Unit: Foundations
Title: Footings and Walls

Skill(s) and Knowledge: Describe the composition of concrete, explain reasons for reinforcing rods, explain reasons for a slump test, explain proper placement techniques, construct forms, and estimate amounts of concrete needed for a given project.

Tasks: Given a wall line referenced from batter boards, students will setup a dry string line as a guide, then construct a footing form with spreaders and stakes and level the form using a laser level or transit.

Performance objective:
Use levels, batter boards and string to layout a footing ready to pour. Setup Concrete panels for a foundation wall.

Tools, supplies and reference materials:
Builder's level, transit, batter boards, dry line, crowbar, sledge hammer, skill saw, duplex nails
Career Connections Project Book 3 pages: 94-115.

Methods of instruction: Demonstration on how to use the levels and build a form. Lecture on materials from text. Field trip to a jobsite or the Union Training Hall to see the task performed by professional carpenters.

Estimated time: 30 hrs. **Number of students:** 10-15

Task analysis or activities:
Students will layout a building foundation.
1. Set-up the transit
2. Refer to the prints
3. Install batter boards
4. Cut form boards
5. Install form boards
6. Pour and strip the forms
7. Install foundation wall forms

Evaluation: Students will be graded on their use of time, safety methods, quality of work, cleaning and organization of their work area, interaction with other students, and vocational employability skills grading rubric. Manipulative skills assessments and written evaluations.

Performance Notes:

Vocational Frameworks References

2.A.01.05	Identify and apply OSHA safety regulations.
2.B.04	Understand detail views and schedules.
2.E.01.01	Demonstrate use and maintenance of layout, marking and measuring tools.
2.J.01.03	Identify basic concrete framework principles and applications.
2.F.01.01	Demonstrate use and Maintenance of a portable circular saw.

English/Strand 3 Frameworks References:

2.B.01-06   Determine the meaning of symbols, key terms, and other domain-specific words and phrases in a technical context.

Frameworks References: Math

2.B.01   Use Trigonometric ratios and Pythagorean Theorem to solve right triangles in applied problems.

Common Core References:

Read and listen critically for information understanding and enjoyment
Set goals and achieve them by organizing time, workspace, and resources effectively
Work both independently and in groups

SCANS references:

Foundation Skills:

1. Basic skills— reading, writing, mathematics, speaking, and listening.
2. Thinking Skills-- thinking creatively, making decisions, solving problems, visualizing, knowing how to learn, and reasoning
3. Personal qualities--individual responsibility, self-esteem, sociability, self management, and integrity

Work Place Competencies

1. Resources--allocating time, money, material, space, and staff.
2. Interpersonal skills--working in teams, teaching others, serving customers, leading negotiating, and working well with culturally diverse populations.
3. Information--acquiring and evaluating data, organizing and maintaining files, interpreting & communicating, and using computer to process information
4. Systems--understanding social, organizational, and technological systems, monitoring and correcting performance, and designing or improving systems.
5. Technology--selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting technologies.