Unit 6: Heating/Cooling

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

Brief Summary of Unit

Students will learn how the automotive heating/cooling system operates. They will learn the names of the major components, their operation, simple diagnosis, and repair. Safety procedures will be emphasized while working around coolant and the high temperatures of a cooling system.

Revised July 2023

Essential Questions/Enduring Understandings

Essential Questions

- Why is it important to understand the heating/cooling system before attempting to do any repairs to it?
- What precautions need to be taken when testing or working on the heating and cooling system and why?

Enduring Understandings

- Proper care and maintenance of the heating/cooling system is crucial to automobile maintenance.
- Failure of major components is possible and should not be ignored
- Knowing how the system and its components operate will benefit them by saving them time when diagnosing a problem.

Objective

Students Will Know

- how an automotive heating/cooling system functions, and basic diagnostic procedures
- the functions of radiators, thermostats, heater cores, hoses, and water pumps. how to inspect the system and make minor repairs.
- how to inspect the system and make minor repairs.

Students Will Be Skilled At

- inspection of system components
- simple diagnosis of problems
- dialog with automotive professionals

Learning Plan

• Preview the essential questions and connect them to learning throughout the unit.
• Teacher presentation
• Modern Automotive Technology text and workbook assignments.
• Hands-on job sheets.
• Writing prompts.
• Written test.
• Use of a cooperative learning technique to evaluate unit mastery.
• Closing discussion

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, including 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, understand 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 impact 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 products in the global society.

Suggested Strategies For Modification

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