ATHENA GLOBAL SCHOOL

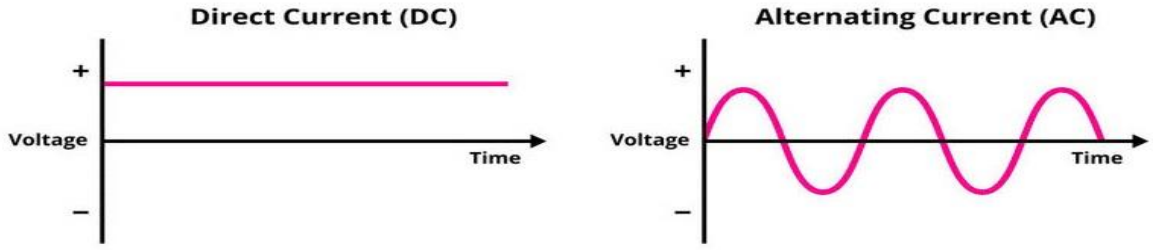
ATAL TINKERING LAB

2. BASICS OF ELECTRONICS

Electronics is the branch of physics and engineering that deals with the flow of electrons. Understanding the basics of electronics is fundamental to many technological fields, including telecommunications, computing, and power generation.

Electricity

- Direct Current (DC)
- Alternating Current (AC)



Direct Current (DC):

- The electrons move in one direction, like cars driving on a straight road.

Alternating Current (AC):

- The electrons are like kids playing on a swing – they keep changing their direction, going forward and then backward.

Current: Current is like a bunch of tiny particles called electrons moving in a wire. It's like a little parade of electrons, and they carry electricity with them.

Voltage: Voltage is a bit like the energy that pushes the electrons in the wire. It's the force that helps the electrons move from one place to another.

Resistance: Think of resistance like a roadblock for the electrons. Some materials make it harder for the electrons to move through, just like a bumpy road slows down a car.

So, in simple terms,

- Current is the flow of electrons,
- Voltage is the push that makes electrons move, and
- Resistance slows down the flow of electrons.

- **Current:** measured in amperes (A).
- **Voltage:** measured in volts (V).
- **Resistance:** measured in ohms (Ω).

ELECTRONIC ELEMENTS

- **Resistors:** Components that limit the flow of current in a circuit.
- **Capacitors:** Components that store and release electrical energy.
- **Inductors:** Components that store energy in a magnetic field.
- **Diodes:** Components that allow current to flow in one direction only.
- **Transistors:** Components that amplify or switch electronic signals.