Anoka-Hennepin Secondary Curriculum Unit Plan

Department:	Career and Technical Education	Course:	Advanced Automotive I: Steering and Suspension	Unit 1 Title:	Suspension and Steering	Grade Level(s):	11-12
Assessed Trimester:		Pacing:		Date Created:		Last Revision Date:	11/2014

Course Understandings: *Students will understand:*

- Specified academic and technical content, make connections, and apply in the automotive industry.
- The various levels of effective communication and its integral role in working with people and technology.
- How problem solving is a scientific process that translates into both personal and business situations.
- The automotive industry as a multifaceted system integrating policies and procedures at many levels.
- Resource management and obtaining information within diverse situations.

DESIRED RESULTS (Stage 1) - WHAT WE WANT STUDENT TO KNOW AND BE ABLE TO DO?

Established Goals

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Transfer

Students will be able to independently use their learning to: (product, high order reasoning)

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Meaning

Unit Understanding(s):

Students will understand that:

- Principles of automotive suspension/steering systems and 4 wheel suspension alignment
- Essential concepts of geometry, gear reduction, hydraulics laws, and characteristics of liquids and how they apply to the operation and diagnosis of power steering and suspension systems
- Fundamentals of short/longarm and strut suspensions
- Strategy based diagnostic routines in order to interpret and verify customer concerns and proper operation, perform tests, and inspection to determine the causes and make corrections related to suspension/steering/wheel systems and alignment
- Inspection, testing, and measurement of component processes, and apply this knowledge to determine needed repairs and correctly repair a vehicle.

Essential Question(s):

Students will keep considering:

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Acquisition

Knowledge - Students will:

- Physical and chemical properties of matter principles and operations of microprocessors and external devices
- Apply logical and systematic approaches to analyze, design or service, fabricate/repair, test, troubleshoot, and service/repair microprocessor circuits, observing rules and techniques of accepted industry workmanship and safety standards including electrostatic discharge (ESD) safety
- The overall operation of steering and suspension, wheels and tires

Skills - Students will:

- Make connections between molecular structure and chemical properties and use chemical and physical properties to purify reaction products and other compounds
- Apply logical and systematic approaches to analyze, design or service, fabricate/repair, test, troubleshoot, and service/repair microprocessor circuits, observing rules and techniques of accepted industry workmanship and safety standards including electrostatic discharge (ESD) safety
- Identify and interpret the meaning of basic physics concepts of mechanics, forces, thermodynamics,

● Active listening skills and how to distinguish between fact and opinion ● The logic of algebraic or service/repair procedures and geometric concepts as they relate to blueprint reading ● The factors that influence solving problems and making decisions and use this understanding in formulating and implementing action plans ● How to Inspect the general condition of tools, equipment, systems, and inventory ● The various agencies involved in government oversight and local business and industry procedures and services ● Safety requirements and recognize safety signs and symbols ● Differences associated with diversity in racial, ethnic, regional, educational, social, and age issues ● The relevant use and applications of the original equipment manufacturer ● (OEM) service manual **Reasoning - Students will:** ●	heat, electricity, magnetism, optics, wave motion, acoustics, and atomic and nuclear physics ● Apply the laws of motion and conservation of energy, the types of forces, and the concepts of levers and torque, angular momentum, and gravitational forces ● Diagnose and repair malfunctions in the steering column, power rack/nonrackandpinion steering gear, long and shortarm and strut suspension, wheel alignment ● Demonstrate the proper procedures for reading and interpreting blueprints and diagrams in production or service technology ● Apply combinations of algebra, geometry, trigonometry, and statistics techniques to use in formulas to solve for simple and complex equations and inequalities and to analyze data ● Demonstrate general and precision measurement techniques and calculations ● Solve problems using the scientific method to follow procedures for gathering and analysis of data and formulate hypotheses and conduct testing ● Differentiate among federal, state, and local regulations ● Implement safety programs and document results ● Evaluate teamwork with respect to interpersonal communication, decision making, and effective communication with respect to diverse backgrounds

Common Misunderstandings	**Essential new vocabulary**
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