

BIG IDEAS

Vehicle operation, service, and maintenance include consideration of **social and environmental impacts**.

Personal service and maintenance interests require the evaluation and refinement of skills.

Tools and **technologies** can be adapted for specific purposes.

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to be able to do the following:</i></p> <p>Applied Design</p> <p><i>Understanding context</i></p> <ul style="list-style-type: none"> • Interpret circumstances of or factors in a particular automotive situation or challenge <p><i>Defining</i></p> <ul style="list-style-type: none"> • Identify potential issues and troubleshoot • Identify requirements, intended impacts, and possible unintended negative consequences of service • Determine whether activity is collaborative or self-directed <p><i>Ideating</i></p> <ul style="list-style-type: none"> • Generate ideas to create a range of possibilities and add to others' ideas in ways that create additional possibilities • Critically analyze how competing social, ethical, and sustainability considerations impact creation and development of solutions • Choose an idea to pursue and maintain an open mind about other potentially viable ideas <p><i>Prototyping</i></p> <ul style="list-style-type: none"> • Identify and apply a variety of sources of information to develop a plan that includes key stages and resources • Analyze the design for the life cycle and evaluate its impacts • Consider a variety of materials for effective use and their potential for reuse, recycling, and biodegradability • Make changes to tools, materials, and procedures as needed 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • simple automotive repair and maintenance • social, legal, and ethical responsibilities associated with vehicle operation • use of technical information and manuals for the purpose of diagnostics and repair • fundamental automotive tools and equipment • lifting equipment and procedures • chassis and body • engine diagnostic support systems • emerging and alternative energy sources used to power automotive vehicles • fundamentals of engine operation • vehicle systems • vehicle safety systems • design for the life cycle

Learning Standards (continued)

Curricular Competencies	Content
<p>Testing</p> <ul style="list-style-type: none"> • Identify and communicate with sources of feedback • Develop an appropriate test, conduct the test, and collect and compile data • Apply information based on feedback and testing results to make necessary changes <p>Making</p> <ul style="list-style-type: none"> • Identify appropriate tools, technologies, materials, processes, and time needed • Carry out updated plan, incorporating feedback from self and others and from testing results • Use materials in ways that minimize waste <p>Sharing</p> <ul style="list-style-type: none"> • Decide how and with whom to share their processes, to solicit and generate feedback • Share final plans, products and processes to evaluate their success • Critically reflect on plans, products and processes, and identify new goals • Identify and analyze new possibilities for plans, products and processes, including how they or others might build on them <p>Applied Skills</p> <ul style="list-style-type: none"> • Apply safety procedures for themselves, co-workers, and operators in both physical and digital environments • Individually or collaboratively identify and assess skills needed for automotive service plans, products and processes • Develop competency and proficiency in skills at various levels involving manual dexterity, mechanics, and maintenance • Develop specific plans to learn or refine identified skills over time <p>Applied Technologies</p> <ul style="list-style-type: none"> • Explore existing, new, and emerging tools, technologies, and systems to evaluate suitability for automotive maintenance and repair interests • Evaluate impacts, including unintended negative consequences, of choices made about technology use • Examine the role that advancing technologies play in automotive contexts 	