



Course Name Home Maintenance & Materials Technology

Unit Title Electrical Systems

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer	
<p>3.6.12.C: Analyze physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.</p> <ul style="list-style-type: none"> · Apply knowledge of construction technology by designing, planning and applying all the necessary resources to successfully solve a construction problem. · Apply advanced information collection and communication techniques to successfully convey solutions to specific construction problems. · Analyze the positive and negative qualities of several different types of materials as they would relate to specific construction applications. <p>3.7.12.A: Apply advanced tools, materials and techniques to answer complex questions.</p>	<p><i>Students will be able to independently use their learning to...</i></p> <ul style="list-style-type: none"> ❑ Owning a house is perhaps the biggest investment a person will ever make. How do I protect that investment? 	
	Meaning	
	<p>UNDERSTANDINGS <i>Students will understand that...</i></p> <ul style="list-style-type: none"> ❑ The risk of injury can be greatly reduced by following procedures and using appropriate equipment ❑ Current technology and standards increase our chances of being safe and efficient ❑ Schematics, instructions, and procedures exist to do electrical work safely 	<p>ESSENTIAL QUESTIONS <i>Students will keep considering...</i></p> <ul style="list-style-type: none"> ❑ What can go wrong with my electrical system? ❑ How do I fix the electrical system safely? ❑ How are household features connected to the electrical system? ❑ What are the costs associated with electricity?
Acquisition		
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> ❑ Efficiency of various light fixtures. ❑ Placement planning of switches, outlets and fixtures in a particular room. ❑ Which tools to use for various tasks. ❑ What the electrical codes are and how to meet them. 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> ❑ Identify power supply ❑ Replace outlets and switches ❑ Installing dimmer switches ❑ Installing light fixtures and ceiling fans ❑ Identifying circuit types ❑ Reading volts, amps, and ohms using a multimeter 	

<ul style="list-style-type: none"> · Demonstrate the safe use of complex tools and machines within their specifications. · Select and safely apply appropriate tools, materials and processes necessary to solve complex problems that could result in more than one solution. · Evaluate and use technological resources to solve complex multistep problems. <p>3.8.12.B: Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.</p> <ul style="list-style-type: none"> · Apply appropriate tools, materials and processes to solve complex problems. · Use knowledge of human abilities to design or modify technologies that extend and enhance human abilities. · Apply appropriate tools, materials and processes to physical, informational or biotechnological systems to identify and recommend solutions to international problems. 	<ul style="list-style-type: none"> ❑ What are the troubleshooting protocols for a malfunctioning circuit. ❑ Multimeter reading basics 	<ul style="list-style-type: none"> ❑ Reading a wiring guide for store-bought fixtures ❑ Safely use a hammer, plyers, wire cutter, wire stripper, screw driver, utility knife, and Ohm meter
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<h2 style="text-align: center;">STAGE 2 EVIDENCE</h2>	
<p style="text-align: center;">The assessment should include authentic tasks based on one or more facets of understanding and are aligned with Stage 1</p>	
<p>Performance Task(s): <i>Please provide a description in the space below or include a link to the performance task</i></p>	<p>The performance task specifically provides evidence of (Transfer, EU, EQ):</p>
<p>Tool identification & purpose Safety regulations Electrical code Wiring schematics Troubleshooting</p>	<p>Goal: Students will understand the basics of electrical wiring in a residential setting.</p> <p>Role: The student's role is that of a homeowner providing upgrades and repairs to an electrical system in a residential structure.</p>

Fixtures, loads and switches	Audience: The homeowner/student. Situation: Students will learn how to repair and upgrade the electrical system of a residential structure. Product: A repaired and upgraded electrical system in a residential structure.
Safety Test	E.U. #1, E.Q. #2
Wall wiring lab	E.U. #1, E.U. #3, E.Q. #1, E.Q. #2, meter reading
Energy Audit for cost reduction/ROI	E.U. #2, E.Q. #4, E.Q. #3
Troubleshooting Scenario: Students must identify procedure to fix circuit.	Malfunctioning circuit
PA Power Switch Audit: Simple, basic way for them to compare/contrast costs of electricity	
Wall and Ceiling Lab	Ceiling fan, lighting fixtures?
Other Assessment Evidence	
A series of performed skills to demonstrate competency.	
Common Assessment(s), if any:	
<i>Note: This is not mandatory. If there are common assessments given by every teacher teaching the course, please list them below.</i>	

