

DESE Model Curriculum

GRADE LEVEL/COURSE TITLE: Carpentry, Introductory Craft Skills –
Module 27108-06 Introduction to Concrete, Reinforcing Materials, and Forms

Course Code:

COURSE INTRODUCTION:

17003 Carpentry

Carpentry courses provide information related to the building of wooden structures, enabling students to gain an understanding of wood grades and construction methods and to learn skills such as laying sills and joists; erecting sills and rafters; applying sheathing, siding, and shingles; setting door jambs; and hanging doors. Carpentry courses may teach skills for rough construction, finish work, or both. Students learn to read blueprints, draft, use tools and machines properly and safely, erect buildings from construction lumber, perform finish work inside of buildings, and do limited cabinet work. Carpentry courses may also include career exploration, good work habits, and employability skills.

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Course Code:

UNIT (#) TITLE: Carpentry, Introductory Craft Skills (27108-06) – Introduction to Concrete, Reinforcing Materials, and Forms [This module introduces the carpentry trainee to various cements and other materials that, when mixed together, form various types of concrete. Concrete volume estimates and concrete forms are also covered. In addition, reinforcement materials, such as reinforcement bars, bar supports, and welded-wire fabric, are discussed.]			SUGGESTED UNIT TIMELINE: CLASS PERIOD (min.):			
ESSENTIAL QUESTIONS: 1. How are math and chemistry used in concrete construction? 2. What should be considered when selecting concrete for different jobs?						
ESSENTIAL MEASURABLE LEARNING OBJECTIVES	CCSS LEARNING GOALS (Anchor Standards/Clusters)	CROSSWALK TO STANDARDS				
		GLEs/CLEs	PS	CCSS	OTHER	DOK
1. Identify the properties of cement.				RST 11-12.2	27108-06	Level 1
2. Describe the composition of concrete.				RST 11-12.2, S-IC 6	27108-06	Level 1
3. Perform volume estimates for concrete quantity requirements.				G-GMD 3, G-GMD 4, G-MG 1, G-MG 2, G-MG 3	27108-06	Level 2
4. Identify types of concrete reinforcement materials and describe their uses.				RST 11-12.2, L 11-12.6	27108-06	Level 1
5. Identify various types of footings, and explain their uses.				RST 11-12.2	27108-06	Level 1
6. Identify the parts of various types of forms.				RST 11-12.2, L 11-12.6	27108-06	Level 1
7. Explain the safety procedures associated with the construction and use of concrete forms.				S-IC 6	27108-06	Level 1
8. Erect, plumb, and brace a simple concrete form with reinforcement.				N-Q 1, N-Q 3, G-CO 12, G-GMD 4, G-MG 1, G-MG 3	27108-06	Level 2

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ASSESSMENT DESCRIPTIONS*: (Write a brief overview here. Identify Formative/Summative. Actual assessments will be accessed by a link to PDF file or Word doc.)

***Attach Unit Summative Assessment, including Scoring Guides/Scoring Keys/Alignment Codes and DOK Levels for all items. Label each assessment according to the unit descriptions above (i.e., Grade Level/Course Title/Course Code, Unit #).**

Obj. # 1-8	INSTRUCTIONAL STRATEGIES (research-based): (Teacher Methods)
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|-----------------------------|--|
| Obj. #
1-8 | INSTRUCTIONAL STRATEGIES (research-based): (Teacher Methods) |
| | <input checked="" type="checkbox"/> Direct
<input type="checkbox"/> Indirect
<input type="checkbox"/> Experiential
<input type="checkbox"/> Independent Study
<input type="checkbox"/> Interactive Instruction |

Obj. # 1-8	INSTRUCTIONAL ACTIVITIES: (What Students Do)
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- | | |
|-----------------------------|---|
| Obj. #
1-8 | INSTRUCTIONAL ACTIVITIES: (What Students Do) |
| | 1.
2.
3. |

UNIT RESOURCES: (include Internet addresses for linking)

(MCCE Resource) T&I DVD ROM 12

Building Construction: Concrete & Masonry

CEV Multimedia

LUBBOCK, TX, CEV MULTIMEDIA, 2003.

DVD ROM

Join an educational instructor in a lesson in safety and masonry techniques as students follow in selecting building materials and setting up guidelines. He stresses the consequences of poor workmanship and provides tips to create professional quality projects. This DVD also

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demonstrates the uses of concrete finishing tools to help in construction. A concrete expert shows how to use building techniques to form simple constructions, like a concrete slab. The course also includes informational steps for working with concrete. 144 min, 4 sections, 4 printable resources and 17 Web resources.

(MCCE Resource) TE DVD ROM 10

Deconstruction: The Science of Building a House-Foundation to Roof

Discovery Channel University

LAWRENCEVILLE, NJ, SHOPWARE, 2004.

DVD ROM

This video highlights scientific aspects of concrete, steel, wood, and nails, and the forces that impact them. Experiments done on the building site and at materials testing labs investigate the strengths of concrete, rebar, and engineered lumber; the chemical properties of Portland cement and galvanized nails; and the effects of dead load and live load, torque and shear induced by wind and earthquakes, and Bernoulli's Principle as it relates to the effects of tornadoes on roofs. Microscope and infrared imaging plus animations give extra angles of insight. So do field trips to a concrete batch plant, a tree farm to study silviculture, and a saw mill to see how computerized cutting and sorting are done. 50 minutes.