



TECHNOLOGY AND LIVELIHOOD EDUCATION

IA - ELECTRICAL AND ELECTRONICS SERVICING

Grade 9 or 10

**Three-Term Budget Of Work (BOW)
for Learning Competencies**

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IA
Grade 9 and Grade 10

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For Learning Competencies

Please note that each sector under TLE: IA is studied for one term. This is applicable under Grades 9 and 10.

Term		
Sector	Electrical and Electronics Servicing	
Performance Standard	The learners create a circuit diagram. The learners perform household electrical installation and electronic product assembly procedures following the safety precautions. The learners perform preventive maintenance servicing following the safety precautions.	
Content Standard	Demonstrate an understanding of the concepts and principles in electrical, electronics, and domestic refrigerant system services.	
Week	Learning Competency	Suggested Activities
1	Discuss electrical and electronics services.	Electrical and Electronics Services Brainstorm and Discussion - Learners identify common automotive and small engine electrical/electronic services (battery check, wiring repair, sensor replacement) and discuss their purposes in class. - List and explain different electrical and electronics services and their functions in automotive or small engine

		systems. • Service Scenario Analysis ○ Learners are given sample service scenarios (e.g., car won't start, dashboard lights malfunction) and identify which electrical/electronic service is needed and why. ○ Analyze the problem scenario and discuss the appropriate electrical or electronics service required to fix it.
2	• Differentiate the types of materials and/or components for electrical installation and electronics servicing and repair.	• Electrical and Electronics Components Sorting ○ Learners examine various wires, fuses, switches, connectors, and electronic modules and sort them according to type and use. ○ Sort the given electrical and electronic components by type and explain their specific use in installation or repair. • Material and Component Matching Activity ○ Learners match pictures or actual samples of materials and components to their correct function in electrical installations or electronics servicing. ○ Match each material or component to its proper function in electrical or electronic systems and justify your choice.

3	Draft a circuit diagram.	Guided Circuit Diagram Drafting - Learners are given a simple electrical circuit (e.g., battery, switch, light bulb) and practice drawing its diagram using standard symbols. - Draw the given electrical circuit using standard symbols and label each component correctly. Circuit Construction and Diagram Mapping - Learners assemble a simple circuit using components (battery, wires, bulb, switch) and then draft its corresponding circuit diagram. - Build the circuit and create a diagram showing all components and connections accurately.
4 to 5	Apply procedures in household electrical installation following the safety precautions.	Safe Wiring Installation Demonstration - Learners follow a guided demonstration to install a simple household circuit (e.g., light switch and bulb) while using proper tools and personal protective equipment (PPE). - Install the household circuit correctly by following step-by-step procedures and safety precautions. Household Electrical Safety Checklist Activity - Learners perform a simulated or actual household wiring task using a safety

		checklist to ensure proper procedures and hazard prevention. ○ Complete the wiring task while checking off each safety step to ensure correct and safe installation.
6 to 7	● Apply procedures in power supply assembly with safety precautions.	● Guided Power Supply Assembly ○ Learners assemble a simple DC or AC power supply kit (transformer, rectifier, capacitor, wires) under teacher supervision while observing safety rules. ○ Assemble the power supply correctly by following step-by-step procedures and wearing proper safety gear. ● Power Supply Safety Procedure Checklist Task ○ Learners perform the power supply assembly using a safety checklist to ensure proper handling of electrical components and tools. ○ Follow the safety checklist while assembling the power supply to prevent hazards and ensure correct connections.
8	● Differentiate the two kinds of refrigeration systems.	● Refrigeration System Comparison Chart ○ Learners compare vapor-compression and absorption refrigeration systems using a chart that lists components, operation principles, and applications.

		○ Complete the chart by identifying the differences in components, operation, and uses of the two refrigeration systems. • System Diagram Analysis and Explanation ○ Learners study labeled diagrams of vapor-compression and absorption systems and explain how each system works. ○ Analyze the diagrams and describe how each refrigeration system operates differently and where it is commonly used.
9	• Apply preventive maintenance servicing procedures following the safety precautions.	• Guided Preventive Maintenance Inspection ○ Learners perform a step-by-step preventive maintenance check on an engine, small machine, or household appliance while observing proper safety procedures. ○ Carry out a preventive maintenance check by following the correct procedures and wearing the proper safety gear. • Preventive Maintenance Safety Checklist Activity ○ Learners complete a preventive maintenance task using a safety checklist to ensure all procedures and

		precautions are followed. ○ Perform preventive maintenance while following each step on the safety checklist to prevent hazards and ensure proper servicing.
10	● Calculate labor and material costs for services.	● Service Cost Calculation Exercise ○ Learners are given a sample service job (e.g., oil change, spark plug replacement) with labor rates and material costs, and they compute the total service cost. ○ Calculate the total cost of a service by adding labor charges and material expenses using the provided rates. ● Mock Service Quotation Activity ○ Learners create a quotation for a workshop service task by estimating labor hours, labor rate, and required materials with prices. ○ Prepare a service quotation by computing labor and material costs accurately for the assigned task.
Suggested Performance Tasks		● Individual Performance Task : Circuit Diagram Creation ○ The learner independently creates a correct and complete circuit diagram based on a given electrical problem, using proper symbols and connections. ○ Individually draw a circuit diagram using standard symbols based on the given specifications. ● Group Performance Task : Circuit Diagram Design ○ In groups, learners collaboratively design a circuit diagram for an assigned

	application, ensuring accuracy, proper labeling, and correct use of electrical symbols. ○ As a group, design and present a circuit diagram that correctly represents the assigned electrical circuit. ● Individual Performance Task : Household Electrical Installation and Assembly ○ The learner independently performs a basic household electrical installation and assembles an electronic product by correctly following procedures, using proper tools, and observing all safety precautions. ○ Individually perform the assigned household electrical installation and electronic product assembly while strictly following safety procedures. ● Group Performance Task : Household Electrical Installation and Product Assembly Project ○ In groups, learners work together to complete a household electrical installation and assemble an electronic product, assigning roles and ensuring proper procedures and safety practices are followed throughout the activity. ○ As a group, complete the electrical installation and electronic product assembly by applying correct procedures and safety precautions. ● Individual Performance Task : Preventive Maintenance Servicing ○ The learner independently performs preventive maintenance servicing on assigned equipment or machines by inspecting, cleaning, lubricating, and checking parts while strictly observing safety precautions. ○ Individually perform preventive maintenance servicing by following correct procedures and all safety precautions. ● Group Performance Task : Preventive Maintenance Servicing Activity ○ In groups, learners collaboratively carry out preventive maintenance servicing tasks, assign roles, and ensure proper procedures and safety practices are followed throughout the activity. ○ As a group, perform preventive maintenance servicing while observing proper procedures and safety precautions. ● Individual Performance Task : Labor and Material Cost Calculation ○ The learner independently calculates the total cost of rendered services by
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	determining labor charges and material expenses using given rates, quantities, and service details. ○ Individually compute the labor and material costs for the given service based on the provided information. ● Group Performance Task : Cost Calculation and Service Cost Breakdown ○ In groups, learners collaboratively calculate labor and material costs for a rendered service and prepare an organized cost breakdown for presentation. ○ As a group, calculate and present the labor and material cost breakdown for the assigned service.
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