

MHS Curriculum Overview
Technology and Engineering

Last Updated June 2024

<p>Intro to Technology Gradebook standards</p> <ul style="list-style-type: none"> ● Standard EHS1: Safety and Environmental Awareness ● Critical Thinking (4C1) ● Tool Use for Personal & Organizational Productivity (IMT3, BB1, AC1) ● Develop the Skill Set Necessary to Apply the Design Process (ENG4) <p>Topics of Study</p> <ul style="list-style-type: none"> ● Measurement ● Small Engines ● Woodworking ● Metals/Welding ● Electronics and Electricity ● Construction ● Computer Aided Design ● Technology Use 	<p>Woods 1 Gradebook standards</p> <ul style="list-style-type: none"> ● Standard EHS1: Safety and Environmental Awareness ● Standard EL5: Students will analyze and use sequential logic analysis and design <p>Topics of Study</p> <ul style="list-style-type: none"> ● Wood Science ● Layout ● Sawing ● Edge Tools ● Sanding ● CNC 	<p>Woods 2 Gradebook standards</p> <ul style="list-style-type: none"> ● Standard EHS1: Safety and Environmental Awareness ● B.12.4 Illustrate how resources are essential to technological activity but availability and quality vary extensively throughout the world ● B.12.8 Select and apply appropriate processes to transform materials into usable product <p>Topics of Study</p> <ul style="list-style-type: none"> ● Joinery ● Adhesives ● Shaping ● Materials ● Jigs and fixtures ● CNC
<p>Woods 3 Gradebook standards</p> <ul style="list-style-type: none"> ● Standard EHS1: Safety and Environmental Awareness ● Standard MNF1: Students will be able to select and use manufacturing technologies ● B.12.8 Select and apply appropriate processes to transform materials into usable product <p>Topics of Study</p> <ul style="list-style-type: none"> ● CNC ● Certification ● WCA ● Individual project design ● Individual project planning ● Individual project construction 	<p>Metals 1 Gradebook standards</p> <ul style="list-style-type: none"> ● Standard EHS1: Safety and Environmental Awareness ● B.12.8 Select and apply appropriate processes to transform materials into usable product ● Analyze and Explain Materials and Equipment Used In Class ● CD2.b.8.h - Assess education and training opportunities to acquire new skills necessary for career advancement <p>Topics of Study</p> <ul style="list-style-type: none"> ● Safety ● Tool ID and Usage ● Metal Characteristics ● Arc Welding Basics ● Drill Press Operation ● Oxyfuel Cutting & Welding ● Sheet Metal Fabrication ● Foundry Lost Foam ● Career Exploration <p>Metal Art Tap & Die Plasma Cam</p>	<p>Metals 2 Gradebook standards</p> <ul style="list-style-type: none"> ● Standard EHS1: Safety and Environmental Awareness ● B.12.8 Select and apply appropriate processes to transform materials into usable product ● CD2.b.8.h - Assess education and training opportunities to acquire new skills necessary for career advancement <p>Topics of Study</p> <ul style="list-style-type: none"> ● Safety ● Mig Welding ● Lathe Operation ● Mill Operation ● Metal Art ● Foundry Green Sand ● Career Exploration ● CNC
<p>Metals 3 Gradebook standards</p> <ul style="list-style-type: none"> ● Standard EHS1: Safety and Environmental Awareness ● B.12.8 Select and apply appropriate processes to transform materials into usable product ● CD2.b.8.h - Assess education and training opportunities to acquire new skills necessary for career advancement <p>Topics of Study</p> <ul style="list-style-type: none"> ● Advanced Lathe Operation ● Advanced Mill Operation ● Advanced Welding Techniques <ul style="list-style-type: none"> ○ Mig & Tig ● Independent Projects 	<p>Construction Skills 1 Gradebook standards</p> <ul style="list-style-type: none"> ● Standard EHS1: Safety and Environmental Awareness ● Construction Skills and Techniques (AC1) ● CD2.b.8.h - Assess education and training opportunities to acquire new skills necessary for career advancement <p>Topics of Study</p> <ul style="list-style-type: none"> ● Construction Safety <ul style="list-style-type: none"> ○ Hand Tools and Power Tools ● Construction Math ● Measurement -- Fractional ● Building Site Layout ● Floor Framing and Wall Framing ● Electricity ● Drywall ● Career Exploration 	<p>Construction Skills 2 Gradebook standards</p> <ul style="list-style-type: none"> ● Standard EHS1: Safety and Environmental Awareness ● Construction Skills and Techniques (AC1) ● CD2.b.8.h - Assess education and training opportunities to acquire new skills necessary for career advancement <p>Topics of Study</p> <ul style="list-style-type: none"> ● Construction Safety <ul style="list-style-type: none"> ○ Hand Tools and Power Tools ● Measurement -- Fractional ● Concrete ● Masonry ● Windows and Doors ● Plumbing ● HVAC ● Career Exploration

