

Installation: Framing

Media Type: Video
Duration: 85 minutes

Goal: To demonstrate the process of installing wall, ceiling and roof framing, decking and framing members.

Description: This presentation discusses tools and materials needed to install framing, as well as safety precautions to be aware of when installing framing. The step-by-step process of installing framing members, wall, ceiling and roof framing and decking is explored in detail.

Objectives:

1. To discuss tools and materials needed for framing installation.
2. To describe safety precautions relevant to framing installation.
3. To demonstrate the installation of wall, ceiling and roof framing.
4. To demonstrate the of decking and framing member buildup.



College & Career Readiness Anchor Standards for Writing

Writing Standards	
Text Types & Purposes	Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
	<i>9-12.2</i> Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
Production & Distribution of Writing	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
	<i>9-10.4</i> Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
Research to Build & Present Knowledge	Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
	Draw evidence from literary or informational texts to support analysis, reflection, and research.
	<i>9-10.8</i> Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
	<i>11-12.8</i> Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
	<i>9-12.9</i> Draw evidence from literary or informational texts to support analysis, reflection, and research.

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College & Career Readiness Anchor Standards for Speaking and Listening

Speaking & Listening Standards

Comprehension & Collaboration	Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.	
	Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.	
	9-12.1	Initiate and participate effectively in a range of collaborative discussions with diverse partners on grades 9–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
	9-10.2	Integrate multiple sources of information presented in diverse media or formats evaluating the credibility and accuracy of each source.
	11-12.2	Integrate multiple sources of information presented in diverse formats and media in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
Presentation of Knowledge & Ideas	Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.	
	Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.	
	9-10.4	Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
	11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
	11-12.5	Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.


Architecture & Construction Career Cluster (AC)

Cluster	Standard
	Use vocabulary, symbols and formulas common to architecture and construction.
	Use architecture and construction skills to create and manage a project.
	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
Construction Career Pathway (AC-CST)	Apply practices and procedures required to maintain jobsite safety.
	Compare and contrast the building systems and components required for a construction project.
	Demonstrate the construction crafts required for each phase of a construction project.
	Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.


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Lesson Plan

 **Class 1:** Begin class by passing out the *Installation: Framing Vocabulary Handout* and *Worksheet*. Instruct students to fill out the worksheet as they watch the presentation. Show the *Installation: Framing Introduction* and the *Lumber Basics* segments.


Video
12 min.

 **Class 2:** Remind students to continue filling out their *Worksheet*. Show the *Tools & Materials* and *Estimating Materials* segments. Allow the remainder of the class period for students to complete the *Estimating Framing Materials* and *Tool & Materials ID Activities*.


Video
8 min.

 **Class 3:** Remind students to continue using the *Vocabulary Handout*. Show the *Framing Member Buildup* and *Installation Wall Framing* segments. Instruct students to begin the *Installing Framing Project*.


Video
18 min.

 **Class 4:** Remind students to continue filling out their *Worksheet*. Show the *Ceiling Framing* and *Roof Framing Part 1* segments. Have students complete the *Estimating Roof Framing Materials Activity*. If student licenses have been purchased, an interactive version of this Activity is available in the “Interactive Activities” section. Instruct students to continue working on the *Installing Framing Project*. Have students complete the *Framing & Roofing Identification* and *Roof Framing Terminology Activities* for homework. If student licenses have been purchased, interactive versions of these Activities are available in the “Interactive Activities” section.

Video
18 min.

 **Class 5:** Show the *Roof Framing Part 2* segment. Have students complete the *List of Procedures and Roof Layout Activities*. Instruct students to continue working on the *Installing Framing Project*. Assign the *Sheathing Activity* for homework.

Video
26 min.

 **Class 6:** Instruct students to complete their *Worksheet*. Show the *Decking* segment. Instruct students to continue working on the *Installing Framing Project* and distribute the *Trusses Project*.

Video
3 min.

Class 7: Allow students to work on their *Activities* and *Projects* for the entire class period.

