

# Auto Upkeep Competency Profile

Grade Scale			
4.0 = A	3.0 = B	2.0 = C	1.0 = D
3.7 = A-	2.7 = B-	1.7 = C-	0.7 = D-
3.3 = B+	2.3 = C+	1.3 = D+	0 = F

## Score/Mastery

A	B	C	D	F
Master	Proficient	Apprentice	Novice	No Attempt
4	3	2	1	0

					Task/Skill	Domain	Level
<b>Chapter 1. Introduction and How Cars Work</b>							
					Describe how cars work.	Cognitive	Knowledge
					Locate and identify the Vehicle Identification Number (VIN).	Psychomotor	Imitation
					Identify the engine size and configuration.	Cognitive	Knowledge
					Explain the difference between manufacturer, make, and model.	Cognitive	Comprehension
					Classify vehicle types.	Cognitive	Analysis
					Distinguish differences between spark and compression ignition engines.	Cognitive	Analysis
					Relate pollutants to gasoline and diesel engines.	Cognitive	Synthesis
					Propose and discuss possible future vehicle designs.	Affective	Valuing
					Practice identifying automobiles by make, model, year, and type.	Psychomotor	Manipulation
					Differentiate between force, work, power, and energy.	Cognitive	Analysis
					Identify careers in the automotive industry.	Cognitive	Knowledge
					Navigate an online owner's manual.	Psychomotor	Manipulation

<b>Chapter 2. Buying an Automobile</b>							
					Differentiate between transportation needs and wants.	Cognitive	Analysis
					Develop a budget.	Cognitive	Application
					Identify the steps in purchasing an automobile.	Cognitive	Knowledge
					Compare and contrast different places to purchase an automobile.	Cognitive	Evaluation
					Calculate a reasonable offer for a vehicle.	Cognitive	Application
					Advocate for safety features in an automobile.	Affective	Characterization
					Carry out research on vehicles using available resources.	Psychomotor	Imitation
					Evaluate window stickers.	Cognitive	Evaluation
					Conduct a vehicle inspection.	Psychomotor	Manipulation
					Propose the benefits of selling, trading in, or donating a used vehicle.	Affective	Valuing

4	3	2	1	0	Task/Skill	Domain	Level
<b>Chapter 3. Automotive Expenses</b>							
					Explain how car payments are calculated.	Cognitive	Synthesis
					Describe insurance coverage levels.	Cognitive	Evaluation
					Propose when it may be beneficial to have additional insurance.	Affective	Valuing
					Calculate monthly expenses on a given vehicle.	Cognitive	Application
					Explain depreciation.	Cognitive	Comprehension
					Differentiate between maintenance and repairs.	Cognitive	Analysis
<b>Chapter 4. Repair Facilities</b>							
					Describe how technicians can become certified.	Cognitive	Knowledge
					Communicate effectively with a technician or service writer.	Affective	Responding
					Interpret a repair invoice.	Cognitive	Evaluation
					Demonstrate use of the three C's (concern, cause, and correction).	Psychomotor	Imitation
					List and describe different types of facilities.	Cognitive	Knowledge
					Conduct research to locate a quality repair facility.	Psychomotor	Manipulation
					Characterize business ethics.	Affective	Characterization
					Summarize differences between warranty types.	Cognitive	Evaluation
<b>Chapter 5. Safety Around the Automobile</b>							
					Demonstrate safe work practices.	Psychomotor	Precision
					Identify types of fires and explain what types of fire extinguishers to use.	Cognitive	Synthesis
					Explain the fire triangle.	Cognitive	Comprehension
					Evaluate when to wear specific personal protection equipment.	Cognitive	Evaluation
					Describe the purpose of OSHA and EPA.	Cognitive	Knowledge
					Use different types of automotive lifts to safely support a vehicle.	Psychomotor	Precision
					Operate a jack and use jack stands to safely support a vehicle.	Psychomotor	Precision
					Judge when it is safe to work on a vehicle with airbag systems.	Affective	Organization
					Explain right-to-know laws.	Cognitive	Comprehension
					Interpret safety data sheets.	Cognitive	Comprehension
					Practice safe lifting and carrying techniques.	Psychomotor	Imitation
					Identify factors that affect noise-induced hearing loss.	Cognitive	Knowledge
					Insert foam earplugs properly.	Psychomotor	Precision

