Unit 4: Electrical

Content Area: **Applied Technology**
Course(s):
Time Period: **Marking Period 1**
Length: **2 weeks**
Status: **Published**

Brief Summary of Unit

Students will learn the basics of the automotive electrical system including basic electricity, maintenance, and purchasing and replacement of the automotive battery. Students will be introduced to the use of a Digital Multimeter and battery testing equipment.

Revised: July 2023

Essential Questions/Enduring Understandings

Essential Understandings

- How does the knowledge of basic electricity apply to the diagnosis and operation of the automotive electrical system?
- How will knowing basic electrical components and how they function help the consumer when there is a problem in the electrical system?

Enduring Understandings

- a properly functioning electrical system and battery is essential for a well-running vehicle

Objectives

Students Will Know

- the function of the automotive battery
- the different types of batteries
- proper battery maintenance

Students Will Be Skilled At

- jump starting a car with a dead battery
- simple electrical repair

Learning Plan

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

Teacher presentation and student research into the automotive electrical system.

Modern Automotive Technology workbook and textbook assignments.

Hands-on Task Sheets pertaining to the electrical system.

Writing prompt on the electrical system.

Written test on essential knowledge and lesson mastery.

Closing discussion and anticipatory set.

Use of a cooperative learning technique to evaluate unit mastery.

Assessment

Formative

- Answer essential questions
- Participate in class discussions
- Demonstrate proper and safe work habits daily.

Summative

- Section Quizzes and Tests

Benchmark

- Hands-on performance of Job Sheets
- Final Exam

Alternative

- Verbal test
- Power points the student created that shows an understanding of unit.

Materials

- Textbook: Modern Automotive Technology
- Shop/Customer Vehicles
- Automotive Lifts and Equipment
- Recycled/New Automotive Components
- All Data (Online Automotive Diagnostic Tool)

Standards

LA.RI.11-12.4	Determine the meaning of words and phrases as they are used in a text, includin figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
LA.RST.11-12.2	Determine the central ideas, themes, or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
LA.RST.11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
LA.RST.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP8.1	Career-ready individuals readily recognize problems in the workplace, understan the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.
CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.
TECH.8.1.12	Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
TECH.8.1.12.A	Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.
TECH.8.1.12.B	Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
TECH.8.2.12	Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.
TECH.8.2.12.A	The Nature of Technology: Creativity and Innovation: Technology systems impac every aspect of the world in which we live.
TECH.8.2.12.B	Technology and Society: Knowledge and understanding of human, cultural and society values are fundamental when designing technology systems and product in the global society.

Suggested Strategies For Modification

https://docs.google.com/spreadsheets/d/1uiLPbTXK4FZS_Pj1-X11O_BGMLz19ri5fVsil6XbSy0/edit?usp=sharing