

CONSTRUCTION TECHNOLOGY

Grade Level:	10-11-12
Prerequisite:	Must take semester in sequence
Length:	1 Year
Period(s) Per Day:	1
Credit:	1
Credit Requirement Fulfilled:	Vocational/Elective

Course Objectives and Expectations:

The Students will be able to:

1. Identify all woodworking tools and machines, list safety rules for each, and properly operate.
2. Identify construction components of a residential home, and explain its function.
3. Develop self-reliance and confidence needed to solve problems in construction.
4. Calculate a material list for construction projects.
5. Identify different construction materials.
6. Use critical thinking and problem solving techniques in building class projects.
7. Wire basic residential circuits safely and analyze branch circuits.
8. Perform basic plumbing operations such as sweat soldering and assembling plumbing fittings.
9. Explore the career opportunities of different trades such as –carpenters, plumbers, and electricians.

Montana Standards for Career and Vocational Technical Education:

Scale Reading	5.II.1
Math in Wood working	5.II.1
Tool and Machine Identification and Operation	4.II.1-3

Residential Construction

Building Components /Fabrication	4.II.1-3
Shed Construction	4.II.1-3
Scale Down House Construction	4.II.1-3

Content:

1st Semester

Scale Reading and Math in woodworking

- I. Scale Reading Procedure
 - a. Types of scale and graduations
 - b. Line heights
 - c. Practice worksheets and tests
- II. Math in woodworking
 - a. Adding and subtracting fractions
 - b. Multiplying and dividing fractions
 - c. Changing decimals to a useable fraction

Tool and Machine Identification and Operation

- I. Hand Tools
 - a. Identification
 - b. Using hand tools-hand tool block
- II. Machine Identification: parts, correct operation, safety
 - a. Jointer and Planer
 - b. Power Miter Saw
 - c. Table Saw
 - d. Band Saw
 - e. Drill Press
 - f. Shaper
 - g. Router
 - h. portable circular saw
- III. Machined Block
 - a. draw orthographically
 - b. discuss procedure
 - c. machine experience

Saw horse Construction

- I. Develop material list
- II. List Plan of Procedure
- III. Construction Process

Shed Construction

- I. Develop material list
- II. List Plan of Procedure
- III. Construction Process

2nd Semester

Residential Construction

- I. Identify components, estimate materials, and perform construction process
 - a. Foundation system
 - b. Floor framing
 - c. Wall framing
 - d. Roof framing
 - e. Doors and Windows
 - f. Insulation
 - g. Stairs
- II. Scale Down House
 - a. Perform house construction process using $\frac{3}{4}'' = 1'$ scale
 - b. Relate process to career exploration

Plumbing

- I. Identify components, perform cutting and fastening process
 - a. Sweat soldering
 - b. PVC gluing
 - c. PEX

House wiring

- I. Theory
 - a. Terminology-volts, amps, ohms
 - b. Ohms Law, Watts Law
- II. Circuits
 - a. Schematics
 - b. Wiring Process

Timeline:

Scale Reading and Math	1 week
Hand Tools	1 ½ weeks
Machine Operation	2 ½ weeks
Saw Horse Construction	2 weeks
Site Layout	1 ½ week
Shed Construction	11 weeks
Residential Construction	4 ½ weeks
Concrete	1 week
Scale Down House Construction	5 ½ weeks
Plumbing	1 ½ weeks
House Wiring	2 weeks

Resources:

Montana Standards for Career and Vocational Technical Education