<p>Video Engineering Gradebook standards</p> <ul style="list-style-type: none"> ● Standard GCA2: Students will access the benefits and challenges of working in diverse settings and on diverse teams. ● Standard IMT3: Students will use available information and communication technology to improve productivity, solve problems and create opportunities. ● Standard BB1: Students will analyze the core concepts of technology <p>Topics of Study</p> <ul style="list-style-type: none"> ● Mass Media ● Camera ● Editing ● Broadcasting ● AV Tech ● Production 	<p>Air Cooled Engines Gradebook standards</p> <ul style="list-style-type: none"> ● Safety and Environmental Awareness ● Critical Thinking ● Analyze and Explain Small Engine Systems ● Develop the Skill Set Necessary to Diagnose and Repair Small Engines <p>Topics of Study</p> <ul style="list-style-type: none"> ● Small Engine Operation ● Small Engine Safety ● Four Stroke Engines ● Two Stroke Engines ● Troubleshooting, Maintenance and Tune-Up of your own engine. 	<p>Auto 1 Gradebook standards</p> <ul style="list-style-type: none"> ● Safety and Environmental Awareness ● Critical Thinking ● Analyze and Explain Automotive Systems ● Develop the Skill Set Necessary to Diagnose and Repair Automobiles <p>Topics of Study</p> <ul style="list-style-type: none"> ● Safety, Lab Procedures ● Fasteners/Service Information ● Lubrication ● Engine Measurement ● Wheels & Tires ● Disk Brakes ● Drum Brakes ● Suspension ● Cooling System ● Wheel Alignment ● Electrical
<p>Auto 2 Gradebook standards</p> <ul style="list-style-type: none"> ● Safety and Environmental Awareness ● Critical Thinking ● Analyze and Explain Automotive Systems ● Develop the Skill Set Necessary to Diagnose and Repair Automobiles <p>Topics of Study</p> <ul style="list-style-type: none"> ● Auto Shop Safety ● Using Service Information ● Engine Mechanical Problems & Diagnosis ● Fasteners, Gaskets, Seals, & Sealants ● Tire, Wheel, and Wheel Bearing Service and Alignment ● Basic Electricity and Electronics Systems ● Battery Testing & Service ● Systems Testing & Repair (Suspension, Brake, Lighting & Accessory, Starting, Charging, Ignition, Emission Control) ● Performance Diagnostics & Tune-up ● Computer System, OBD, Service 	<p>Auto 3 Gradebook standards</p> <ul style="list-style-type: none"> ● Safety and Environmental Awareness ● Critical Thinking ● Analyze and Explain Automotive Systems ● Develop the Skill Set Necessary to Diagnose and Repair Automobiles <p>Topics of Study</p> <ul style="list-style-type: none"> ● Ignition System Problems, Testing & Repair ● Performance Diagnostics & Tune-up ● Emission Control Systems & Service ● Computer System, OBD, Service ● Automatic Drivelines ● Manual Drivelines ● Differentials and Final Drives ● Final Troubleshooting and Diagnostics 	<p>Consumer Home and Auto Gradebook standards</p> <ul style="list-style-type: none"> ● Standard EHS1: Safety and Environmental Awareness ● Construction Techniques and Skills ● Automotive Techniques and Skills <p>Topics of Study</p> <ul style="list-style-type: none"> ● Tool Usage and Safety ● General Home Construction ● Framing ● Electricity ● Drywall ● Painting ● Drywall Repair ● Auto Systems <ul style="list-style-type: none"> ○ Lubrication ○ Electrical ○ Cooling ● General Inspections ● Oil Change ● Wiper Blades ● Changing a tire ● Insurance ● Loans ● Vehicle Purchase
<p>Intro to Engineering Design Gradebook standards</p> <ul style="list-style-type: none"> ● Demonstrate Engineering Design (ENG2) ● Maintain technological products and systems (ENG5) ● Critical Thinking (4C1) ● Communicate and collaborate with Others (4C3) <p>Topics of Study</p> <p>Project Lead the Way based activities:</p> <ul style="list-style-type: none"> ● Design and Problem Solving ● Assembly Design - CAD Techniques ● Thoughtful Product Design ● Making Things Move - CAD Techniques 	<p>Principles of Engineering Gradebook standards</p> <ul style="list-style-type: none"> ● Demonstrate Engineering Design (ENG2) ● Maintain technological products and systems (ENG5) ● Critical Thinking (4C1) ● Communicate and collaborate with Others (4C3) <p>Topics of Study</p> <p>Project Lead the Way based activities:</p> <ul style="list-style-type: none"> ● Energy and Power ● Materials and Structures ● Control Systems - Robotics and Programming ● Statistics and Kinematics 	<p>Digital Electronics Gradebook standards</p> <ul style="list-style-type: none"> ● Demonstrate Engineering Design (ENG2) ● Maintain technological products and systems (ENG5) ● Critical Thinking (4C1) ● Communicate and collaborate with Others (4C3) <p>Topics of Study</p> <p>Project Lead the Way based activities:</p> <ul style="list-style-type: none"> ● Foundations in Electronics ● Combinational Logic ● Sequential Logic ● Controlling Real-World Systems