STAGE 3 | LEARNING PLAN
Summary of Key Learning Events and Instruction



Course Name Home Maintenance & Materials Technology

Unit Title Plumbing

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer	
<p>3.6.12.C: Analyze physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.</p> <ul style="list-style-type: none"> · Apply knowledge of construction technology by designing, planning and applying all the necessary resources to successfully solve a construction problem. · Apply advanced information collection and communication techniques to successfully convey solutions to specific construction problems. · Analyze the positive and negative qualities of several different types of materials as they would relate to specific construction applications. <p>3.7.12.A: Apply advanced tools, materials and techniques to answer complex questions.</p> <ul style="list-style-type: none"> · Demonstrate the safe use of complex tools and machines within 	<p><i>Students will be able to independently use their learning to...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Owning a house is perhaps the biggest investment a person will ever make. How do I protect that investment? 	
	Meaning	
	<p>UNDERSTANDINGS <i>Students will understand that...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> The risk of injury can be greatly reduced by following procedures and using appropriate equipment. <input type="checkbox"/> Clean, safe, hygienic water is a product of proper plumbing <input type="checkbox"/> Water usage can be more efficient with innovative plumbing <input type="checkbox"/> Schematics, instructions, and procedures exist to do plumbing work safely <input type="checkbox"/> Plumbing not only serves a functional purpose 	<p>ESSENTIAL QUESTIONS <i>Students will keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> What can go wrong with my plumbing system? <input type="checkbox"/> How do I fix the plumbing system safely? <input type="checkbox"/> How does water come in and go out of my house? <input type="checkbox"/> How does plumbing affect the value of my house?
Acquisition		
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Plumbing codes and what it takes to meet them <input type="checkbox"/> Materials are compatible with the existing plumbing in my house 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Identifying water supply, drainage, waste, and venting <input type="checkbox"/> Connecting piping and copper PVC 	

<p>their specifications.</p> <ul style="list-style-type: none"> · Select and safely apply appropriate tools, materials and processes necessary to solve complex problems that could result in more than one solution. · Evaluate and use technological resources to solve complex multistep problems. <p>3.8.12.B: Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.</p> <ul style="list-style-type: none"> · Apply appropriate tools, materials and processes to solve complex problems. · Use knowledge of human abilities to design or modify technologies that extend and enhance human abilities. · Apply appropriate tools, materials and processes to physical, informational or biotechnological systems to identify and recommend solutions to international problems. 	<ul style="list-style-type: none"> ❑ Different types of fixtures ❑ Location to turn off water supply 	<ul style="list-style-type: none"> ❑ Install fixtures, faucets, toilets, and garbage disposal ❑ Repairing fixtures, faucets, toilets, and garbage disposal ❑ Safely use a miter saw, hole saw, power drill, drill bits, torch, pipe cutter, deburr tool, adjustable wrench, and pipe wrench
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<h2 style="text-align: center;">STAGE 2 EVIDENCE</h2>	
<p style="text-align: center;">The assessment should include authentic tasks based on one or more facets of understanding and are aligned with Stage 1</p>	
<p>Performance Task(s): <i>Please provide a description in the space below or include a link to the performance task</i></p>	<p>The performance task specifically provides evidence of (Transfer, EU, EQ):</p>
<p>Tool identification & purpose Safety regulations Plumbing code Plumbing diagram Troubleshooting pipes, fixtures and valves.</p>	<p>Goal: Students will understand the basics of plumbing in a residential setting.</p> <p>Role: The student's role is that of a homeowner providing upgrades and repairs to a plumbing system in a residential structure.</p> <p>Audience: The homeowner/student.</p>

<p>Safety Test Wall and floor plumbing lab Troubleshooting Scenario: Students must identify procedures to fix plumbing.</p>	<p>Situation: Students will learn how to repair and upgrade the plumbing system of a residential structure.</p> <p>Product: A repaired and upgraded plumbing system in a residential structure.</p> <p>E.U. #1, E.Q. #2</p> <p>E.U. #1, E.U. #3, E.Q. #1, E.Q. #2</p> <p>Malfunctioning plumbing lines.</p>
<p>Other Assessment Evidence</p>	
<p>Common Assessment(s), if any: <i>Note: This is not mandatory. If there are common assessments given by every teacher teaching the course, please list them below.</i></p>	

