



G-E-T High School Curriculum
Align, Explore, Empower
Scope and Sequence
Automotive Technology 2

Unit 1 - Automotive Safety and Quality Repair Orders

1 week/ongoing

Students will be assessed on safety throughout the course and expected to come into class with a background of automotive experience. Students are expected to work in groups and stay on task. In addition, students will be expected to use tools and equipment the proper way and return them to their designated spot.

In this unit, students will ...

Recognize and demonstrate shop safety at all times.

Students will properly dispose of hazardous waste – oil filters, oil, coolant, refrigerant, etc.

Students will properly use engine stands, the engine pulley trolley, transmission jack, and other needed equipment.

Students will demonstrate the proper setup and teardown of a cutting torch.

Utilize quality repair orders to complete and finish automotive tasks.

Students will write and document the completed tasks on multiple vehicles and use alldata to price check parts and labor hours.

Standards for (Automotive Technology 2)

TR1.b.9.h: Explain that all systems demand specific repair procedures in order to achieve highest performance and efficiency.

TR1.c.11.h: Demonstrate safe and proficient use of specialty tools and equipment related to servicing transportation vehicles.

PE1.b.11.h: Demonstrate and follow proper safety procedures for tools and machines used in power and energy systems.

MNF.1.a.7.h: Identify safety and health protections and procedures that are critical to worker well-being.

MNF.1.a.8.h: Use appropriate tools, materials, and machines to repair a malfunctioning system.

MNF.1.c.6.h: Learn how to cooperate with others in ways to exhibit respect for individual and cultural differences and for the attitudes and feelings of others.

Unit 2 - Steering, Suspension and Tires

4 weeks

Students will be working in small groups identifying, inspecting, replacing and explaining various labs in steering, suspension and tires. Students will be required to use the school fleet vehicles and tire equipment to learn and complete the labs.

In this unit, students will ...

Highlight the major components and parts of the steering system.

Students will demonstrate rack and pinion removal.

Students will identify major parts of the linkage system - pitman arm, center link, idler arm, inner tie-rod, outer tie-rod and steering knuckle.

Highlight the major components and parts of the suspension system.

Students will demonstrate strut and ball joint removal removal.

Students will identify major parts of the suspension system - springs, shocks, struts, control arms, sway bar and links, track rod, ball joints, etc.

Recognize and discuss tire information and demonstrate tire removal, balancing, and tire repair (low profile, steel rim and aluminum).

Students will become familiar with the sidewall tire information. Ex. P225/75/R16 UTQG Treadwear, Traction and Temperature Ratings. Also TPMS, load ratings, speed ratings and tire pressures.

Students will perform wheel balancing using appropriate tools and equipment common to the trade.

Students will dismount and mount tires (steel, aluminum and low profile). Students will repair tires with holes in the tread.

Standards for (Automotive Technology 2)

TR1.a.7.h: Identify how government regulations and technological trade-offs might influence the transportation modes used to move people and goods from place to place.

TR1.b.9.h: Explain that all systems demand specific repair procedures in order to achieve highest performance and efficiency.

TR1.c.10.h: Students will perform tasks related directly to current national standards per transportation (NATEF).

TR1.c.11.h: Demonstrate safe and proficient use of specialty tools and equipment related to servicing transportation vehicles.

BB1.e.6.h: Select and perform an appropriate maintenance is the process in order for the product or system to continue functioning properly and to extend its life.

Unit 3 - Drivetrain = Transmission, Transaxle, Transfer Cases and Differentials

3 weeks

Students will rotate stations of each drivetrain assembly and disassemble and explain how it works. The

students will work in groups of two and use the schools drivetrain assemblies to complete the unit. During the unit the students will also bring their vehicles in and inspect those drivetrain assemblies and change various fluids - differential, transmission and transfer case.

In this unit, students will ...

Explain and describe the drivetrain assemblies.

Students will demonstrate the disassembly/reassembly of the manual transmission, transfer case, and rear end. Within the disassembly students will list and explain the parts and how it works.

Demonstrate transmission fluid change/flush and differential fluid change.

Students will explain the automatic transmission, identify the major parts and complete a transmission change/flush.

Students will explain the differential, identify the major parts and complete a fluid change.

Standards for (Automotive Technology 2)

TR1.c.10.h: Students will perform tasks related directly to current national standards per transportation (NATEF).

TR1.c.11.h: Demonstrate safe and proficient use of specialty tools and equipment related to servicing transportation vehicles.

BB1.a.6.h: Describe how the outputs of one subsystem are the inputs of another subsystem given a prominent energy, power and transportation system.