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<b>Chapter 6. Tools and Equipment</b>							
					Recognize basic hand tools.	Cognitive	Comprehension
					Select the correct tool for the job.	Cognitive	Evaluation
					Use tools properly.	Psychomotor	Precision
					Utilize print and online service manuals.	Psychomotor	Precision
					Classify socket types.	Cognitive	Analysis
					Identify different types of wrenches.	Cognitive	Analysis
					Identify different types of pliers.	Cognitive	Analysis
					List the different types of screwdriver tips.	Cognitive	Knowledge
					Decide when it is justified to invest in a specialty tool.	Affective	Organization
					Categorize units into the metric or English system.	Cognitive	Synthesis
					Differentiate between electric-, air-, and battery-powered tools.	Cognitive	Analysis
					Demonstrate the proper use of fender covers.	Psychomotor	Precision

<b>Chapter 7. Auto Care and Cleaning</b>							
					Identify different automotive finishes.	Cognitive	Knowledge
					Explain the importance of interior and exterior cleaning.	Cognitive	Evaluation
					Clean a vehicle inside and out.	Psychomotor	Articulation
					Wax a vehicle.	Psychomotor	Manipulation
					Differentiate between polishing and waxing.	Cognitive	Synthesis
					Describe how to clean an engine compartment.	Cognitive	Comprehension
					Locate and lubricate hinges, latches, and locks.	Psychomotor	Manipulation
					Repair a chip or scratch.	Psychomotor	Manipulation
					Explain how paintless dent repair works.	Cognitive	Knowledge

<b>Chapter 8. Fluid Level Check</b>							
					Identify vehicle information for the correct fluid type.	Cognitive	Knowledge
					Identify different types of fluids used in the automobile.	Cognitive	Knowledge
					Describe differences between coolant types.	Cognitive	Knowledge
					Follow safety warnings listed on chemical containers.	Psychomotor	Precision
					Analyze fluid conditions.	Cognitive	Analysis
					Perform basic fluid level checks.	Psychomotor	Articulation
					Add fluids when required.	Psychomotor	Manipulation
					Justify using more environmentally friendly coolants.	Affective	Valuing
					Summarize why it is important to add the correct types of fluids.	Cognitive	Evaluation
					Store and dispose of chemicals properly.	Psychomotor	Manipulation

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<b>Chapter 9. Electrical System</b>							
					Define electricity in terms of voltage, current, and resistance.	Cognitive	Knowledge
					Interpret a wiring diagram.	Cognitive	Analysis
					Explain different types of electrical circuits.	Cognitive	Comprehension
					Analyze different types of circuit problems.	Cognitive	Analysis
					Use a digital multimeter to test for voltage, resistance, and current.	Psychomotor	Manipulation
					Use Ohm's law to calculate for voltage, resistance, or current.	Cognitive	Application
					Identify and locate starting system components.	Psychomotor	Manipulation
					Identify and locate charging system components.	Psychomotor	Manipulation
					Test an alternator.	Psychomotor	Manipulation
					Test a starter.	Psychomotor	Manipulation
					Clean and test a battery.	Psychomotor	Manipulation
					Explain battery performance ratings.	Cognitive	Comprehension
					Inspect belt conditions.	Psychomotor	Manipulation
					Locate fuse junction blocks.	Psychomotor	Manipulation
					Describe different fuse types.	Cognitive	Knowledge
					Remove, inspect, and replace a blade style fuse.	Psychomotor	Imitation
					Differentiate between bulb types.	Cognitive	Analysis

