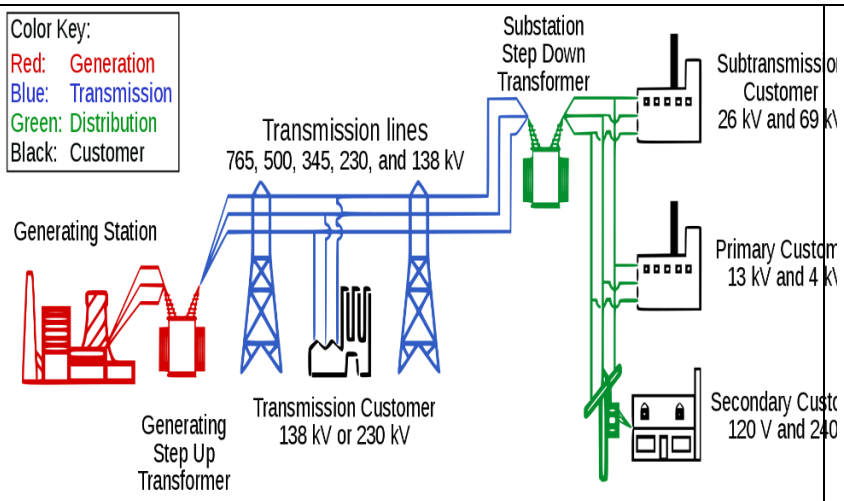
BASIC 8

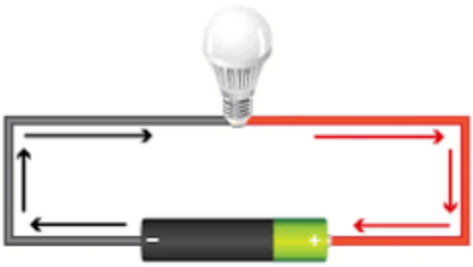
WEEKLY LESSON PLAN – WEEK 7

Strand:	Forces and Energy	**Sub-Strand:**	Electricity and Electronics		
Content Standard:	B8.4.2.1 Demonstrate knowledge of electricity transmission				
Indicator (s)	B8.4.2.1.1 Explain how electricity transmission occurs	**Performance Indicator:** Learners can calculate for voltage, current and resistance.			
Week Ending	23-02-2024				
Class	B.S.8	**Class Size:**		**Duration:**	
Subject	Science				
Reference	Science Curriculum, Teachers Resource Pack, Learners Resource Pack, Textbook.				
Teaching / Learning Resources	Charts, bulb, wires, battery, switch, Capacitor, Poster, Pictures	**Core Competencies:**	• Digital Literacy • Creativity and Innovation • Communication and Collaboration		

DAY/DATE	PHASE 1 : STARTER	PHASE 2: MAIN	PHASE 3: REFLECTION
MONDAY	Learners brainstorm to explain the meaning of " Electricity Transmission".	1. Discuss the difference between Electricity Transmission and Distribution. 2. Assist Learners to explain the meaning of Voltage. 3. Using a PowerPoint Presentation projected on a surface, explain the types of Transmission lines based on Voltage. 4. Learners in small groups discuss and report to the class on how electricity transmission occurs. **Electric power transmission** is the bulk movement of electrical energy from a generating site, such as a power plant, to an electrical substation. The interconnected lines that facilitate this movement form a *transmission network*. This is distinct from the local wiring between high-voltage substations and customers, which is typically referred to as electric power distribution	Assist Learners to draw electricity transmission lines. **Exercise;** 1. Differentiate between Electricity Transmission and Distribution. 2. What is Voltage? 3. State 2 types of Electricity Transmission lines.



Voltage is the pressure from an electrical circuit's power source that pushes charged electrons (current) through a conducting loop, enabling them to do work such as illuminating a light.