STAGE 3 | LEARNING PLAN
Summary of Key Learning Events and Instruction



Course Name Home Maintenance & Materials Technology

Unit Title Construction

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer	
<p>3.6.12.C: Analyze physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.</p> <ul style="list-style-type: none"> · Apply knowledge of construction technology by designing, planning and applying all the necessary resources to successfully solve a construction problem. · Apply advanced information collection and communication techniques to successfully convey solutions to specific construction problems. · Analyze the positive and negative qualities of several different types of materials as they would relate to specific construction applications. <p>3.7.12.A: Apply advanced tools, materials and techniques to answer complex questions.</p> <ul style="list-style-type: none"> · Demonstrate the safe use of complex tools and machines within 	<p><i>Students will be able to independently use their learning to...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Owning a house is perhaps the biggest investment a person will ever make. How do I protect that investment? <input type="checkbox"/> 	
	Meaning	
	<p>UNDERSTANDINGS <i>Students will understand that...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> The risk of injury can be greatly reduced by following procedures and using appropriate equipment. <input type="checkbox"/> Construction is influenced by economics, environment, and resources <input type="checkbox"/> Knowing the function of various tools you have to work with improves the quality of work <input type="checkbox"/> Construction is artistic and structural <input type="checkbox"/> Innovative construction can increase efficiency 	<p>ESSENTIAL QUESTIONS <i>Students will keep considering...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> What can go wrong with the construction of my dwelling, garage, shed? <input type="checkbox"/> How do I improve and maintain a structure safely? <input type="checkbox"/> How do the major systems of a house work together? <input type="checkbox"/> What does good construction look like? <input type="checkbox"/> Why does quality construction matter? <input type="checkbox"/> How do I use construction tools safely? <input type="checkbox"/> How is construction related to air/water flow?
Acquisition		
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Local building codes <input type="checkbox"/> Different types and applications 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Constructing floor framing <input type="checkbox"/> Building and repairing walls and 	

<p>their specifications.</p> <ul style="list-style-type: none"> · Select and safely apply appropriate tools, materials and processes necessary to solve complex problems that could result in more than one solution. · Evaluate and use technological resources to solve complex multistep problems. <p>3.8.12.B: Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.</p> <ul style="list-style-type: none"> · Apply appropriate tools, materials and processes to solve complex problems. · Use knowledge of human abilities to design or modify technologies that extend and enhance human abilities. · Apply appropriate tools, materials and processes to physical, informational or biotechnological systems to identify and recommend solutions to international problems. 	<p>of lumber</p>	<p>ceilings</p> <ul style="list-style-type: none"> <input type="checkbox"/> Installing doors and building trim <input type="checkbox"/> Painting and staining techniques <input type="checkbox"/> Constructing stairs <input type="checkbox"/> Installing windows <input type="checkbox"/> Constructing decks <input type="checkbox"/> Insulating a house <input type="checkbox"/> Maintaining HVAC systems <input type="checkbox"/> Demonstrate measurement of designated objects <input type="checkbox"/> Safely use safety glasses, ear protection, table saw, miter saw, jointer, planer, drill press, belt sander, cordless drill, drill bits, hammer, biscuit joiner, scroll saw, tape measure, level, carpenters, combination square, rafter square, flat/phillip screwdriver, bar clamp, adhesive, finish nail gun, brad gun, air compressor, heavy-duty extension cord, 6", 12", 18" spatula, drywall corner tool, 48" straightedge, drywall T-square
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<h2 style="text-align: center;">STAGE 2 EVIDENCE</h2>	
<p style="text-align: center;">The assessment should include authentic tasks based on one or more facets of understanding and are aligned with Stage 1</p>	
<p>Performance Task(s): <i>Please provide a description in the space below or include a link to the performance task</i></p>	<p>The performance task specifically provides evidence of (Transfer, EU, EQ):</p>
<p>Tool identification & purpose Safety regulations Building code Blueprints schematics Troubleshooting Framing, exterior finish work, interior finish work.</p>	<p>Goal: Students will understand the basics of upgrades and repairs in a residential setting.</p> <p>Role: The student's role is that of a homeowner providing upgrades and repairs to a residential structure.</p> <p>Audience: The homeowner/student.</p> <p>Situation: Students will learn how to repair and upgrade a</p>

Safety test Basic wall construction lab Floor installation Kitchen/bathroom Exterior home inspection	residential structure. Product: A repaired and upgraded residential structure. E.U. #1, E.Q. #2 E.U. #1, E.U. #3, E.Q. #1, E.Q. #2 E.U. #1, E.U. #3, E.Q. #1, E.Q. #2 E.U. #5, E.Q. #2, E.Q. #4
Other Assessment Evidence	
Common Assessment(s), if any:	
<i>Note: This is not mandatory. If there are common assessments given by every teacher teaching the course, please list them below.</i>	