<b>Chapter 10. Lubrication System</b>							
					Define the purpose of engine oil.	Cognitive	Knowledge
					List and describe engine oil additives.	Cognitive	Comprehension
					Explain oil service and viscosity ratings.	Cognitive	Comprehension
					Differentiate between conventional, synthetic, and semi-synthetic oils.	Cognitive	Analysis
					Discuss the importance of oil filters.	Cognitive	Comprehension
					Change the oil and filter on a vehicle.	Psychomotor	Manipulation
					Advocate for the importance of oil recycling.	Affective	Characterization

<b>Chapter 11. Fuel System</b>							
					Explain the purpose of the fuel system.	Cognitive	Comprehension
					Identify and describe the parts of the fuel system.	Cognitive	Comprehension
					Remove, inspect, and replace an air filter.	Psychomotor	Manipulation
					Remove and replace a fuel filter.	Psychomotor	Manipulation
					State gasoline and diesel properties.	Cognitive	Knowledge
					Identify ways to improve fuel economy.	Cognitive	Comprehension
					Explain how fuel is priced.	Cognitive	Evaluation
					Justify the use of clean burning fuels.	Affective	Valuing
					Explain how a turbocharger works.	Cognitive	Comprehension

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<b>Chapter 12. Cooling System and Climate Control</b>							
					Identify the purpose of the cooling system.	Cognitive	Comprehension
					Describe the components in the cooling system.	Cognitive	Comprehension
					Define coolant properties.	Cognitive	Knowledge
					Explain how coolant flows in an engine.	Cognitive	Comprehension
					Test coolant properties.	Psychomotor	Manipulation
					Change a cabin air filter.	Psychomotor	Manipulation
					List causes of engine overheating.	Cognitive	Knowledge
					Identify what to do if a vehicle overheats.	Cognitive	Knowledge
					Explain how charge-air coolers work.	Cognitive	Comprehension
					Analyze the benefits of active warm-up devices.	Cognitive	Analysis
					Explain how the air conditioning system works.	Cognitive	Comprehension
<b>Chapter 13. Ignition System</b>							
					Define the purpose of the ignition system.	Cognitive	Knowledge
					Identify ignition system generations.	Cognitive	Analysis
					Categorize ignition system components into respective generations.	Cognitive	Analysis
					Remove, inspect, gap, and replace spark plugs.	Psychomotor	Manipulation
					Test spark plug wire resistance.	Psychomotor	Manipulation
					Remove, inspect, and replace distributor cap and rotor.	Psychomotor	Manipulation
					Differentiate between interference and non-interference engines.	Cognitive	Analysis
<b>Chapter 14. Suspension, Steering, and Tires</b>							
					Define the purpose of the suspension system.	Cognitive	Knowledge
					Define the purpose of the steering system.	Cognitive	Knowledge
					Identify components in the suspension system.	Cognitive	Comprehension
					Identify components in the steering system.	Cognitive	Comprehension
					Inspect suspension and steering components.	Psychomotor	Manipulation
					Describe different tread designs.	Cognitive	Knowledge
					Identify repairable and non-repairable areas on a tire.	Cognitive	Knowledge
					Inspect and rotate tires.	Psychomotor	Manipulation
					Measure tire tread depth.	Psychomotor	Manipulation
					Locate the tire placard on a vehicle.	Psychomotor	Manipulation
					List causes of excessive tire wear.	Cognitive	Knowledge
					Propose reasons for snow tire use vs. all season tires.	Affective	Valuing
					Explain when run flat technology may be beneficial.	Affective	Organization

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<b>Chapter 15. Braking System</b>							
					Define the purpose and principles of the braking system.	Cognitive	Knowledge
					Explain how regenerative braking works.	Cognitive	Comprehension
					Identify components in the brake system.	Cognitive	Comprehension
					Identify brake fluid properties.	Cognitive	Comprehension
					Discuss the advantage of antilock brakes.	Cognitive	Comprehension
					Explain how the parking brake works.	Cognitive	Comprehension
					Perform brake inspections and measure brake pad thickness.	Psychomotor	Articulation
					Categorize different types of control and safety systems.	Cognitive	Synthesis