Unit 4 - Cooling System 2

2 weeks

These labs/experiences are required by WTC for transcribed credits. Students will use the school fleet to complete most of these tasks. Students will work by themselves or with a partner.

In this unit, students will ...

Evaluate the engine cooling system, perform cooling system maintenance and cooling system repair.

Students will get hands-on experience inspecting, removing and replacing cooling system parts and components (water pump, radiator, heater core, thermostat, etc).

Standards for (Automotive Technology 2)

TR1.b.9.h: Explain that all systems demand specific repair procedures in order to achieve highest performance and efficiency.

TR1.c.10.h: Students will perform tasks related directly to current national standards per transportation (NATEF).

TR1.c.11.h: Demonstrate safe and proficient use of specialty tools and equipment related to servicing transportation vehicles.

Unit 5 - Fluid Maintenance and System Condition

3 weeks

These labs/experiences are required by WTC for transcribed credits. Students will use their vehicle to complete most of these tasks. Students will work by themselves or with a partner. Some of the material discussed is review, while some of it is brand new and should help students understand the importance of fluid change, fluid quality and fluid condition.

In this unit, students will ...

Perform engine lubrication testing, steering and suspension system maintenance - belts, fluids and tires.

Students will demonstrate oil and filter change, oil pressure testing and inspect auxiliary cooler to determine necessary actions.

Students will determine proper power steering fluid type, fluid amounts, and fluid locations.

Students will rotate tires to manufacturer's recommendations.

Students will remove, inspect, replace and adjust power steering pump drive belt.

Standards for (Automotive Technology 2)

TR1.b.7.h: Interpret preventive maintenance schedules and recommended service intervals for vehicles.

TR1.b.8.h: Define the interdependency of individual systems within a vehicle.

Unit 6 - Multipoint Inspection and Advance Diagnostics

3 weeks

Students will use the WTC's multipoint inspection form to guide the vehicle inspection and get a demonstration by a local auto technician. Students will use multimeters, scan tools, and other electrical devices to help solve/fix problems and get a better understanding of how important they are in solving electrical problems. Students will work in small groups throughout the unit and get a lot of hands-on experience using the proper equipment.

In this unit, students will ...

Find and fix miscellaneous automotive stuff using a multipoint inspection form.

Students will get hands-on experience fixing random repairs for potential customers.

Students will get experience working with others, using tools, troubleshooting and problem solving.

Explain and use diagnostic tools to pinpoint hard to locate problems on an automobile.

Students will know how to identify and demonstrate proper usage of the compression tester, leak-down tester, noid lights, digital multimeter (DMM), scan tool, hand vacuum/pressure pump, and more.

Students will measure voltage, resistance, amperage, temperature and continuity using a multimeter.

Standards for (Automotive Technology 2)

TR1.b.9.h: Explain that all systems demand specific repair procedures in order to achieve highest performance and efficiency.

TR1.c.9.h: Develop measurement skills in electric/electronic applications that are necessary to efficiently repair vehicles.

TR1.c.10.h: Students will perform tasks related directly to current national standards per transportation (NATEF).

TR1.c.11.h: Demonstrate safe and proficient use of specialty tools and equipment related to servicing transportation vehicles.

TR1.c.12.h: Explain career preparation, career pathways and the importance of on-the-job training as well as further education with regard to the transportation field.

Unit 7 - Troubleshoot Vehicle Scenarios

1 week

Students will finish the course in smaller groups trying to fix various electrical and vacuum problems. Those problems will be tied to fuel, ignition, starting, charging and sensors. The problems will be common, but difficult to diagnose. The deliberate bugs will be on the school fleet vehicles set by the instructor. Students will use any/all equipment needed to diagnose the problems and Alldata for assisted help.

In this unit, students will ...

Explain and use diagnostic tools to pinpoint hard to locate problems on an automobile.

Students will know how to identify and demonstrate proper usage of the compression tester, leak-down tester, noid lights, digital multimeter (DMM), scan tool, hand vacuum/pressure pump, and more.

Students will measure voltage, resistance, amperage, temperature and continuity using a multimeter.

Standards for (Automobile Technology 2)

PE1.b.11.h: Demonstrate and follow proper safety procedures for tools and machines used in power and energy systems.

PE1.b.12.h: Develop and perform tasks related to responsible use of energy systems and/or resources.

MNF1.a.8.h: Use appropriate tools, materials, and machines to repair a malfunctioning system.

ENG5.b.9.h: Troubleshoot, analyze and maintain systems to ensure proper function, accuracy and precision.

BB1.d.6.h: Perform a voltage drop test and describe the relationship between voltage, current and resistance with a multimeter.

