Unit 7: Steering

Content Area: **Applied Technology**
Course(s):
Time Period: **Marking Period 3**
Length: **2-3 weeks**
Status: **Published**

Summary

In this unit, students will learn about the steering system in typical automobiles. This unit is designed to be an introduction to this area of the car. Students will learn the different types of steering systems, including conventional, and rack and pinion types. Students will disassemble and examine each of these systems, learn how they function, what problems can occur, and how to diagnose minor problems.

July 2024

Essential Questions/Enduring Understandings

Essential Questions:

- How does the steering system work to maintain vehicle stability and control?
- What are problems that could occur in these systems and what are some methods of repair?

Enduring Understandings:

- knowledge of the steering system is essential to be able to correctly diagnose and repair it.
- proper diagnostic skills and procedures will enable them to properly repair a steering system concern.
- safety is always a concern and practicing safety is a habit that needs to be practiced at all times.

Objectives

Students Will Know:

- the proper safety procedures while working on the steering system.
- the specialized vocabulary related to the automotive steering systems.
- the major components of the steering system, how they operate, and diagnostic procedures to determine common problems.
- how to inspect, service, and replace power steering belts, hoses, and fluids.
- how to perform basic steering tests and determine the proper repair.

Students Will be Skilled At:

- diagnosis and replacement of Steering System components
- practicing safety procedures while replacing components.
- communicating repair procedures to others

- give a verbal description of and name key components.

Learning Plan

- Preview the essential questions and connect to learning throughout the unit
- Teacher presentation and student research into steering and suspension-related components.
- Modern Automotive Technology text and workbook assignments.
- Hands-on job sheets on steering and suspension-related repairs and maintenance.
- Writing prompt on steering and suspension safety.
- Closing discussion.
- Use of a cooperative learning technique to evaluate unit mastery.
- Written test on steering and suspension.

Assessment

- **Formative:**
- class disscusion on steering systems
- answer the essential questions.
- participate in research and discussions regarding steering and suspension maintenance and repair
- demonstrate safe work habits, when working with and around related equipment.
- exit tickets
- inspect a steering and/or suspension concern using task sheets designed for specific areas of the system
- complete hands-on tasks that demonstrate knowledge, skills, and understandings gained through this unit of study. Including but not limited to: performing an inspection of a steering and/or suspension to diagnose an reported problem. Removal, disassembly, reassembly and installation of major steering and suspension systems' components.
- give a verbal description of each system and name key components
- **Summative**
- completed job sheets
- complete writing prompts to show understanding of each area.
- complete a written test on steering and suspension
- **Alternative**
- research and presentation on steering and/or suspension maintenance repair

- **Benchmark**
- Mid Term/Final Exam

Materials

Modern Automotive Technology Text and Workbook

Corresponding Job Sheets

Vehicles in Shop

Automotive maintaince Tools

Standards

Standards

- NJ Learning Standards
  ELA.L.KL.9–10.2 Apply knowledge of language to make effective choices for meaning, or style and to comprehend more fully when reading, writing, speaking or listening.
  ELA.L.KL.9–10.2.A Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level.
  ELA.L.KL.9–10.2.C Demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

- Computer Science and Design
  CS.9-12.8.1.12.CS.3 [*Performance Expectation*] - Compare the functions of application software, system software, and hardware.
  CS.9-12.8.1.12.CS.4 [*Performance Expectation*] - Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.
  CS.9-12.8.2.12.EC.1 [*Performance Expectation*] - Analyze controversial technological issues and determine the degree to which individuals, businesses, and governments have an ethical role in decisions that are made.

- NJ Career Readiness
  WRK.9.2.12.CAP.4 [*Performance Expectation*] - 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.
  WRK.9.2.12.CAP.5 [*Performance Expectation*] - Assess and modify a personal plan to support current interests and post-secondary plans.
  WRK.9.2.12.CAP.2 [*Performance Expectation*] - Develop college and career readiness skills by participating in opportunities such as structured learning experiences, apprenticeships, and dual enrollment programs.

- Mathematics
  MATH.9-12.F.BF.A.1 [*Standard*] - Write a function that describes a relationship between two quantities

- ELA Practices
  ELA.L.SS.9–10.1 Demonstrate command of the system and structure of the English language when writing or speaking.
  ELA.L.KL.9–10.2 Apply knowledge of language to make effective choices for meaning, or style and to comprehend more fully when reading, writing, speaking or listening.
  ELA.L.VL.9–10.3.E Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).

ELA.RL.CR.9–10.1 Cite a range of thorough textual evidence and make relevant connections to strongly support analysis of multiple aspects of what a literary text says explicitly and inferentially, as well as including determining where the text leaves matters uncertain.

Integrated Accommodations and Modifications

https://docs.google.com/spreadsheets/d/1lEj-WZghahz_kVoSbGd5jrLwq1j70EoM4UU5jXISQZs/edit?usp=sharing