

# 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

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**TOPIC**

**CURRENT ELECTRICITY II**

**Sub-Topic**

**Verification of Ohm's Law**



# RATIONALE

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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

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

Verify Ohm's Law

# PREREQUISITE KNOWLEDGE AND SKILLS

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- ✖ 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

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- ✗ 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

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- ✗ *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	

Stage 3 ( <i>Elaborate</i> ) (10 mins)	Ask learners to do activity 2	Learners to do activity 2	-Interpretating Ohm's Law	
Conclusion ( <i>Evaluate</i> ) (5 mins)	Learners are guided to harmonise the outcome of activities in the groups	Learners harmonise their understanding of Ohm's Law	-Stating Ohm's Law	
Extended learning: (Asynchronous activity)	- 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

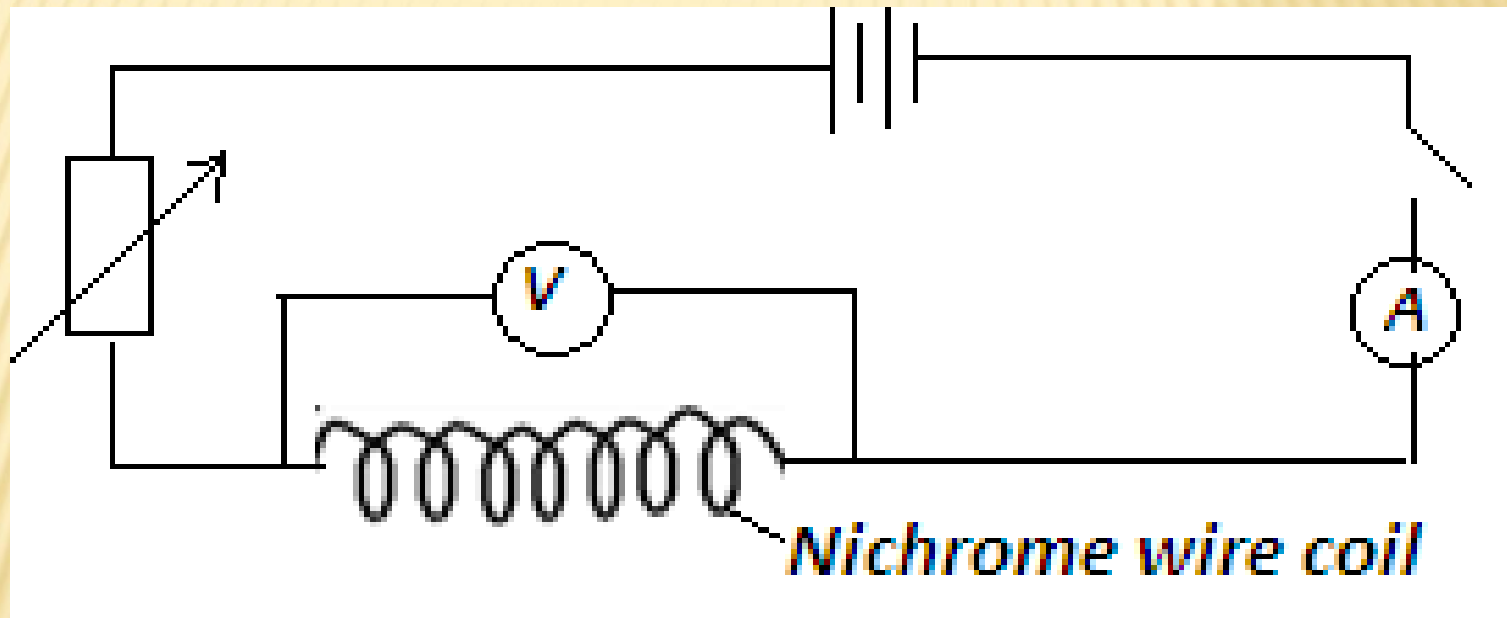
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✖ **Activity 1:** Open the link:

[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.

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# ACTIVITY 2

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- ✗ 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?