



CAMP RIO CTE FIELD EXPERIENCE

# BUILD IT RIGHT: CARPENTRY

PLAN • MEASURE • BUILD • INSPECT

Carpentry & Construction Challenge  
for up to 40 high school CTE students.



## FROM BLUEPRINT TO BUILD.

Students experience construction from planning to completion while using real tools, practicing jobsite safety, construction math, teamwork, and quality control.

## HANDS-ON CONSTRUCTION CHALLENGES

### 1 BUILD THE BASE CAMP

Read plans, measure materials, assemble components and complete a useful project.

### 2 TOOL & JOBSITE SAFETY

Apply PPE, hand-tool, power-tool and materials-handling practices.

### 3 CONTRACTOR CHALLENGE

Bid, build and adapt when a budget, material or site condition changes.

### 4 QUALITY INSPECTION

Evaluate accuracy, workmanship, safety compliance and project completion.



## STUDENTS WILL

- Use tools and equipment safely
- Apply construction math and drawings
- Build, inspect and adapt a real project

## CTE + IBC ALIGNMENT

- Principles of Construction
- Construction Technology I and II
- Construction Technology Practicum
- NCCER Core

## BUILD REAL SKILLS AT CAMP RIO

Real projects, real tools, construction safety, teamwork, and workplace-ready skills

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# Build It Right

## Carpentry & Construction Challenge

Plan | Measure | Build | Inspect

High school CTE students | 40 participants | Four construction companies of 10

### PROGRAM OVERVIEW

Students experience the construction process from planning through completion. Teams use drawings, tools, construction math, safety procedures, and quality-control practices to build functional projects and respond to realistic jobsite changes.

## CTE and NCCER Alignment

| CTE Courses                          | NCCER Core Connections |
|--------------------------------------|------------------------|
| Principles of Construction           | Basic Safety           |
| Construction Technology I            | Hand and Power Tools   |
| Construction Technology II           | Construction Drawings  |
| Practicum in Construction Technology | Materials Handling     |
|                                      | Employability Skills   |

## Sample Schedule | 9:00 AM-2:00 PM

| Time        | Activity                                                       |
|-------------|----------------------------------------------------------------|
| 9:00-9:20   | Jobsite safety orientation and company assignments             |
| 9:20-10:50  | Activity Block 1: Build the Base Camp (90 minutes)             |
| 10:50-11:20 | Lunch                                                          |
| 11:20-12:50 | Activity Block 2: Camp Contractor Challenge (90 minutes)       |
| 12:50-1:15  | Cleanup, quality inspection, and presentation preparation      |
| 1:15-2:00   | Project review, discussion, reflection, and career connections |

## Student Organization: Four Construction Companies

Students are divided into Companies A, B, C, and D, with 10 students per company. Each company completes an assigned project using shared construction and project-management roles.

| Construction Roles     | Company Structure         |
|------------------------|---------------------------|
| Project Superintendent | Carpenter 3               |
| Safety Officer         | Quality Control Inspector |
| Materials Manager      | Estimator                 |
| Carpenter 1            | Layout Technician         |
| Carpenter 2            | Documentation Lead        |

## Activity Block 1: Build the Base Camp

Each company receives plans and materials for one functional camp improvement: a camp bench, gear rack, bird observation blind panel, or picnic table section.

- Review drawings, project requirements, materials, and safety expectations.
- Use construction math to measure, mark, and lay out components.
- Apply safe hand-tool, power-tool, fastening, and materials-handling practices.
- Complete instructor checkpoints for safety, accuracy, teamwork, and work quality.

## Activity Block 2: Camp Contractor Challenge

Companies plan and build a Camp RIO improvement such as a wildlife observation platform, emergency shelter, flag display, or trailhead information kiosk. At the midpoint, each company receives a realistic change order.

- Prepare a construction plan, materials list, cost estimate, timeline, and safety plan.
- Build efficiently while monitoring quality, communication, and time.
- Respond to a budget reduction, material shortage, client request, or site-condition change.
- Document revisions and prepare a finished-project demonstration.

## End-of-Day Project Review and Discussion

The day concludes with a facilitated project review rather than awards. Each company presents its construction plan, safety approach, project results, change-order response, and recommended improvements.

- Did the project meet the drawings, requirements, and quality standards?
- How did the company maintain a safe and organized jobsite?
- How did the change order affect cost, materials, timeline, or design?
- What would improve the project with additional time or resources?

## Learning Outcomes

- Safely use hand tools, power tools, and construction materials.
- Apply construction drawings, measurement, layout, and construction math.
- Build and inspect a functional project as part of a construction team.
- Practice communication, adaptability, time management, and workplace readiness.