Transportation 1A & 1B Syllabus

Transportation 1A course will cover the following automotive systems:

Hand tools-

 We will learn how to safely use a variety of hand tools related to the automotive industry.

Shop Safety-

 This unit focuses on how to use the tools and equipment safely. It stresses shop safety procedures in how to use the lift and other power tools. Safety equipment is discussed and demonstrated to create the safest educational atmosphere possible.

Lubrication-

 This unit focuses on Oil. We discuss the history of oil and the drilling process. They learn what the differences are between the types of oil. The students learn why it is an important aspect of vehicle maintenance. The students learn how to handle oil safely and to follow the environmental guidelines for oil recycling and disposal. They learn the process of how and when to change the oil in the average vehicle and can perform the procedure on their own vehicle.

Tires and Wheels-

 This unit focuses on tire maintenance. The students learn the different parts of a tire and how they interact to control vehicle behavior. The students will understand the importance of tire pressure and how it will affect the longevity of the tires. The students will learn to use the tire changer and the tire balancer safely and efficiently. They will learn how to recognize tire wear patterns and what the implication they have for steering system maintenance.

Brakes-

 This unit focuses on the two different types of braking systems. The students will know the different applications for Disc and Drum brake systems. They will be exposed to the evolution of the braking systems from early vehicles to present day brakes. The students will learn the process to disassemble and reassemble both styles of brakes. The students will learn what to inspect to determine the time line for brake maintenance. The students will understand how the Anti-lock Brake System works to increase vehicle safety.

Battery-

 This unit focuses on battery maintenance and replacement. The students will learn what the purpose the battery serves in the automobile. They will understand how the battery works and how to determine what battery is needed for replacement. The students will learn the proper way to test and replace the battery if necessary.

Charging system-

 This unit focuses on the charging system. The students will learn the different parts of the system and how to test the system and determine what needs to be replaced. The students will learn the proper procedure to replace the alternator safely.

Coolant-

 This unit focuses on how the coolant system maintains the constant engine temperature for proper engine operation. The students will learn how to check the quality of the coolant in the system and how to maintain the system. They will learn the proper procedure to flush the system, test the quality of the coolant, and replace the thermostat. They will also learn how to work with the system within the EPA guidelines for recycling or disposing of the used contaminated coolant.

Steering-

 This unit focuses on how the direction of the vehicle is controlled. The students will learn the different types of steering systems and how they have evolved over the life span of the automobile. The students will learn how the different parts interact to give the driver control of the direction the vehicle is going. They will learn the different parts of the system and be able to evaluate which parts are wearing out. They will gain a better understanding of how the wear patterns on the tires give information that will lead to maintenance procedures for the vehicle.

Suspension-

 This unit focuses on the ride of the vehicle. The students will learn the different types of springs and suspension parts. They will be exposed to the alignment aspects of the vehicle. The will learn how to replace the different parts of the suspension and what is necessary for safe vehicle operation after a part replacement.

Engine Autopsy-

 This unit focuses on the internal parts of the average internal combustion engine. The student will learn how the internal parts work in concert to make the engine perform as the engineers designed it to. By the end of the unit after they have disassembled and reassembled a 4cylinder engine they will know the names and purpose of all the parts in the engine.

Electrical-

 This unit focuses on basic electricity and circuitry. The students will learn how the vehicle used the frame of the vehicle as part of the circuit. They will understand what volts, amps, and resistance do in the electrical system.

Used car evaluation-

 This unit focuses on used how to sell and purchase a used car. They will develop an evaluation tool for inspection of a vehicle before purchase. The students will learn the best way to sell a vehicle and what to be aware of when purchasing a used vehicle.

Detailing-

 This unit focuses on how to keep a vehicle clean and the longterm benefits of keeping the entire vehicle clean

Dent repair-

 This unit focused on how to remove small dents and how to evaluate whether or not the dent can be removed. They will learn the basics to body repair and painting.