

## Activity

# Basics of Electronics - Current & Resistance

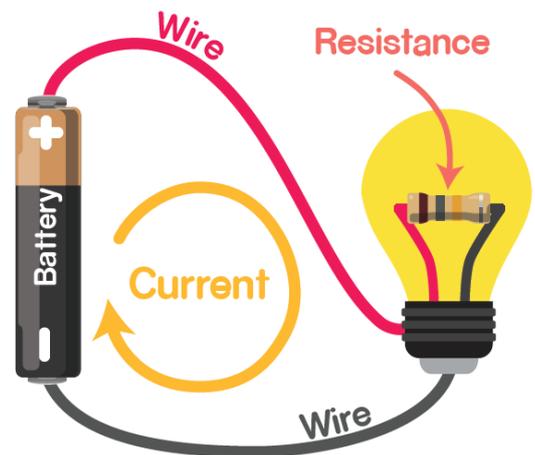
## Measuring Voltage of a Battery

This activity sheet belongs to \_\_\_\_\_

In this activity, you will learn about current and resistance. You will also learn how to calculate the value of resistor using colour code.

### THEORY

- ▶ **Current** is the rate of flow of charge in a circuit.
- ▶ Charge flows from positive terminal of the battery to negative terminal. Hence Current also flows from positive (higher potential) to negative (lower potential).
- ▶ Conductors have a lot of free charge, which allow the flow of electricity. Example - wire.
- ▶ The property of any material to resist the flow of charge is called **resistance**. More the resistance, slower the flow of charge i.e. lesser the current.
- ▶ Units are required to quantify any quantity, like length. Symbols are used to simplify how we express anything. Like it is easy write **V** instead of voltage again and again.



Property	Symbol	Unit	Symbol
Voltage	V	Volts	V
Current	I	Ampere	A
Resistance	R	Ohm	$\Omega$

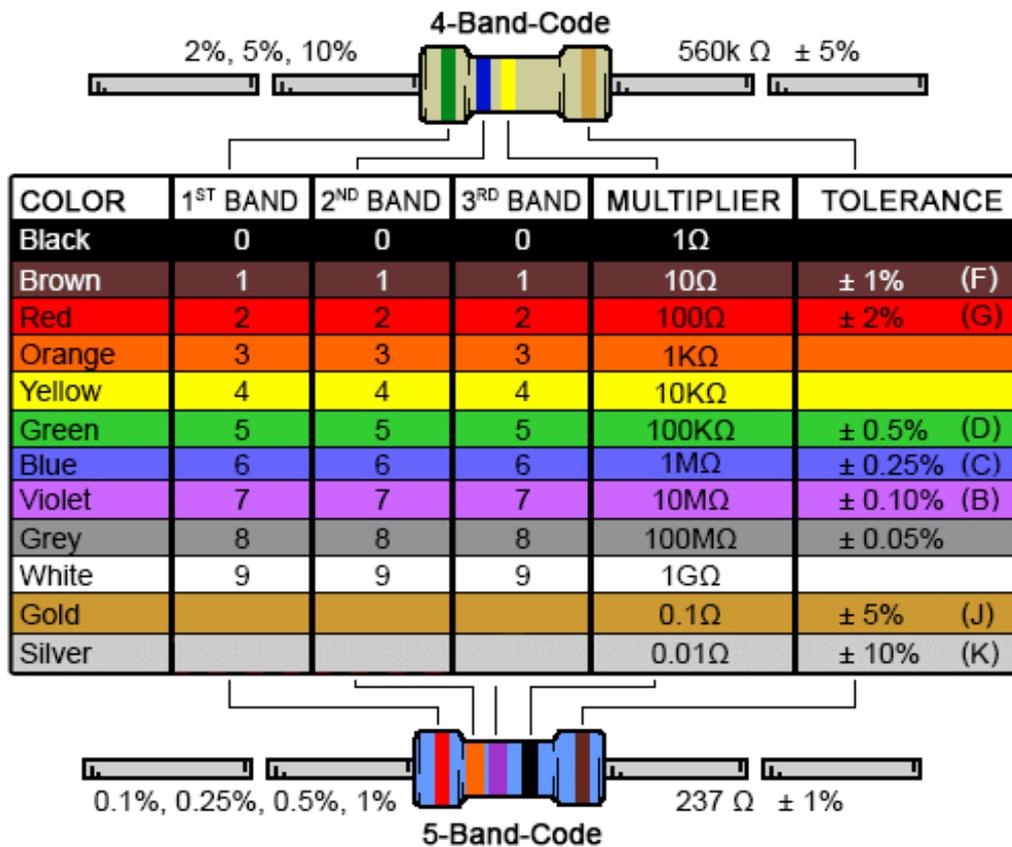
- ▶ **Resistor** is a passive two-terminal electrical component that implements electrical resistance as a circuit element.

### COMPONENTS

Resistors of different values.



## STEP-BY-STEP



Take a resistor and identify the four colours. Then calculate the resistance value in the following way:

- 1. First Band** – Red, that means 2 (From the table).
- 2. Second Band** – Red, that means 2.
- 3. Multiplier** – Brown, that means 10. Hence the value of the resistance is  $(2 \times 10 + 2) \times 10 = 220 \Omega$ .
- 4. Tolerance Band** – Gold, that means  $\pm 5\%$  variation in the value.



## OBSERVATION

1 <sup>st</sup> Band	2 <sup>nd</sup> Band	Multiplier	Tolerance Band	Resistance Value
Red	Red	Brown	Gold	$220 \pm 5\% \Omega$

