

# Unit 6 Framing Project Advanced

Content Area: **Industrial Technology**  
Course(s): **Construction Technology II**  
Time Period: **2 marking periods**  
Length: **Weeks**  
Status: **Published**

## Unit Overview

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Students will be able to Frame floor and walls then apply plywood sheathing.

## Transfer

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

Students will have th skills to build their own sheds or create an entrepreneurship to sell them.

Students will develop skills if the want to further their education in th Building or Construction Field to build residences.

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

[http://www.authenticeducation.org/ae\\_bigideas/article.lasso?artid=60](http://www.authenticeducation.org/ae_bigideas/article.lasso?artid=60)

## Meaning

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Students will apply the skills that have been acquired to Frame a shed and explore the possibility of building them on their own to sell them.

## Understandings

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Students will understand that...

How Framing is done to construct and sheath a floor.

How to Frame a stud wall with a Door and Window.

### **Essential Questions**

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Students will keep considering...

-What is the importance of laying out and framing a floor properly?

Why is it important to place sheathing for floor correctly?

Why should wall framing be 16" on center?

Why would I have to add extra framing members when installing a door or a window?

How do I tie walls together to create a framed wall?

### **Application of Knowledge and Skill**

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Students will apply their Knowledge and skills to construct a shed.

### **Students will know...**

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Students will know...

The proper distance for floor joists and box headers.

The proper method to attach floor joists to box header.

The proper distance for studs and installation methods.

How to frame a window and a door rough opening.

How to tie walls together.

### **Students will be skilled at...**

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Students will be skilled at...

Correct Layout of the floor and walls working with the measurements provided in the plan.

Correct installation of Floor joists and Framing studs.

Correct installation of a Rough Window and Door opening.

Making sure the floor is square and stud the walls are plumb.

### **Academic Vocabulary**

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Stud, Joist, Header, Tie, Square, Plumb.

### **Learning Goal 1**

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How to Frame a shed floor and apply floor sheathing.

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|-----------------|---|
| 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.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.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.5 | Apply practices and procedures required to maintain jobsite safety.  |
| 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.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**

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SWBAT layout flooring system and cut floor joist and box header to proper sizes.

## **Target 2**

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SWBAT attach floor joists to box headers and check for squareness, then attach floor sheathing.

## **Learning Goal 2**

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How to Frame a wall and install.

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|-----------------|--|
| 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.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.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.

### **Target 1**

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SWBAT layout and build framed walls including a window and door rough opening and insstall walls making sure they're plumb and square.

### **Target 2**

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SWBAT apply plywood exterior sheathing to framed walls.

### **Learning Goal 3**

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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**

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### **Target 2**

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### **Target 3**

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### **Formative Assessment and Performance Opportunities**

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Students will be graded on Construction Techniques and Aesthetics of shed by observation of the instructor.

Students will be graded daily on Shed Framing Project by instructor observation in a weekly work grade sheet.

## **Summative Assessment**

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Students will be graded on written tests in Google Classroom on Framing Identification.

## **Accommodations/Modifications**

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Students with Accommodations/Modifications can have other students that have completed the task assist them in framing.

Students with Accommodations/Modifications that have failed the test may retake the test or retake the test with the aid of a Special Needs Teacher.

## **Unit Resources**

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Online Shed Plans.

Online Youtube videos related to Framing.

Online tests posted in Google Classroom.

## **21st Century Life and Careers**

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Select all applicable standards from the applicable standards

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|-----------------|---|
| 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.6 | Investigate entrepreneurship opportunities as options for career planning and identify the knowledge, skills, abilities, and resources required for owning and managing a business. |

## Interdisciplinary Connections

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|-------------------|---|
| MA.K-12.1         | Make sense of problems and persevere in solving them.   |
| MA.K-12.2         | Reason abstractly and quantitatively.   |
| MA.K-12.4         | Model with mathematics.   |
| MA.K-12.5         | Use appropriate tools strategically.  |
| SCI.HS-ETS1-2     | Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.  |
| SCI.HS-ETS1-1     | Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.  |
| SCI.HS-ETS1-3     | Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.   |
| SCI.HS-ETS1       | Engineering Design  |
| SCI.HS-ETS1-4     | Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.  |
| TECH.8.1.12       | Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.  |
| TECH.8.1.12.A     | Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.  |
| TECH.8.1.12.A.1   | Create a personal digital portfolio which reflects personal and academic interests, achievements, and career aspirations by using a variety of digital tools and resources.   |
| TECH.8.1.12.A.2   | Produce and edit a multi-page digital document for a commercial or professional audience and present it to peers and/or professionals in that related area for review.  |
| TECH.8.1.12.A.3   | Collaborate in online courses, learning communities, social networks or virtual worlds to discuss a resolution to a problem or issue.   |
| TECH.8.1.12.A.CS1 | Understand and use technology systems.  |
| TECH.8.1.12.A.CS2 | Select and use applications effectively and productively.   |
| TECH.8.1.12.B     | Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.  |
| TECH.8.1.12.C     | Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.   |
| TECH.8.1.12.D     | Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.  |
|                   | Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing |

calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.