Unit 6 Electrical

Content Area: **Applied Technology**
Course(s):
Time Period: **Marking Period 2**
Length: **2 weeks**
Status: **Published**

Summary

Students will learn the basics of the automotive electrical system. Emphasis will be placed on basic electricity and the care, maintenance, and repair of the automotive battery. Students will be introduced to the use of a Digital Multimeter and battery testing equipment.

The goal of this unit is to teach the students the importance of the Automotive Electrical System and how the science of electrochemical reactions produces electricity for use in an automobile. The content introduced will be in accordance with STEAM learning and incorporate the SM elements in the acronym. The Science will be in learning about the chemical reaction that occurs when a positively charged plate and a negatively charged plate are submerged in an acid, and how that electricity is sent throughout the electrical system. The Math involved will be the computation of how to determine the force, heat, or resistance in an electrical circuit using Ohm's Law.

July 2025

Essential Questions

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How is electricity used in an automotive system?

How does the knowledge of basic electricity apply to the diagnosis and operation of the automotive electrical system?

What is the primary component in the electrical system? How does it operate, and what are the supporting components?

What are two common diagnostic tests performed on batteries, and what will the results tell you?

Enduring Understandings

Students will understand the function, operation, components, and purpose of the automotive electrical system, and its importance to the vehicle's overall operation.

Objectives

Students will know…..

how to maintain a properly functioning electrical system and battery.

how to recognize possible problems and know how the system operates.

how the electrical system functions and how to test a simple circuit

Students will be skilled at…..

testing the battery, which is an electrochemical device that stores voltage for starter operation and power when the car is not running.

common test procedures and precautions to take while servicing batteries and electrical circuits.

jump starting and charging procedures and precautions.

Learning Plan

Preview the essential questions and connect to learning throughout the unit.

Teacher led discussion on what the electrical system's purpose is and how it operates.

Demonstration of the use and function of a Multi Meter and other electrical diagnostic equipment.

Video on automotive electrical system pausing frequently to engage students in discussion of key points.

Hands on Task Sheets pertaining to the electrical system.

Written test on essential knowledge and lesson mastery.

Closing discussion and anticipatory set.

Assessment

Formative Assessment:

participate in class discussions related to the electrical system is its purpose and how it works.

Use hands-on job sheets to master this lesson and be able to apply the knowledge in real-life situations.

test the electrical system using various applicable equipment.

exit tickets

job sheets

Summative Assessment:

written quizzes and tests on system function and operation.

Alternative Assessment:

Electrical System Presentation

Benchmark Assessment:

Final Exam

Materials

Modern Automotive Technology text and workbook chapter 29

Internet

Database

Standards

9.2.12.CAP.2	Develop college and career readiness skills by participating in opportunities such as structured learning experiences, apprenticeships, and dual enrollment programs.
9.2.12.CAP.4	Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.
1.1.5	Determine goals for life-long learning and leisure opportunities for all family members.
8.1.12.CS.4	Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.
9.2.12.CAP.5	Assess and modify a personal plan to support current interests and post-secondary plans.
1.1.6	Develop a life plan, including pathways to acquiring the knowledge and skills needed to achieve individual, family, and career goals.
1.3.5	Analyze the effects of federal, state, and local public policies, agencies, and institutions on the family.
8.1.12.AP.5	Decompose problems into smaller components through systematic analysis, using

	constructs such as procedures, modules, and/or objects.
8.2.12.EC.1	Analyze controversial technological issues and determine the degree to which individuals, businesses, and governments have an ethical role in decisions that are made.

Modifications

https://docs.google.com/spreadsheets/d/1AckQSTlNShzlM-rDV5YKYUFm2WMCxJQiS10rEZ4jCC8/edit?usp=sharing