<b>Chapter 16. Drivetrain</b>							
					Define the purpose of the drivetrain.	Cognitive	Knowledge
					Identify drivetrain components.	Cognitive	Comprehension
					Describe different drivetrain systems.	Cognitive	Comprehension
					Inspect drivetrain system components.	Psychomotor	Manipulation
					Explain the operational stages of a torque converter.	Cognitive	Comprehension
					Compare various types of differentials.	Cognitive	Comprehension
					Communicate CVT benefits.	Affective	Responding

<b>Chapter 17. Exhaust and Emission System</b>							
					Define the purpose of the exhaust and emission system.	Cognitive	Knowledge
					Identify components in the exhaust and emission system.	Cognitive	Comprehension
					Inspect exhaust and emission system components.	Psychomotor	Manipulation
					Identify different types of automotive emissions.	Cognitive	Comprehension
					Explain how the catalytic converter works.	Cognitive	Comprehension
					Locate the vehicle emission control information (VECI) sticker.	Psychomotor	Manipulation
					Explain how diesel aftertreatment technologies work.	Cognitive	Comprehension
					Describe the benefits of a properly working emission system.	Affective	Valuing

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<b>Chapter 18. Alternative Fuels and Designs</b>							
					Identify differences in automotive design, depending on the fuel source.	Cognitive	Analysis
					Differentiate tailpipe and upstream emissions.	Affective	Valuing
					Compare and contrast different alternative vehicle types.	Cognitive	Evaluation
					Compare petrobased and biobased fuels.	Cognitive	Evaluation
					Calculate the payback period on an alternative fueled vehicle.	Cognitive	Analysis
					Conduct research to determine if a vehicle is E85 compatible.	Psychomotor	Manipulation
					Compare energy content in different fuel types.	Cognitive	Evaluation
					Differentiate between full, plug-in, and mild hybrids.	Cognitive	Analysis
					Describe different types of hybrid drivetrains.	Cognitive	Knowledge
					Illustrate how hydrogen can be used to power an electric motor.	Cognitive	Application
					Categorize different levels of automation.	Cognitive	Synthesis
					Discuss technological issues with alternative fueled vehicles.	Affective	Responding
<b>Chapter 19. Automotive Accessories</b>							
					Identify available automotive accessories.	Cognitive	Analysis
					Explain different accessory functions.	Cognitive	Comprehension
					Estimate the cost of selected accessories for a specific vehicle.	Cognitive	Application
					Discuss the issues associated using electronic devices while driving.	Affective	Valuing
					Describe how global positioning systems work.	Cognitive	Comprehension
					Discuss negative impacts of remote starters.	Affective	Organizing
					Describe hitch classifications.	Cognitive	Knowledge
<b>Chapter 20. Common Problems and Roadside Emergencies</b>							
					Identify common automotive problems.	Cognitive	Analysis
					Analyze basic automotive problems and formulate a solution.	Cognitive	Analysis
					Remove and replace a headlight.	Psychomotor	Manipulation
					Explain the different causes of black, blue, and white smoke.	Cognitive	Comprehension
					Identify unusual sounds and associate a possible problem to that sound.	Cognitive	Analysis
					Identify unusual smells and associate a possible problem to that smell.	Cognitive	Analysis
					Explain what might cause a "no-start" situation.	Cognitive	Comprehension
					Clean a battery.	Psychomotor	Manipulation
					Inspect, remove, and replace wiper blades.	Psychomotor	Manipulation
					Locate a leak on a tire.	Psychomotor	Manipulation
					List items that should be in an emergency roadside and a winter safety kit.	Cognitive	Knowledge
					Perform a jump-start safely.	Psychomotor	Manipulation
					Inspect, remove, and replace a drive belt.	Psychomotor	Manipulation
					Remove and replace a flat tire with a spare tire.	Psychomotor	Manipulation