

GRADE 10 ELECTRICAL TECHNOLOGY SCHEMES OF WORK FOR TERM 1

NAME OF THE TEACHER:.....

SCHOOL:..... YEAR:.....

Week	Lesson	Strand	Sub-strand	Specific Learning Outcomes	Key Inquiry Questions	Learning Experiences	Learning Resources	Assessment Methods	Reflection
1	1	1.0 Fundamentals of Electrical Technology	1.1 Introduction to Electrical Technology	By the end of the lesson, the learner should be able to explain the importance of electrical technology in society.	1. Why is the study of electrical technology important in society?	The learner is guided to discuss the importance of electrical technology in society. ⁵	Curriculum Design (2024) Pg 1; Digital devices ⁶	Oral assessment ⁷	
	2			By the end of the lesson, the learner should be able to identify uses of electricity in day-to-day life.	2. How is electricity utilised in various applications?	The learner is guided to use digital or print media to search for information on the uses of electricity in day-to-day life. ⁸	Curriculum Design (2024) Pg 1; Internet sources	Observation	
	3			By the end of the lesson, the learner should be able to identify career opportunities in the electrical technology field.		The learner is guided to brainstorm with peers and present the job/career opportunities available in the electrical technology field. ⁹	Curriculum Design (2024) Pg 1; Career brochures ¹⁰	Portfolio ¹¹	

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	4			By the end of the lesson, the learner should be able to engage with professionals regarding electrical careers.		The learner is guided to engage with a resource person as he/she explains the career opportunities in electrical technology field. ¹²	Curriculum Design (2024) Pg 2; Career resource person ¹³	Oral assessment	
	5			By the end of the lesson, the learner should be able to apply safety regulations while carrying out electrical tasks.		The learner is guided to use digital or print resources to search for information on safety rules and regulations in an electrical technology workplace. ¹⁴	Curriculum Design (2024) Pg 1; First aid kit ¹⁵	Written tests	
	6			By the end of the lesson, the learner should be able to demonstrate use of personal protective equipment.		The learner is guided to role play on safety regulations while carrying out tasks (personal protective equipment, storage of tools). ¹⁶	Curriculum Design (2024) Pg 1; Assorted electrical PPEs ¹⁷	Observation	
2	1			By the end of the lesson, the learner should be able to explain the roles of		The learner is guided to discuss with peers the roles of workers, employers, and	Curriculum Design (2024) Pg 2; Safety manuals	Oral assessment	

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				stakeholders in application of electrical safety.		government agencies in the application of electrical safety. ¹⁸			
	2			By the end of the lesson, the learner should be able to embrace electrical technology as a career in society.		The learner is guided to visit a local electrical technology workplace for career opportunities exploration. ¹⁹	Curriculum Design (2024) Pg 2; Industry visit sites	Observation	
	3		1.2 D.C Electric Circuits	By the end of the lesson, the learner should be able to describe the properties of resistors in DC circuits.	1. How do DC electric circuits work?	The learner is guided to use digital and print media to search for information on the properties of resistors. ²⁰	Curriculum Design (2024) Pg 4; Assorted resistors ²¹	Written tests ²²	
	4			By the end of the lesson, the learner should be able to analyse DC circuit using Ohm's law.		The learner is guided to perform experiments on resistive circuits to determine the relationship between voltage and current. ²³	Curriculum Design (2024) Pg 4; Ammeters, Voltmeters ²⁴	Practical tasks ²⁵	
	5			By the end of the lesson, the learner should be able to analyse DC circuit using Kirchhoff's laws.		The learner is guided to perform experiments to verify Kirchhoff's laws	Curriculum Design (2024) Pg 4; Connecting wires, Cells ²⁷	Practical tasks	