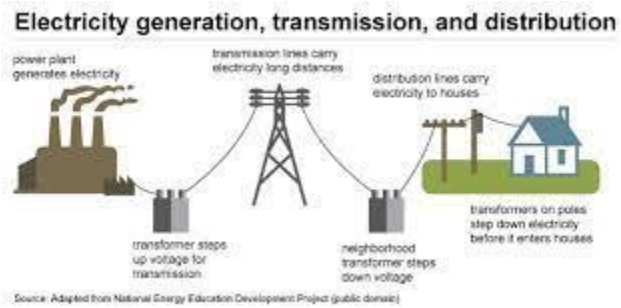


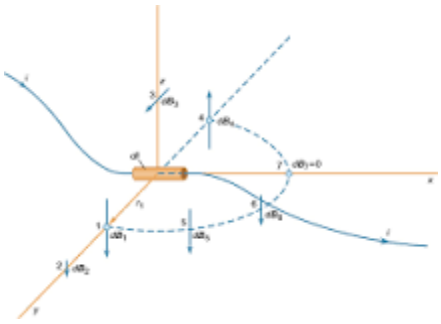
How Electricity Transmission occurs;

When electrical power reaches a receiving station, the voltage is stepped back down to a voltage typically between 33kV and 66kV. It is then sent to transmission lines emerging from this receiving station to electrical substations closer to “load centers” such as cities, villages, and urban areas.

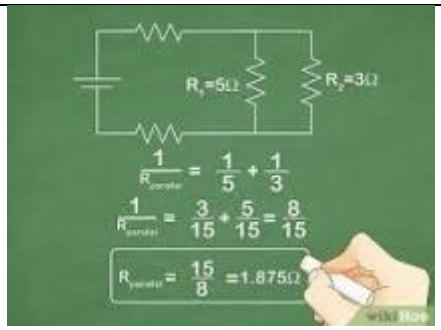
Stages of Electricity Transmission;

- Generation
- Transmission
- Distribution.



THURSDAY	Review Learners knowledge on the previous lesson.	1. Assist Learners to identify the formula for calculating the Voltage, current and resistance 2. Demonstrate calculating for voltage, current and resistance using formula. 3. Learners in small groups practice calculating for voltage, current and resistance. **Voltage, Current, and Resistance** An electric circuit is formed when a conductive path is created to allow electric charge to continuously move. This continuous movement of electric charge through the conductors of a circuit is called a current, and it is often referred to in terms of "flow," just like the flow of a liquid through a hollow pipe. The force motivating charge carriers to "flow" in a circuit is called voltage. Voltage is a specific measure of potential energy that is always relative between two points. **The formula of Voltage, current and Resistance;**  I = V/R Current is usually denoted by the symbol I. Ohm's law relates the current flowing through a conductor to the voltage V and resistance R; that is, V = IR. An alternative statement of Ohm's law is **I = V/R**. When spelled out, it means **voltage = current x resistance**, or volts = amps x ohms, or V = A x Ω. If two of these values are known, technicians can reconfigure Ohm's Law to calculate the third. R = V/I Resistance Formula is **R = V/I**. The measure of opposition applied by any object to the flow of electric current is known as resistance.	Through questions and answers, conclude the lesson. **Exercise;** 1. Explain the following; i. Voltage ii. Current iii. Resistance 2. State the formula for calculating; i. Voltage ii. Current iii. Resistance

Quantity	Symbol	Unit of Measurement	Unit Abbreviation
Current	I	Ampere ("Amp")	A
Voltage	E *or* V	Volt	V
Resistance	R	Ohm	Ω

			
FRIDAY	Assist Learners to describe the national grid system of electricity power transmission and distribution.	1. Discuss with Learners the sequence of stages in providing electricity to consumers 2. Using a Chart, explain the various stages involved in power generation transmission and distribution 3. Learners in small group to identify the methods of Electricity Power generation. 4. Individual Learners brainstorm to draw a flow chart to show the stages of electricity transmission from the point of generation to the point of consumption. **The sequence of stages in providing electricity to consumers** Power plant → Transmission lines → Transformer substation → Distribution lines. **Methods of Electricity Power generation;** ○ steam turbines using fossil fuels ○ nuclear ○ Biomass ○ Geothermal ○ solar thermal energy. **The various stages involved in power generation transmission and distribution** 1) Sending electricity from the power station to the distribution center. — a) Power transmission 2) The voltage of AC is increased without changing the power. — b) Star connection 3) The neutral point is made by connecting three phase lines — c) Step-up transformer	**Exercise;** 1. State the stages of providing electricity to consumers. 2. Explain 4 methods of Electricity Power generation

Name of Teacher: **School:** **District:**