

# Intermediate Carpentry -MP 1-2

Content Area: **CTE**  
Course(s): **Building and Construction: Building Technology**  
Time Period: **September**  
Length: **Marking Period -1**  
Status: **Published**

## Unit Overview & Pacing Outline

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In this unit of study, students will explore the use of hand tools and become acimated to their applications in and around the home.

- Personal and lab safety will be emphasized as various tools are introduced into lab sessions.
- Students will engage in career research relative to this unit of study.
- Environmentally friendly themes are discussed in this unit.

## Topics & Pacing:

### Preparing to Build

1. The Carpenter's Workplace
2. Safety
3. Building Materials
4. Hand Tools
5. Power Tools
6. Scaffolds, Ladders, and Rigging
7. Plans, Specifications, and Codes
8. Building Layout

### Foundations and Framing

9. Footings and Foundations
10. Floor Framing
11. Wall and Ceiling Framing
12. Roof Framing
13. Framing with Steel

### Closing In

14. Roofing Materials and Methods
15. Windows and Exterior Doors
16. Exterior Wall Finish

### Finishing

17. Thermal and Sound Insulation
18. Interior Wall and Ceiling Finish
19. Finish Flooring
20. Stair Construction
21. Doors and Interior Trim
22. Cabinetry
23. Painting, Finishing, and Decorating

### Special Construction

24. Chimneys and Fireplaces
25. Post-and-Beam Construction
26. Systems-Built Housing
27. Green Building and Certification Programs
28. Remodeling, Renovating, and Repairing
29. Building Decks and Porches

### Mechanical Systems

30. Electrical Wiring
31. Plumbing Systems
32. Heating, Ventilation, and Air Conditioning

## Enduring Understandings

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Through the delivery of the unit outlined above, students will understand:

- the contractual relationships between all parties involved in the building process.
- scheduling practices which ensure the successful completion of a construction project.
- the importance of maintaining jobsite safety.

- how to safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.
- troubleshooting procedures when solving a maintenance problem in buildings.
- the importance of preventative maintenance activities to service existing buildings.

## **Essential Questions & Skills**

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What are the safety concerns to be considered when working in a lab setting in school or on the job?

What protection can be used in a laboratory environment? What should be part of an effective safety program?  
What characteristics are essential to a functional team?

What are the benefits of working in a team environment as opposed to individually?

Why is planning an important aspect to project work?

How does planning influence efficiency?

Why is planning vital to material usage and construction?

How is the design of a product influenced by planning?

## **Standards/Indicators & SLOs**

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### **PATHWAY: CONSTRUCTION (AC-CST)**

- 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.6 Manage relationships with internal and external parties to successfully complete construction projects.
- 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.

### **PATHWAY: MAINTENANCE/OPERATIONS (AC-MO)**

- 9.3.12.AC-MO.1 Recognize and employ universal construction signs and symbols to function safely in the workplace.
- 9.3.12.AC-MO.2 Use troubleshooting procedures when solving a maintenance problem in buildings.
- 9.3.12.AC-MO.3 Apply construction skills when repairing, restoring or renovating existing buildings.
- 9.3.12.AC-MO.4 Determine work required to repair or renovate an existing building.
- 9.3.12.AC-MO.5 Plan and practice preventative maintenance activities to service existing buildings.
- 9.3.12.AC-MO.6 Maintain and inspect building systems to achieve safe and efficient operation of buildings.

## Career Readiness, Life Literacies, & Key Skills:

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TECH.9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
TECH.9.4.12.CI.2	Identify career pathways that highlight personal talents, skills, and abilities (e.g., 1.4.12prof.CR2b, 2.2.12.LF.8).
TECH.9.4.12.CI.3	Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).
TECH.9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).

## Lesson Titles

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Building Materials

Hand Tools

Power Tools

Scaffolds, Ladders, and Rigging

Plans, Specifications, and Codes

Building Layout

Footings and Foundations

Floor Framing

Wall and Ceiling Framing

Roof Framing

Framing with Steel. Roofing Materials and Methods

Windows and Exterior Doors

Exterior Wall Finish

Thermal and Sound Insulation

Interior Wall and Ceiling Finish

Finish Flooring

Stair Construction

Doors and Interior Trim

Cabinetry

Painting, Finishing, and Decorating

Chimneys and Fireplaces

Systems-Built Housing

Green Building and Certification Programs

Remodeling, Renovating, and Repairing

Building Decks and Porches

## **Inter-Disciplinary Connections**

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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 Career Preparation
- 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.