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						in resistive circuits. ²⁶			
	6			By the end of the lesson, the learner should be able to construct series resistor networks in DC circuits.		The learner is guided to use electrical components to construct series resistor networks in DC circuits. ²⁸	Curriculum Design (2024) Pg 4; Breadboards, Resistors	Observation	
3	1			By the end of the lesson, the learner should be able to construct parallel resistor networks in DC circuits.		The learner is guided to use electrical components to construct parallel resistor networks in DC circuits. ²⁹	Curriculum Design (2024) Pg 4; Breadboards, Resistors	Practical tasks	
	2			By the end of the lesson, the learner should be able to troubleshoot open circuit faults in DC circuits.		The learner is guided to use measuring and test instruments to trace open circuit faults in DC circuits. ³⁰	Curriculum Design (2024) Pg 4; Multimeters	Observation	
	3			By the end of the lesson, the learner should be able to troubleshoot short circuit faults in DC circuits.		The learner is guided to use measuring and test instruments to trace short circuit faults in DC circuits. ³¹	Curriculum Design (2024) Pg 4; Multimeters	Practical tasks	
	4			By the end of the lesson, the learner should be able to		The learner is guided to use measuring and test instruments	Curriculum Design (2024) Pg 4; Test instruments	Practical tasks	

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				troubleshoot faulty components in DC circuits.		to identify faulty components, dry joints, or loose terminals. ³²			
	5			By the end of the lesson, the learner should be able to appreciate the practical application of DC circuits (Home automation).	2. What are the applications of DC circuits in day-to-day life?	The learner is guided to brainstorm with peers and make presentations on home automation applications. ³³	Curriculum Design (2024) Pg 4; Presentation materials	Oral assessment	
	6			By the end of the lesson, the learner should be able to appreciate the practical application of DC circuits (Car safety).		The learner is guided to brainstorm with peers on car safety applications of DC circuits. ³⁴	Curriculum Design (2024) Pg 4; Charts	Portfolio	
4	1		1.3 Capacitors and Capacitance	By the end of the lesson, the learner should be able to describe the principle of operation of a capacitor.	1. How do capacitors work?	The learner is guided to use digital and print media to search for information on the principle of operation of a capacitor. ³⁵	Curriculum Design (2024) Pg 6; Assorted capacitors ³⁶	Oral questions	
	2			By the end of the lesson, the learner should be able to explain the characteristics of capacitive		The learner is guided to carry out an experiment using a capacitor and resistor setup to verify voltage-	Curriculum Design (2024) Pg 6; Simulation Software ³⁸	Practical tasks ³⁹	

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				circuits (Voltage-time).		time characteristics. ³⁷			
	3			By the end of the lesson, the learner should be able to explain the characteristics of capacitive circuits (Current-time).		The learner is guided to carry out an experiment using a capacitor and resistor setup to verify current-time characteristics. ⁴⁰	Curriculum Design (2024) Pg 6; Ammeters, Voltmeters ⁴¹	Practical tasks	
	4			By the end of the lesson, the learner should be able to select appropriate capacitors for use in a given application.		The learner is guided to use datasheets to choose suitable capacitors to construct resistor-capacitor circuits. ⁴²	Curriculum Design (2024) Pg 6; Datasheets	Observation	
	5			By the end of the lesson, the learner should be able to analyse series connection of capacitors.		The learner is guided to perform calculations to determine total capacitance in series capacitor circuits. ⁴³	Curriculum Design (2024) Pg 6; Calculator	Written tests	
	6			By the end of the lesson, the learner should be able to analyse parallel connection of capacitors.		The learner is guided to perform calculations to determine total capacitance in parallel capacitor circuits. ⁴⁴	Curriculum Design (2024) Pg 6; Calculator	Written tests	

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5	1			By the end of the lesson, the learner should be able to appreciate the importance of capacitors in electrical appliances.	2. Why are capacitors important in electrical technology?	The learner is guided to brainstorm with peers on the importance of capacitors (e.g., Charge storage in motor control). ⁴⁵	Curriculum Design (2024) Pg 6; Motor control diagrams	Oral assessment	
	2			By the end of the lesson, the learner should be able to discuss capacitor applications in timing circuits.		The learner is guided to make presentations on timer circuits in the operation of traffic lights. ⁴⁶	Curriculum Design (2024) Pg 7; Traffic light model	Portfolio	
	3		1.4 Cells and Batteries	By the end of the lesson, the learner should be able to describe the principle of operation of a simple cell.	1. How do cells and batteries work?	The learner is guided to use digital and print media to search for information on the operation of a simple cell. ⁴⁷	Curriculum Design (2024) Pg 8; Sample cells ⁴⁸	Written tests	
	4			By the end of the lesson, the learner should be able to connect series battery arrays in a circuit.		The learner is guided to perform experiments to measure total voltage of battery arrays in series connections. ⁴⁹	Curriculum Design (2024) Pg 8; Voltmeter, Cells ⁵⁰	Practical tasks	
	5			By the end of the lesson, the learner should be able to connect parallel battery		The learner is guided to perform experiments to measure total	Curriculum Design (2024) Pg 8; Voltmeter, Cells	Practical tasks	

