



SCHOOL DISTRICT OF MONROE

Preparing for the Future, One Child at a Time

Power, Energy, & Transportation

Course Description:

The curriculum for this course is developed from the [Wisconsin Standards for Technology and Engineering](#). Power, Energy and Transportation class is an introductory elective course into the field of Power, Energy and Transportation. Students will gain a basic understanding and appreciation of the technologies that we have to use on a daily basis. The information in this course overview outlines what students should understand and be able to do by the end of the trimester.

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: Common Hand Tools and Specialty Tools</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> What are common hand tools used in our daily lives? 	<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 some small engine specialty tools.
<p>Unit Title: Introduction</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> How does Power, Energy and Transportation affect me in my daily life? 	<p>Students will learn how the Power, Energy and Transportation industries affects them on a daily basis.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> I will know what Energy Systems are. I will know what Power Technologies are. I will know the importance of the transportation system.
<p>Unit Title: Measuring</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> Why do I need to know how to use a micrometer and caliper? 	<p>Students will learn how to use a micrometer and dial caliper to make measurements..</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> I will know how to use a micrometer correctly and accurately. I will know how to use a dial caliper correctly and accurately.
<p>Unit Title: DC Electricity</p> <p><u>Essential Questions:</u></p>	<p>Students will learn how to set up various DC Circuits and test with a digital multimeter.</p>

<ul style="list-style-type: none"> • What role does DC Electricity play in our daily activities? 	<p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I will know how to use a digital multimeter. • I will know what DC circuits and current is.
<p>Unit Title: AC House Electricity</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What role does AC Electricity play in our daily activities? 	<p>Students will learn how to set up various AC Circuits that are used in a residential home.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I will know how to read an electrical schematic to complete the wire circuits. • I will know the various components needed to wire up house electrical circuits. • I will be able to test my circuits to see that they work.
<p>Unit Title: Heat Engines</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What role do Heat Engines play in our daily activities? 	<p>Students will learn about internal combustion engines and work hands on with a small gas engine..</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I will know various types of heat engines. • I will identify the parts of a small gas engine. • I will disassemble a small gas engine. • I will reassemble a small gas engine.
<p>Unit Title: Fluid Power</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What role do Fluid Power play in our daily activities? 	<p>Students will learn about the two types of fluid power systems.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I will know what a Pneumatic System is. • I will know what a Hydraulic System is. • I can assemble the pneumatic circuits and test them.
<p>Unit Title: Land Transportation</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What role does Land Transportation play in our daily activities? 	<p>Students will learn about Land Transportation Systems.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I will know all forms of Land Transportation.. • I will know what Mass Transportation means. • I can design a Mag-Lev Vehicle. • I can construct a Mag-Lev Vehicle.
<p>Unit Title: Air Transportation</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What role does Air Transportation play in our daily activities? 	<p>Students will learn about Air Transportation Systems.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I will know all forms of Air Transportation.. • I will know the support systems for Air Transportation. • I can identify the basic parts to an airplane.
<p>Unit Title: Marine Transportation</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What role does Air Transportation play in our daily activities? 	<p>Students will learn about Marine Transportation Systems.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I will know all forms of Marine Transportation.. • I will know the support systems for Marine Transportation. • I can design a boat hull. • I can construct and test a boat hull.
<p>Unit Title: Space Transportation</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What role does Space Transportation play in our daily activities? 	<p>Students will learn about Space Transportation Systems.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I will know all forms of Space Transportation.. • I will know the support systems for Space Transportation. • I can assemble a model rocket kit.