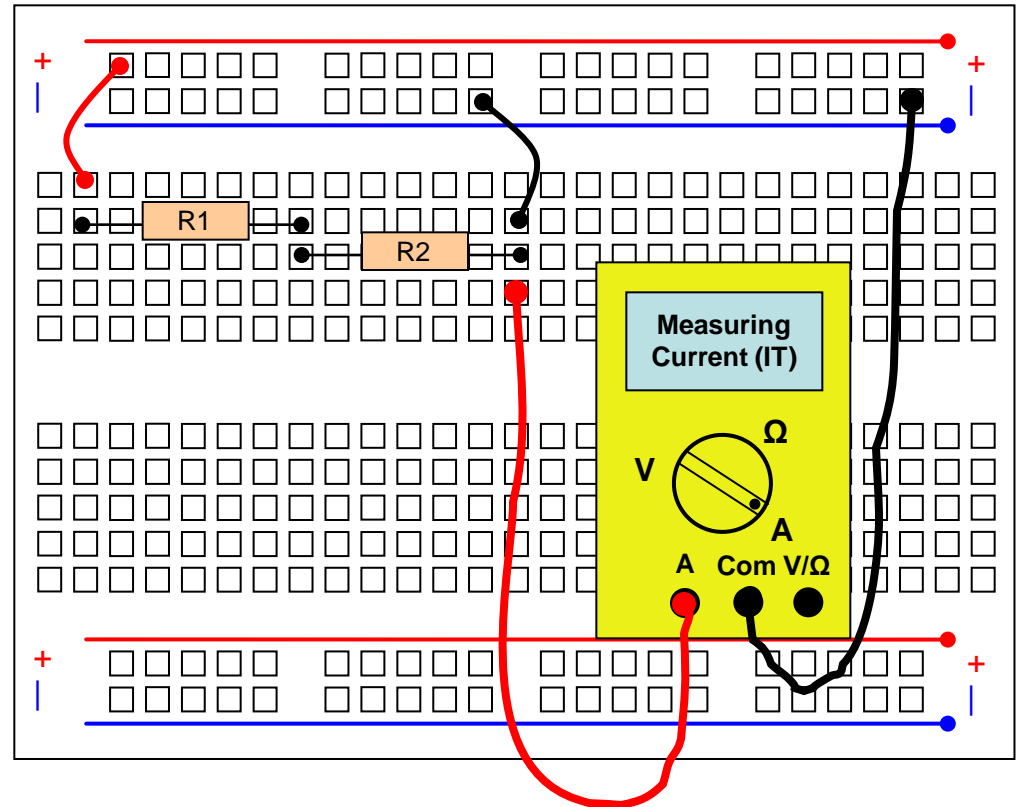
# Measuring Current in a Circuit

Schematic



**Series Circuit**

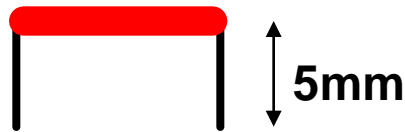
Circuit



# Caution

Wires should be stripped to about 5mm in length. Too long a lead will curl and touch another metal strip. This would result in the lead touching other lead and cause a short.

Conversely, too short a lead will result in the wire not connecting with the metal strip that is underneath and the circuit would be open.



Try the Worksheet!