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				arrays in a circuit.		voltage of battery arrays in parallel connections. ⁵¹			
	6			By the end of the lesson, the learner should be able to conduct battery charging procedure for a secondary battery.		The learner is guided to carry out tasks on battery charging procedure for a secondary battery. ⁵²	Curriculum Design (2024) Pg 8; Secondary battery, Charger	Practical tasks	
6	1			By the end of the lesson, the learner should be able to perform maintenance procedures (Cleaning).		The learner is guided to carry out maintenance on cells and batteries (terminals cleaning). ⁵³	Curriculum Design (2024) Pg 8; Cleaning materials	Observation	
	2			By the end of the lesson, the learner should be able to perform maintenance procedures (Water level/Storage).		The learner is guided to carry out maintenance on water levels and ensure proper storage. ⁵⁴	Curriculum Design (2024) Pg 8; Distilled water	Observation	
	3			By the end of the lesson, the learner should be able to prevent overcharging and undercharging of batteries.		The learner is guided to discuss and demonstrate prevention methods against overcharging and undercharging. ⁵⁵	Curriculum Design (2024) Pg 8; Charging manuals	Oral assessment	
	4			By the end of the lesson, the learner should be		The learner is guided to safely handle hazardous	Curriculum Design (2024) Pg 8; PPEs	Observation	

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				able to safely handle hazardous materials used in batteries.		materials used in batteries. ⁵⁶			
	5			By the end of the lesson, the learner should be able to appreciate the importance of safe disposal of cells and batteries.	2. How are different types of batteries applied in various fields?	The learner is guided to appreciate safe disposal methods to avoid environmental contamination. ⁵⁷	Curriculum Design (2024) Pg 8; Disposal bins	Portfolio	
	6			By the end of the lesson, the learner should be able to discuss applications of batteries in various fields.		The learner is guided to brainstorm on applications of batteries in different fields. ⁵⁸	Curriculum Design (2024) Pg 8; Digital devices	Oral assessment	
7	MID-TERM	MID-TERM BREAK	MID-TERM BREAK	MID-TERM BREAK	MID-TERM BREAK	MID-TERM BREAK	MID-TERM BREAK	MID-TERM BREAK	
8	1	2.0 Electrical Machines	2.1 Magnetism	By the end of the lesson, the learner should be able to explain the magnetic properties of materials.	1. What causes magnetism?	The learner is guided to use digital or print media to search for information on magnetic properties of materials. ⁵⁹	Curriculum Design (2024) Pg 10; Magnetism Kits ⁶⁰	Written test ⁶¹	
	2			By the end of the lesson, the learner should be able to perform magnetization procedures.		The learner is guided to carry out experiments on magnetization of magnetic materials. ⁶²	Curriculum Design (2024) Pg 10; Ferromagnetic materials ⁶³	Practical tasks ⁶⁴	

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	3			By the end of the lesson, the learner should be able to perform demagnetization procedures.		The learner is guided to carry out experiments on demagnetization of magnetic materials. ⁶⁵	Curriculum Design (2024) Pg 10; Demagnetization equipment	Practical tasks	
	4			By the end of the lesson, the learner should be able to draw magnetic field patterns around a bar magnet.		The learner is guided to conduct experiments to verify magnetic field patterns around a bar magnet (using iron filings/compass). ⁶⁶	Curriculum Design (2024) Pg 10; Bar magnets, Iron filings ⁶⁷	Observation	
	5			By the end of the lesson, the learner should be able to draw magnetic field patterns around a U-shape magnet.		The learner is guided to conduct experiments to verify magnetic field patterns around a U-shape magnet. ⁶⁸	Curriculum Design (2024) Pg 10; U-shape magnets	Observation	
	6			By the end of the lesson, the learner should be able to draw magnetic field patterns around a ring/disc magnet.		The learner is guided to conduct experiments to verify magnetic field patterns around a ring or disc shaped magnet. ⁶⁹	Curriculum Design (2024) Pg 10; Ring/Disc magnets	Observation	

