

# **GROUP ONE**

**CEMASTE A 2021**

**PHYSICS**

**SAMPLE LESSON PLAN**

# MEMBERS

1. Geofry Magoma Angwenyi - Leader
2. Paul Mogaka Mauti - Secretary
3. Levi W. Bumbo - Member
4. Martha K. Ogega - Member
5. Francis Nyangaresi - Member

DATE	CLASS	SUBJECT	TIME	ROLL
25/10/2021	FORM 3	PHYSICS	8:00-8:40am	40

---

**TOPIC**

**CURRENT ELECTRICITY II**

**Sub-Topic**

**Verification of Ohm's Law**

# RATIONALE

---

Ohm's law is vitally important to **describing electric circuits** because it relates the voltage to the current, with the resistance value moderating the relationship between the two. *It* does not only determine the voltage of a certain appliance but it can also verify the current or resistance. We will be using **Virtual labs** since they display real-time results of experiments and promote conceptual understanding, especially in microscopic and abstract concepts.

# OBJECTIVES

---

By the end of the lesson the learner  
should be able to:

Verify Ohm's Law

# PREREQUISITE KNOWLEDGE AND SKILLS

---

- ✘ The learners should have prior knowledge of **Simple Circuits, Electric Current and Potential Difference.**
- ✘ They should have also the skills of measuring current and potential difference.

# RESOURCES

---

- ✘ Secondary Physics Book 3 by KLB, Internet and Laptop/Smartphone.

## ✘ REFERENCE

- ✘ <https://youtu.be/6bv6W5TJzAI>
- ✘ <https://phet.colorado.edu/en/simulations/circuit-construction-kit-dc-virtual-lab/latest/circuit/construction-kit-dc-virtual-lab-en.html>

# KEY INQUIRY QUESTION

---

- ✘ *What is the Relationship between the **Voltage** across a conductor and the*
- ✘ ***Current** flowing through it?*

# PRESENTATION

Stage/Time in mins	Teacher's Activity	Student's Activity	Learning Point	Remark
<b>Introduction</b> <i>(Engage)</i> (5 mins)	<b>Questions:</b> <i>What are some of the components of an electric circuit?</i> <i>How is Current and Voltage measured?</i>	Respond to teacher's questions.	-Simple Circuit -Series connection of an Ammeter -Parallel connection of a Voltmeter	
<b>Development</b> <i>(Explore)</i> Stage 1 (5 mins)	Connect learners to internet and guide them to a simulation on Verification of Ohm's Law using the link: <a href="https://youtu.be/6bv6W5TJzAI">https://youtu.be/6bv6W5TJzAI</a>	Learners to make observations	- Demonstration on Ohm's Law	
Stage 2 <i>(Explain)</i> (15 mins)	Guide the learners to open the link: <a href="https://phet.colorado.edu/en/sims/html/circuit-construction-kit-dc-virtual-lab/latest/circuit/construction-kit-dc-virtual-lab_en.html">https://phet.colorado.edu/en/sims/html/circuit-construction-kit-dc-virtual-lab/latest/circuit/construction-kit-dc-virtual-lab_en.html</a> and perform activity 1 on the worksheet	Learners perform activity 1	- Verification of Ohm's Law	

<b>Stage 3</b> <i>(Elaborate)</i> <b>(10 mins)</b>	<b>Ask learners to do activity 2</b>	<b>Learners to do activity 2</b>	<b>-Interpretating Ohm's Law</b>	
<b>Conclusion</b> <i>(Evaluate)</i> <b>(5 mins)</b>	Learners are guided to harmonise the outcome of activities in the groups	Learners harmonise their understanding of Ohm's Law	- Stating Ohm's Law	
<b>Extended learning:</b> <b>(Asynchronous activity)</b>	- Learners are encouraged to continue designing various circuits	- Learners to continue designing circuit and use them to determine resistance of the component used	- Different values of voltage and their corresponding values of current	