STAGE 3 | LEARNING PLAN
Summary of Key Learning Events and Instruction



Course Name Home Maintenance & Materials Technology

Unit Title Landscaping

STAGE 1 | DESIRED RESULTS

Context and relevance for student learning

Standards	Transfer	
<p>3.6.12.C: Analyze physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.</p> <ul style="list-style-type: none"> · Apply knowledge of construction technology by designing, planning and applying all the necessary resources to successfully solve a construction problem. · Apply advanced information collection and communication techniques to successfully convey solutions to specific construction problems. · Analyze the positive and negative qualities of several different types of materials as they would relate to specific construction applications. <p>3.7.12.A: Apply advanced tools, materials and techniques to answer complex questions.</p>	<p><i>Students will be able to independently use their learning to...</i></p> <ul style="list-style-type: none"> ❑ Owning a house is perhaps the biggest investment a person will ever make. How do I protect that investment? 	
	Meaning	
	<p>UNDERSTANDINGS <i>Students will understand that...</i></p> <ul style="list-style-type: none"> ❑ The risk of injury can be greatly reduced by following procedures and using appropriate equipment ❑ Water is essential to landscaping, but also an enemy to our homes ❑ Landscape design is influenced by many factors ❑ certain types of plants are compatible with our climate zone ❑ specific planting techniques and planting locations are better for plant sustainability 	<p>ESSENTIAL QUESTIONS <i>Students will keep considering...</i></p> <ul style="list-style-type: none"> ❑ How does the landscape influence building designs? ❑ How should I design landscaping to protect my house? ❑ How does landscaping affect the value of my house? ❑ What is the difference between artistic design and engineering design?
Acquisition		
<p><i>Students will know...</i></p> <ul style="list-style-type: none"> ❑ Regulations in regard to fertilization ❑ Proper drainage patterns ❑ Compatible plants with our climate 	<p><i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> ❑ Maintaining a lawn ❑ Planting beds/gardens ❑ Maintaining landscaping tools ❑ Edging beds ❑ Safely use a grinder, electric weed 	

<ul style="list-style-type: none"> · Demonstrate the safe use of complex tools and machines within their specifications. · Select and safely apply appropriate tools, materials and processes necessary to solve complex problems that could result in more than one solution. · Evaluate and use technological resources to solve complex multistep problems. <p>3.8.12.B: Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.</p> <ul style="list-style-type: none"> · Apply appropriate tools, materials and processes to solve complex problems. · Use knowledge of human abilities to design or modify technologies that extend and enhance human abilities. · Apply appropriate tools, materials and processes to physical, informational or biotechnological systems to identify and recommend solutions to international problems. 	<ul style="list-style-type: none"> ❑ Differences between two-cycle and four-cycle engines ❑ Tools and their applications for landscaping work 	<p>eater, edger, shovel, hand shovel, spade, wrench, pruners, rake, gloves, hose</p>
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STAGE 2 EVIDENCE	
The assessment should include authentic tasks based on one or more facets of understanding and are aligned with Stage 1	
Performance Task(s): <i>Please provide a description in the space below or include a link to the performance task</i>	The performance task specifically provides evidence of (Transfer, EU, EQ):
Tool identification & purpose Safety regulations General landscaping code Following landscaping/hardscaping plans. Drainage considerations.	Goal: Students will understand the basics of maintaining and upgrading landscaping and hardscaping in a residential setting. Role: The student's role is that of a homeowner providing maintenance and upgrades to a residential landscape.

<p>Setbacks.</p> <p>Safety Lawn, shrub, tree, garden maintenance</p> <p>Landscape equipment and tools maintenance Landscape design and layout</p> <p>Proper planting</p>	<p>Audience: The homeowner/student.</p> <p>Situation: Students will learn how to maintain and upgrade the exterior grounds of a residential dwelling.</p> <p>Product: A properly maintained and upgraded landscape of a residential dwelling.</p> <p>E.U. #1</p> <p>E.U. #1, E.U. #2, E.U. #4, E.U. #5,</p> <p>E.U. #1</p> <p>E.U. #3, E.U. #4, E.U. #5, E.Q. #1-4</p> <p>E.U. #5</p>
<p>Other Assessment Evidence</p>	
<p>Common Assessment(s), if any: <i>Note: This is not mandatory. If there are common assessments given by every teacher teaching the course, please list them below.</i></p>	

STAGE 3 | LEARNING PLAN
Summary of Key Learning Events and Instruction