THE KENYA NATIONAL EXAMINATIONS COUNCIL

ELECTRICITY
School Based Assessment (Project)
2026
Grade 10

Instructions to students

(i) This paper consists of **three performance tasks:**

Task 1: *To Design, Construct and Test a Simple DC Electric Circuit.*

Task 2: *To construct a simple torch.*

Task 3: *To construct a digital portfolio.*

(ii) Attempt ALL tasks.

(iii) The deadline for submission of this project is 31st October 2026.

For Teacher's Use Only		
	Max. Score	**Learner's score**
Task 1	**29**	
Task 2	**17**	
Task 3	**04**	
Total	**50**	

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PROJECT

You are an electrician responsible for carrying out the following tasks:

- Designing and selling simple electrical products such as homemade torches
- Diagnosing simple electrical faults (e.g., blown bulbs)
- Providing basic lighting solutions in underserved areas
- Assisting community members in fixing electrical problems

As part of your work, you are required to perform the following tasks:

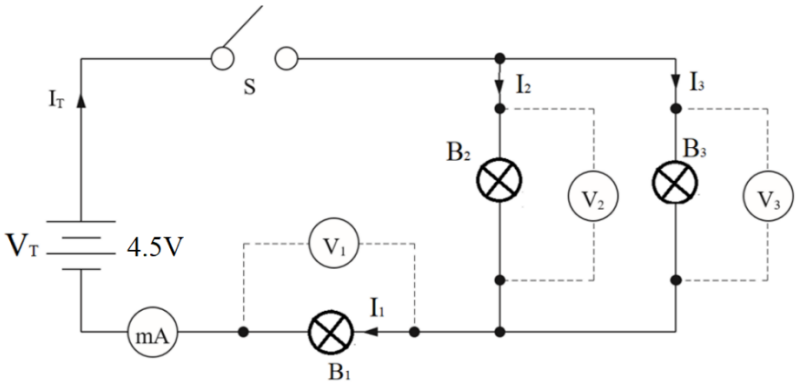
TASK 1: CONSTRUCTING A DC CIRCUIT

(i) In groups of 3, collect and share information on how to connect DC circuits and assign roles to group members. (3 marks)

(ii) Individually, identify the:

- Power source
- Bulbs (2.5 V); **B_1**, **B_2** and **B_3**
- Bulb holders
- Connecting wires
- Switch
- Mounting board
- Ammeter/ multimeter
- Voltmeter/ multimeter (3 marks)

(iii) Individually, connect the circuit using the components and equipment identified, as shown in the circuit diagram. (6 marks)



Let the teacher check your work.

(iv) Close switch S, measure and record the current through the bulbs **B_1**, **B_2**, and **B_3**. (3 marks)

(v) Measure the total circuit current, $\mathbf{I_T}$. (1 mark)
(vi) Measure and record the voltages across bulbs $\mathbf{B_1}$, $\mathbf{B_2}$, and $\mathbf{B_3}$. (3 marks)
(vii) Using the values in (iii) and (iv), calculate the value of the resistance of $\mathbf{B_1}$, $\mathbf{B_2}$, $\mathbf{B_3}$ and total resistance. (4 marks)
(viii) Write down the relationship between:

(I) $\mathbf{I_1}$,$\mathbf{1_2}$ and $\mathbf{1_3}$ (1 mark)

(II) $\mathbf{V_T}$, $\mathbf{V_1}$, $\mathbf{V_2}$ and $\mathbf{V_3}$. (1 mark)

(ix) Observe your peers' circuits and comment on the following:

- Correctness
- Neatness
- Functionality (3 marks)

TASK 2: CONSTRUCTING A SIMPLE TORCH.

(i) Individually, draw a simple DC torch circuit. (3 marks)
(ii) Individually, make a simple functional torch using locally available materials. (6 marks)
(iii) Test the functionality of the torch. (1 mark)
(iv) Observe safety throughout the project. (1 mark)
(v) Display the finished product (torch) to your peers for discussion. (3 marks)

TASK 3: MAKING AN e-PORTFOLIO.

Individually, make a portfolio which should include the following:

(i) Project title page including your name, class, school and date of submission
(ii) Brief notes on DC circuits with clear labelled diagrams of the circuits and photos
(iii) Evidence of short video clip demonstrating the circuit working
(iv) Reflection. (4 marks)

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INSTRUCTIONS TO SCHOOLS

*(i) This project consists of **three** performance tasks.*
(ii) Each learner is expected to carry out all the tasks.
(iii) Teachers shall guide learners to undertake the tasks ensuring active participation and adherence to the instructions.
(iv) Teachers shall organize learners into groups of 3 members during sourcing and sharing of information.
(v) Schools shall ensure availability of all required tools, materials and equipment before the commencement of the project. The list of materials per learner is attached.
*(vi) Each learner shall develop and maintain an **e-portfolio** as evidence of work done. The portfolio shall include:*

- *Project title page including your name, class, school and date of submission*
- *Brief notes on DC circuits with clear labelled diagrams of the circuits and photos*
- *Evidence of short video clip demonstrating the circuit working*
- *Reflection and challenges encountered including solutions.*

*(vii) Teachers shall use the **observation checklist and assessment rubric** provided to objectively assess each learners' performance.*
(viii) The teacher to assess individual performance of each learner.
(ix) Teachers to note that respect and responsibility as values are assessed from the beginning to the end of the project. Their scores are captured in the observation checklist.
(x) The completed torch shall be safely stored as evidence of the assessment.
(xi) *The deadline for submission is **31st October 2026**.*

LIST OF TOOLS AND MATERIALS (per learner)

S/No	Description	Specification	Quantity
1	DC power source/Batteries in a battery holder	4.5 V	1
2	Torch bulbs	2.5 V each	3
3	DC bulb holders	Plastic or wooden	3
4	Connecting wires	Single strand	Enough
5	Switch		1
6	Mounting board		1
7	Ammeter/multimeter	0-5 A	1
8	Voltmeter/multimeter	0-5 V	1
9	Appropriate tools		Enough
10	Materials to make the torch	Locally available	Enough