<p>PLTW: Civil and Architectural Engineering Gradebook standards</p> <ul style="list-style-type: none"> ● Demonstrate Engineering Design (ENG2) ● Maintain technological products and systems (ENG5) ● Critical Thinking (4C1) ● Communicate and collaborate with Others (4C3) <p>Topics of Study Project Lead the Way based activities:</p> <ul style="list-style-type: none"> ● Overview of Civil Engineering and Architecture ● Residential Design ● Commercial Applications ● Commercial Building Systems 	<p>Spartan Manufacturing Gradebook standards</p> <ul style="list-style-type: none"> ● Standard: 4C1 Students will think and work creatively to develop innovative solutions to problems and opportunities. ● Standard: 4C2: Students will formulate and defend judgments and decisions employing critical thinking skills. ● Standard EHS1: Safety and Environmental Awareness <p>Topics of Study</p> <ul style="list-style-type: none"> ● Product Development ● Material Science ● Prototyping ● Manufacturing ● Marketing ● Finance 	<p>Computer Science and Software Engineering Gradebook standards</p> <ul style="list-style-type: none"> ● CTES: Students will communicate and collaborate with others to accomplish tasks and develop solutions to problems and opportunities. ● 4C3.a: Communicate thoughts and feelings with others using verbal and non-verbal language. ● 4C3.b: Work collaboratively with others. ● 4C3.c: Use interpersonal skills to resolve conflicts with others in an ethical manner. <p>Topics of Study</p> <ul style="list-style-type: none"> ● Creative Computing for All ● Every Bit of the Internet ● Little Data to Big Data
--	--	---