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9	1			By the end of the lesson, the learner should be able to demonstrate proper storage of magnets.		The learner is guided to appropriately store magnets in the workplace (using magnetic keepers, storing in N-S direction). ⁷⁰	Curriculum Design (2024) Pg 10; Magnetic keepers	Observation	
	2			By the end of the lesson, the learner should be able to appreciate application of magnets in day-to-day life.	2. Why are magnets made in different shapes?	The learner is guided to brainstorm with peers and make presentations on the application of magnets in day-to-day life. ⁷¹	Curriculum Design (2024) Pg 10; Household items with magnets	Project work	
	3			By the end of the lesson, the learner should be able to create a magnetic compass.		The learner is guided to make their own magnetic compasses using simple materials like needles, cork, and water. ⁷²	Curriculum Design (2024) Pg 32; Needles, cork, water ⁷³	Project work ⁷⁴	
	4			By the end of the lesson, the learner should be able to observe magnetic effects on electronic devices.		The learner is guided to observe and record the effects of magnetic fields on various objects and materials. ⁷⁵	Curriculum Design (2024) Pg 32; Electronic devices	Observation	

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	5		2.2 Electromagnetism	By the end of the lesson, the learner should be able to explain the principle of electromagnetism.	1. How are electromagnets made?	The learner is guided to use digital or print media to search for information on the principle of electromagnetism. ⁷⁶	Curriculum Design (2024) Pg 12; Digital devices	Written test ⁷⁷	
	6			By the end of the lesson, the learner should be able to establish the magnetic field pattern of a straight wire.		The learner is guided to demonstrate the magnetic field pattern of a straight current carrying conductor using the screw rule/right-hand grip rule. ⁷⁸	Curriculum Design (2024) Pg 12; Wire, Power supply	Practical tasks ⁷⁹	
10	1			By the end of the lesson, the learner should be able to establish the magnetic field pattern of a coil.		The learner is guided to demonstrate the magnetic field pattern of a current carrying coil. ⁸⁰	Curriculum Design (2024) Pg 12; Coil, Compass	Practical tasks	
	2			By the end of the lesson, the learner should be able to construct a solenoid.		The learner is guided to use locally available materials to construct and test a solenoid of varying parameters	Curriculum Design (2024) Pg 12; Solenoids, Cells ⁸²	Project work	

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						(turns, current). ⁸¹			
	3			By the end of the lesson, the learner should be able to construct an electromagnetic device (Electric Bell).	2. Why is it preferable to use an electromagnet and not a permanent magnet?	The learner is guided to use locally available materials to construct an electric bell. ⁸³	Curriculum Design (2024) Pg 12; Bell mechanism parts	Project work	
	4			By the end of the lesson, the learner should be able to construct an electromagnetic device (Relay).		The learner is guided to use locally available materials to construct a simple relay. ⁸⁴	Curriculum Design (2024) Pg 12; Relay parts	Project work	
	5			By the end of the lesson, the learner should be able to troubleshoot electromagnetic circuits (Open/Short circuit).		The learner is guided to use measuring and testing equipment to trace faults in electromagnetic circuits. ⁸⁵	Curriculum Design (2024) Pg 12; Multimeters	Practical tasks	
	6			By the end of the lesson, the learner should be able to appreciate the importance of electromagnetism.		The learner is guided to brainstorm with peers on the importance and application of electromagnetism in real life. ⁸⁶	Curriculum Design (2024) Pg 13; Real-life examples	Oral assessment	



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11	ALL	END TERM	ASSESSMENT	END TERM ONE ASSESSMENT		END TERM ONE ASSESSMENT		EXAMS	