



SCHOOL DISTRICT OF MONROE

Preparing for the Future, One Child at a Time

Auto-Technology

Course Description:

The curriculum for this course is developed from the [Wisconsin Standards for Technology and Engineering](#). This is an advanced elective two trimester course, in which basic automotive knowledge and skills are learned. In this course the systems of a vehicle will be covered. We will also learn how to perform basic automotive care and service on vehicles. This class will provide basic automotive care to teachers and staff members at MHS with our “MHS Auto-Service Center”. This is a small business that this class does to gain valuable hands on skills. The information in this course overview outlines what students should understand and be able to do by the end of both Trimesters. Students must meet the prerequisites as listed in the course description book to take this course.

Mastery Standards:

Knowledge of equipment and safety procedures are essential to responsible use of equipment and tools. (AC1.c, AC1.d, AC1.e, AC1.f, MNF1.a)

Understanding and knowledge of tools and materials is requisite for analyzing sound choices in methods and materials. (BB1.a, BB1.b, BB1.c, BB1.d, BB1.e, BB1.f)

Quality design, engineering, and construction require accurate knowledge and application of measuring systems. (AC1.a, AC1.b, AC1.c, AC1.d, AC1.e, AC1.f)

Executing and receiving evaluations and feedback on projects is vital to learning and improving skills. (ENG4.c, ENG5.a)

Specific tasks require experience and knowledge to correctly identify, select, and safely use appropriate tools, machines, products, systems, and techniques. (MNF1.a, MNF1.b, MNF1.c, MNF1.d, MNF1.e, MNF1.f, MNF1.g, MNF1.h)

Unit	Description of Unit and Learning Targets
<p>Unit Title: Safety</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> How do you incorporate safety knowledge into operation and maintenance when working in an Automotive and Small Engine Shop? 	<p>Students will investigate the hazards associated with the operation and repair of internal combustion engines, learn and review industry safety procedures before working with the hazards.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> I can demonstrate and use the hand tools of the trade properly and safely. I can identify safety and health protections and procedures that are critical to worker well being. I can demonstrate the safe use of electrical connection methods and electrical wiring procedures. I can recognize the potential accidents and injuries that may occur in a given work environment. I can identify the chemical hazards present when working with a small engine.
<p>Unit Title: Safety Hoist Operation</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> How do I safely operate this machine? 	<p>Students will learn how to safely and correctly operate an automotive lift in the Auto-Shop.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> I can spot a vehicle in the hoist bay area in order to use the automotive lift properly. I can correctly adjust the lifting points on the vehicle.

	<ul style="list-style-type: none"> I can operate the lift to perform work on an automobile.
<p>Unit Title: Precision Measuring Equipment</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> How do I measure my engine to determine its size? 	<p>Students use various precision measuring devices to measure engine components.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> I can apply conventional construction measurement processes accurately (i.e., geometric and trigonometric functions). I can add, subtract, multiply and divide in the Standard Measuring System to the 1/16: and the Metric Measuring System to millimeters. I can select and apply the appropriate units and scales for situations involving measurement. I can use a dial caliper to accurately measure engine parts. I can use a micrometer to accurately measure engine parts.
<p>Unit Title: Common Hand Tools and Specialty Tools</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> What hand tools would I use in an automotive shop? 	<p>Students will learn the identity and use of common hand tools and specialty small engine tools.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> I can identify all common hand tools. I know how to use the common hand tools. I can identify all small engine specialty tools. I know how to use the small engine specialty tools.
<p>Unit Title: Introduction to Basic Automotive Care</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> How do I maintain an automobile and keep it running efficiently? 	<p>Students will learn about basic car care and preventive maintenance procedures that must be done for our "MHS Auto Service Center"..</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> I know how to complete the maintenance check off sheet.. I know how to check tire pressure and add air. I can operate an automotive lift to perform a service job. I can change the oil in a vehicle. I can add other essential fluids to the vehicle when needed.
<p>Unit Title: Tires, Rims and Tire Service</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> How do I keep my tires on the road longer? 	<p>Students will learn about tires and tire service.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> I know how to read tire information found on the tire. I know how to properly inflate a tire. I know how to remove a tire from a vehicle. I know how to operate the tire changer. I know how to operate the tire balancer. I know how to install a tire and rim onto a vehicle.
<p>Unit Title: Brakes</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> How do the brakes on my car work? 	<p>Students will learn about brakes and brakes service.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> I know how the brakes work. I understand hydraulic principles in the brake system. I know the parts of a disc brake. I know the parts of a drum brake. I can service a disc brake.
<p>Unit Title: Suspension</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> How does the suspension system on a vehicle work? 	<p>Students will learn about the suspension system and suspension system service.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> I know how the suspension system works.

	<ul style="list-style-type: none"> • I can identify the suspension system parts.
<p>Unit Title: Steering</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How does the steering system on a vehicle work? 	<p>Students will learn about the steering system and steering system service.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I know how the steering system works. • I can identify the steering system parts.
<p>Unit Title: Alignment</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How do all the alignment angles work on a vehicle? 	<p>Students will learn how tires must be properly aligned on a vehicle.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I know all the alignment angles associated with a vehicle. • I know that poor alignment causes safety concerns with the vehicle. • I know proper alignment will save me maintenance costs.
<p>Unit Title: Automotive Engines</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How does an engine work in a vehicle? 	<p>Students will learn how an automotive engine works.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I know the different types of engines used. • I know the 4-cycle theory.. • I know the parts of an engine.
<p>Unit Title: Hands on Engine Work</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How does it all work? 	<p>Students will learn how to disassemble, measure parts, and reassemble an Automotive Engine.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I can successfully disassemble a engine. • I can use the proper measuring tools to take measurements on parts of an engine. • I can identify all the parts of the engine • I can successfully reassemble a small engine.
<p>Unit Title: Transmissions and Drivetrain</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What makes my car go forward? 	<p>Students will learn how the drivetrain and transmission work in vehicles.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I know the different types of transmissions. • I know the difference between a transaxle and transmission. • I know how a differential works.
<p>Unit Title: Alternative Vehicles</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What will be the future of transportation? 	<p>Students will learn about what the future holds for the transportation industry.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I know that there are alternative vehicles being used today.