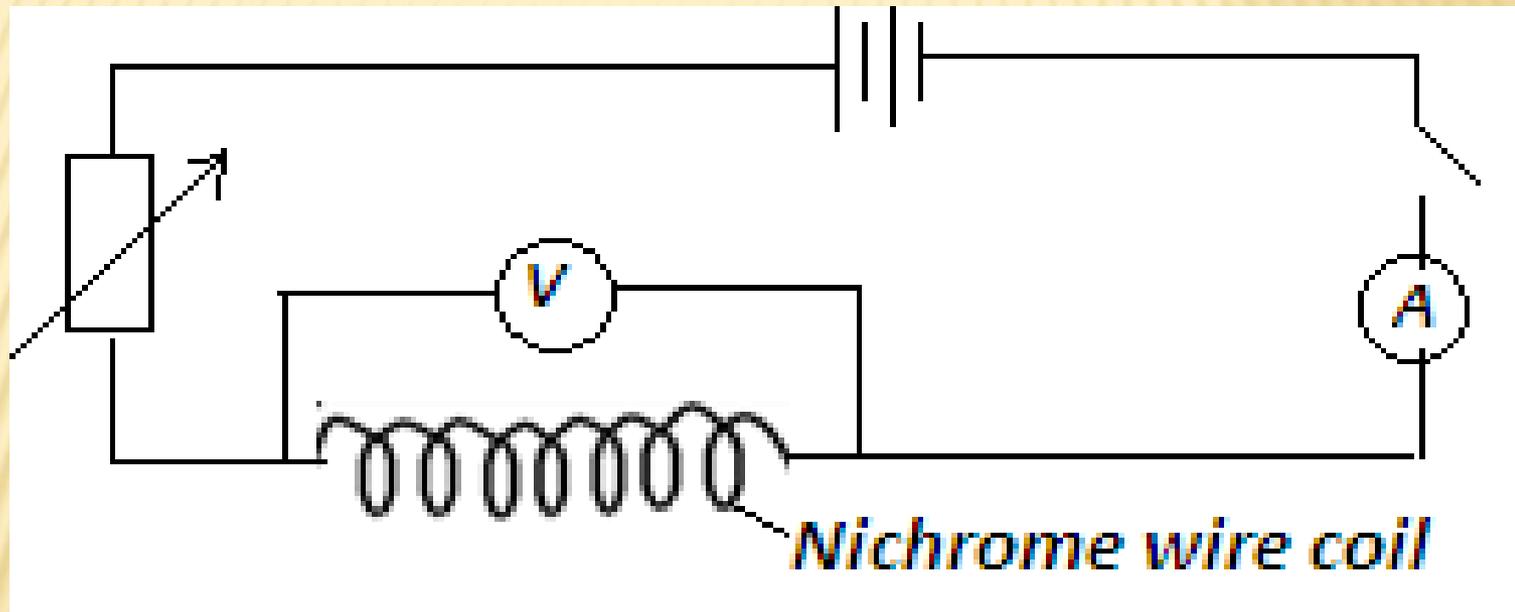
# STUDENT'S WORKSHEET

---

✘ **Activity 1:** Open the link:

[https://phet.colorado.edu/en/sims/html/circuit-construction-kit-dc-virtual-lab/latest/circuit/construction-kit-dc-virtual-lab\\_en.html](https://phet.colorado.edu/en/sims/html/circuit-construction-kit-dc-virtual-lab/latest/circuit/construction-kit-dc-virtual-lab_en.html)

- ✘ Construct an electric circuit as shown below:



- ✘ By varying the resistivity of the Nichrome wire under advanced section, make observations and record the values of Voltage (p.d) and their corresponding values of Current(I) to complete **Table 1.**

<b>Current, I(A)</b>						
<b>Voltage, p.d(V)</b>						

---

Explain your observations on how Current and Voltage vary.

.....

.....

.....

.....

# ACTIVITY 2

---

- ✘ Using the data obtained in **Table 1** above;
- ✘ Plot a graph of p.d(vertical axis) against Current
- ✘ Determine the slope of your graph
- ✘ What does the slope represent?