Class 8: Instruct students to complete their *Activities* and *Projects*. Have students complete the *Installation: Framing Assessment*.

Lesson Links

Do it Yourself: House Framing

- <http://www.doityourself.com/stry/about-house-framing>

Do it Yourself Advice: Framing Basics

- <http://www.diyadvice.com/diy/drywall/framing/>

Career & Technical Student Organizations

SkillsUSA

- Job Skill Demonstration A
- Job Skill Demonstration Open

Career Connections

Using the *Career Connections Activity*, allow students to explore the various careers associated with this lesson. See the *Activity* for more details. *If student licenses have been purchased:* Students will select the interviews to watch based on your directions. *If only a teacher license is purchased:* Show students all the career interviews and instruct them to only complete the interview form for the required number of interviews.

- iCEV50393, Lee Lewis, CEO, Lee Lewis Construction
- iCEV50366, John Brown, Construction Laborer, McDougal Companies

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Lab Activities

Tool & Material ID

Directions:

Students will list the tools and materials needed when installing framing. Students must provide the name of each, as well as the task or function for which it will be used. Also, they must include any safety concerns regarding use of the tool or material. After students complete the *Activity*, provide the correct answers with the *Answer Key*.

Estimating Framing Materials

Directions:

Divide students into groups of three or four. Each group must utilize the methods describe in the presentation to estimate the following for the home on the plan provided: estimate the linear footage of plate material you will need; estimate the number of studs needed (be sure to add enough material to build up all framing members); determine the amount of each framing member to be constructed (i.e. tees, corners, trimmers, headers) and estimate the amount of sheathing needed to cover the outside of the house on the plan provided. After students complete the *Activity*, provide the correct answers with the *Answer Key*.

Estimating Roof Framing Materials

Directions:

Students will follow the directions provided on the *Activity* to estimate roof framing materials. After students complete the *Activity*, provide the correct answers with the *Answer Key*. If student licenses have been purchased, an interactive version of this *Activity* is available in the “Interactive Activities” section.

Framing & Roofing Identification

Directions:

Students will use the word bank provided for the framing member model and the flat roof layout to match the correct words and letters. After students complete the *Activity*, provide the correct answers with the *Answer Key*. If student licenses have been purchased, an interactive version of this *Activity* is available in the “Interactive Activities” section.

List of Procedures

Directions:

Divide students into groups of three or four. Each group must research and describe the procedure for layout out a wood frame wall and exterior wall and they must include the following: installation of plates, corners, door openings, window openings, partition T's, bracings, firestops and assembling and erecting an exterior wall. After completing their research, students must create a list which describes the procedures and cite all sources used.

Sheathing

Directions:

Students will research and identify common materials and methods used for installing sheathing on walls and in roof construction. Also, they must research local building codes and standards for sheathing in their state. Students must cite all sources used.

Roof Layout

Directions:

Students will follow the directions provided on the *Activity* to sketch different types of roof layouts. After students complete the *Activity*, provide the correct answers with the *Answer Key*.

Roof Framing Terminology

Directions:

Students will fill in the blanks with the correct definition or term. After students complete the *Activity*, provide the correct answers with the *Answer Key*. If student licenses have been purchased, an interactive version of this *Activity* is available in the “Interactive Activities” section.

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Project

Installing Framing

Directions:

Students will follow the process for installing framing as outlined in the presentation. Depending on the school's resources, this may be done in an actual building, a full size mock-up, or a miniature mock-up. Make sure students follow all steps and safety procedures while performing all work adequately. See the *Installing Framing Teacher Instruction Sheet* for more information.

Trusses

Directions:

Students will research and identify how trusses are used to erect a gable roof. Also, students must include the definition of trusses and explain how they are used and why they are important. After completing their research, students must create an illustration by hand or a computer generated graphic which shows how trusses are used to erect a gable roof. Additionally, students must write a one page paper on the information they found and cite all sources used.