

Unit 10 Roofing

Content Area: **Industrial Technology**
Course(s): **Construction Technology I**
Time Period: **4th Marking Period**
Length: **Weeks**
Status: **Published**

Unit Overview

Students will build a roofing system that is ground level with roof rafters, sheathing, tar paper and three tab shingles.

Transfer

Students will be able to independently use their learning to...

Install a new roof or repair it on their home or select a career in the Roofing Industry

For more information, read the following article by Grant Wiggins.

http://www.authenticeducation.org/ae_bigideas/article.lasso?artid=60

Meaning

Students can save money by installing or repairing the roof on their home.

Understandings

Students will understand that...

Roofing is a very dangerous job do to the heights that are involved.

Ladder and Roofing Safety when applying or repairing a roof

How a roof frame is constructed and sheathing is applied.

The purpose of tar paper and frost barrier.

The correct method for installing three tab shingles.

Essential Questions

Students will keep considering...

-What causes a roofing system on a residential home to fail?

How can I save money doing a new roof or roof repairs?

When I'm purchasing a home in the future does the roof need repair?

Application of Knowledge and Skill

Student will be able to install and make repairs to a roof system.

Students will know...

Students will know...

The different types of framing methods of a roofing system is it stick built or trussed.

The Lumber size selection for stick roof framing to maintain the load of the roof.

The Importance of keeping water from reaching the lumber causing wood to disintegrate.

Thw Importance of safety when working from heights.

How to set up a ladder correctly.

How to install ice dam materials and tar paper felt correctly.

How to install three tab shingles correctly.

Students will be skilled at...

Students will be skilled at...

Framing methods of a roofing system.

Lumber size selection for stick roof framing to maintain the load of the roof.

Proper roof sheathing selection and installation.

Safety measures when working from heights.

Setting up a ladder correctly and safely.

Installation of ice dam materials and tar paper felt correctly.

Installation three tab shingles correctly.

Academic Vocabulary

Load, Rafter, Ridge, Sheathing

Learning Goal 1

Types of Wood Framing of a Roofing System.

9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.
9.3.12.AC.2	Use architecture and construction skills to create and manage a project.
9.3.12.AC.3	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
9.3.12.AC.4	Evaluate the nature and scope of the Architecture & Construction Career Cluster and the role of architecture and construction in society and the economy.

9.3.12.AC.5	Describe the roles, responsibilities, and relationships found in the architecture and construction trades and professions, including labor/management relationships.
9.3.12.AC.6	Read, interpret and use technical drawings, documents and specifications to plan a project.
9.3.12.AC.7	Describe career opportunities and means to achieve those opportunities in each of the Architecture & Construction Career Pathways.
9.3.12.AC-CST	Construction
9.3.12.AC-CST.1	Describe contractual relationships between all parties involved in the building process.
9.3.12.AC-CST.2	Describe the approval procedures required for successful completion of a construction project.
9.3.12.AC-CST.4	Apply scheduling practices to ensure the successful completion of a construction project.
9.3.12.AC-CST.5	Apply practices and procedures required to maintain jobsite safety.
9.3.12.AC-CST.7	Compare and contrast the building systems and components required for a construction project.
9.3.12.AC-CST.8	Demonstrate the construction crafts required for each phase of a construction project.
9.3.12.AC-CST.9	Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.
9.3.12.AC-DES.1	Justify design solutions through the use of research documentation and analysis of data.

Target 1

SWBAT differentiate what a stick framed roofing system and a truss roofing system looks like.

Target 2

SWBAT to build in groups a ground level stick built framed roofing system with sheathing.

Learning Goal 2

Installation of a 3 tab shingled roof.

9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.
9.3.12.AC.2	Use architecture and construction skills to create and manage a project.
9.3.12.AC.3	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
9.3.12.AC.4	Evaluate the nature and scope of the Architecture & Construction Career Cluster and the

	role of architecture and construction in society and the economy.
9.3.12.AC.5	Describe the roles, responsibilities, and relationships found in the architecture and construction trades and professions, including labor/management relationships.
9.3.12.AC.6	Read, interpret and use technical drawings, documents and specifications to plan a project.
9.3.12.AC.7	Describe career opportunities and means to achieve those opportunities in each of the Architecture & Construction Career Pathways.
9.3.12.AC-CST.1	Describe contractual relationships between all parties involved in the building process.
9.3.12.AC-CST.2	Describe the approval procedures required for successful completion of a construction project.
9.3.12.AC-CST.3	Implement testing and inspection procedures to ensure successful completion of a construction project.
9.3.12.AC-CST.4	Apply scheduling practices to ensure the successful completion of a construction project.
9.3.12.AC-CST.5	Apply practices and procedures required to maintain jobsite safety.
9.3.12.AC-CST.9	Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.
9.3.12.AC-DES.4	Apply building codes, laws and rules in the project design.
9.3.12.AC-DES.6	Apply the techniques and skills of modern drafting, design, engineering and construction to projects.
9.3.12.AC-DES.8	Apply standards, applications and restrictions pertaining to the selection and use of construction materials, components and assemblies in the project design.

Target 1

SWBAT apply ice dam and tar paper roofing felt to framed roof system.

Learning Goal 3

Select all applicable standards from the Standards tab.

Be sure to include the Anchor Standards for ELA, the Practice Standards for Math, the English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects, and the applicable Technology standards.

Target 1

Target 2

Target 3

Summative Assessment

21st Century Life and Careers

Select all applicable standards from the applicable standards

CAEP.9.2.12.C.1	Review career goals and determine steps necessary for attainment.
CAEP.9.2.12.C.2	Modify Personalized Student Learning Plans to support declared career goals.
CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.
CAEP.9.2.12.C.4	Analyze how economic conditions and societal changes influence employment trends and future education.
CAEP.9.2.12.C.5	Research career opportunities in the United States and abroad that require knowledge of world languages and diverse cultures.
CAEP.9.2.12.C.6	Investigate entrepreneurship opportunities as options for career planning and identify the knowledge, skills, abilities, and resources required for owning and managing a business.
CAEP.9.2.12.C.7	Examine the professional, legal, and ethical responsibilities for both employers and employees in the global workplace.

Formative Assessment and Performance Opportunities

Students will be able to pass a written test on identification of roofing systems.

Students will be able to pass a written test on installation of roofing shingles.

Accommodations/Modifications

Students with Accommodations/Modifications can be assisted by other students that have already completed the task.

Students that fail a test may retest or take the test with a Special needs teacher.

Unit Resources

You tube video and online tests related to roofing.

Interdisciplinary Connections