## **Equity Considerations**

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## **Climate Change**

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Topic: Green Building

Materials Used: <https://worldgbc.org/news-media/sustainable-construction-face-climate-change>

Addresses the Following Component of the Mandate:

- Economic
- Political
- Social

## **LGBTQ and Disabilities Mandate**

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Topic: Opportunities for LGBT in workforce

Materials Used: <https://buildoutalliance.org/>

Addresses the Following Component of the Mandate:

- Economic
- Political
- Social

## **Holocaust Mandate**

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Topic: Construction of Auschwitz and how their building compares to modern day

Materials Used: <https://www.auschwitz.org/en/history/auschwitz-ii/the-construction-of-the-camp/>

Addresses the Following Component of the Mandate:

- Bias
- Bigotry
- Bullying
- Holocaust Studies
- Prejudice

## **Asian American Pacific Islander Mandate**

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Topic: Gaines reflection on discrimination of Asians

Materials Used: <https://www.today.com/popculture/joanna-gaines-reflects-korean-heritage-amid-anti-asian-violence-t212416>

Addresses the Following Component of the Mandate:

- Economic
- Political
- Social

## **Amistad Mandate**

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## **Anticipatory Set**

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Stated in daily lesson plans and posted via Smartboard, blackboard, or as per teacher instructions.

## **Instructional Strategies, Learning Activities, and Levels of Blooms/DOK**

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Group students based on topic knowledge

Create pods with student captains

Create tiered lessons

Create handouts for common questions

Include hands-on activities and projects

Provide study guides, worksheets, and notes

Flip your classroom

Use the Think-Pair-Share method

Try digital curriculum

### **Modifications: At Risk Learner**

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- Additional time for assignments
- Adjusted assignment timelines
- Agenda book and checklists
- Answers to be dictated
- Assistance in maintaining uncluttered space
- Books on tape
- Concrete examples
- Extra visual and verbal cues and prompts
- Follow a routine/schedule
- Graphic organizers
- Have students restate information

- No penalty for spelling errors or sloppy handwriting
- Peer or scribe note-taking
- Personalized examples
- Preferential seating
- Provision of notes or outlines
- Reduction of distractions
- Review of directions
- Review sessions
- Space for movement or breaks
- Support auditory presentations with visuals
- Teach time management skills
- Use of a study carrel
- Use of mnemonics
- Varied reinforcement procedures
- Work in progress check

### **Modifications: ELL**

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- Choice of test format (multiple-choice, essay, true-false)
- Continue practicing vocabulary
- Provide study guides prior to tests
- Read directions to the student
- Read test passages aloud (for comprehension assessment)
- Vary test formats

### **Modifications: 504 & IEP**

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- Allow for redos/retakes
- Assign fewer problems at one time (e.g., assign only odds or evens)
- Differentiated center-based small group instruction
- Extra time on assessments
- Highlight key directions
- If a manipulative is used during instruction, allow its use on a test
- Opportunities for cooperative partner work
- Provide reteach pages if necessary
- Provide several ways to solve a problem if possible



- Provide visual aids and anchor charts
- Test in alternative site
- Tiered lessons and assignments
- Use of a graphic organizer
- Use of concrete materials and objects (manipulatives)
- Use of word processor

### **Modifications: G&T**

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- Alternate assignments/enrichment assignments
- Enrichment projects
- Extension activities
- Higher-level cooperative learning activities
- Pairing direct instruction with coaching to promote self-directed learning
- Provide higher-order questioning and discussion opportunities
- Provide texts at a higher reading level
- Tiered assignments
- Tiered centers

### **Alternative Assessment**

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Performance tasks

Project-based assignments

Problem-based assignments

Presentations

Reflective pieces

Concept maps

Case-based scenarios

Portfolios

### **Formative Assessment**

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Unit formative assessments are drawn from, but not limited to:

- Observations during in-class activities; of students' non-verbal feedback during lecture.
- Homework exercises as review for exams and class discussions.
- Reflections journals that are reviewed periodically during the semester.
- Question and answer sessions, formal—planned and informal—spontaneous.
- Conferences between the instructor and student at various points in the semester.
- In-class activities where students informally present their results.
- Student feedback collected by periodically answering specific question about the instruction and their self-evaluation of performance and progress.

## **Benchmark Assessments**

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Skills-based assessment

Reading response

Writing prompt

Lab practical

## **Summative Assessment**

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Summative assessments are related specifically to material covered in the current unit of study.

- Quiz, Test, MP Assessment.
- Final examination (a truly summative assessment).
- Term papers (drafts submitted throughout the semester would be a formative assessment).
- Projects (project phases submitted at various completion points could be formatively assessed).
- Portfolios (could also be assessed during its development as a formative assessment).
- Performances, Speeches, Critiques.
- Student evaluation of the course (teaching effectiveness).
- Instructor self-evaluation.

## Resources & Materials

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- Construction Technology 4th Edition
- Construction Technology 4th Edition
- Hand and Power Tools as Needed
- Instructional videos from various sources

## Technology

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- Chromebooks, Google Drive Storage & Related Google Apps
  - MS Office Software as Needed
  - SmartBoard Presentations and Peripheral Technology
  - Smartphones
  - Power Tools as Needed
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- 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.B.CS1      Apply existing knowledge to generate new ideas, products, or processes.
  - TECH.8.1.12.C.CS2      Communicate information and ideas to multiple audiences using a variety of media and formats.
  - TECH.8.1.12.E.CS4      Process data and report results.
  - TECH.8.1.12.F.CS1      Identify and define authentic problems and significant questions for investigation.
  - TECH.8.1.12.F.CS2      Plan and manage activities to develop a solution or complete a project.
  - TECH.8.1.12.A.CS1      Understand and use technology systems.