

DESE Model Curriculum

GRADE LEVEL/UNIT TITLE: 9-12 / Masonry — Basic Technique

Course Code: CONSTRUCTION

COURSE INTRODUCTION: Masonry

This course is designed to give students practical experience within the masonry trade. Tools, materials, and techniques are discussed and demonstrated throughout the lessons. Units within this course include:

1. Materials and Tools
2. Basic Technique
3. Specialized Technique

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<p>UNIT DESCRIPTION: Basic Technique These lessons are designed to introduce the masonry student to basic techniques used within the masonry trade. Topics covered include site layout, estimating, and construction and installation techniques.</p>		<p>SUGGESTED UNIT TIMELINE: 3 lessons Lesson 1: Site Layout Lesson 2: Construction Technique Lesson 3: Installation Technique CLASS PERIOD (min.): 90 minutes</p>				
<p>ESSENTIAL QUESTIONS:</p> <ol style="list-style-type: none"> 1. Why is it important to measure distance and level when planning a building? 2. How is site layout accomplished? 3. What preparations are necessary for masonry installation? 4. How are installation problems prevented by proper construction preparations? 5. How are masonry structures built? 						
ESSENTIAL MEASURABLE LEARNING OBJECTIVES						
	CCSS LEARNING GOALS (Anchor Standards/Clusters)	CROSSWALK TO STANDARDS				
		GLEs/CLEs	PS	CCSS	NCCER	DOK
<ol style="list-style-type: none"> 1. Students will describe the processes associated with site layout and the tools used to accomplish site layout. 				N-RN 3 N-Q 1 N-CN 6 G-GMD 4 G-MG 3 L 9-10.1 L 9-10.2 L 9-10.4 L 9-10.6 L 11-12.1 L 11-12.2 L 11-12.4 L 11-12.6 WHST 9-10.1 WHST 9-10.4 WHST 9-10.8 WHST 9-10.10	26306-05	Level 1

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				WHST 11-12.1 WHST 11-12.4 WHST 11-12.8 WHST 11-12.10 RST 11-12.9 SL 9-10.5 SL 9-10.6 SL 11-12.5 SL 11-12.6		
2. Students will describe the processes for construction and estimation techniques regarding masonry installations.				N-RN 3 N-Q 1 A-SSE 1 G-GMD 3 G-GMD 4 G-MG 1 G-MG 2 G-MG 3 L 9-10.1 L 9-10.2 L 11-12.1 L 11-12.2	26206-05 26305-05	Level 1
3. Students will demonstrate their knowledge of the relationships between buildings and their environments.				L 9-10.1 L 9-10.6 L 11-12.1 L 11-12.6 SL 9-10.1 SL 9-10.6 SL 11-12.1 SL 11-12.6	26206-05	Level 1
4. Students will demonstrate their ability to plan and estimate materials for a masonry construction.				N-RN 3 N-Q 1 A-SSE 1 G-GMD 3	28202-05 28105-04	Level 1

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				G-GMD 4 G-MG 1 G-MG 2 G-MG 3 L 9-10.1 L 9-10.2 L 11-12.1 L 11-12.2		
5. Students will explain the processes of installing various kinds of masonry units.				WHST 9-10.2 WHST 9-10.4 WHST 9-10.10 WHST 11-12.2 WHST 11-12.4 WHST 11-12.10 L 9-10.1 L 9-10.2 L 9-10.4 L 9-10.6 L 11-12.1 L 11-12.2 L 11-12.4 L 11-12.6 RST 9-10.3 RST 11-12.3 RST 11-12.9	28202-05 28105-04	Level 1
<p>ASSESSMENT DESCRIPTIONS*: (Write a brief overview here. Identify Formative/Summative. Actual assessments will be accessed by a link to PDF file or Word doc.)</p> <p>Students will demonstrate their understanding of content and ability to apply learned skills by:</p> <ul style="list-style-type: none"> • Making and critiquing videos of methods for site layout (Summative) • Creating annotated construction drawings describing methods of masonry construction techniques (Summative) • Participating in classroom discussions (Formative) • Creating construction drawings of masonry structures (Summative) • Estimating materials for masonry constructions based on drawings (Summative) • Writing installation processes for masonry constructions based on drawings (Summative) 						

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*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. #	INSTRUCTIONAL STRATEGIES (research-based): (Teacher Methods)
1, 2, 3, 4, 5	Direct: Instructor-led demonstration
4, 5	Interactive: Instructor guides students to work in teams.
Obj. #	INSTRUCTIONAL ACTIVITIES: (What Students Do)
1	Presentations
2, 4, 5	Drawings; Writing to Inform
3	Classroom discussions
<p>UNIT RESOURCES: (include Internet addresses for linking)</p> <p>Support documents:</p> <ul style="list-style-type: none"> • [VIDEO CRITIQUE RUBRIC] • [ANNOTATED DRAWING RUBRIC] • [CONSTRUCTION DRAWING – ESTIMATE – WRITE-UP RUBRIC] <p>Internet resources:</p> <ul style="list-style-type: none"> • Vocational Information Center, Masonry Career Guide (http://www.khake.com/page24.html) • Mason Contractors Association of America (MCAA) (http://www.masoncontractors.org) <p>Resources available from MCCE free loan library (www.mcce.org):</p> <ul style="list-style-type: none"> • Concrete Principles Resource Guide American Technical Publishers Staff, HOMEWOOD, IL, AMERICAN TECHNICAL PUBLISHERS, INC, 2003. KIT — The Concrete Principle Resource Guide is a valuable instructional tool designed for training in group settings. The Resource Guide provides an out-of-the-box approach designed for maximum flexibility. It is divided into sections for easy use in a classroom or seminar setting. The Resource Guide includes a CD ROM with Electronic Slides of all the illustrations from the textbook and web links to valuable instructional resources on the Internet. This is a complete instructional package for teaching concrete principles. • Residential Construction: Masonry 	

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Meridian Education Corporation, BLOOMINGTON, IL, MERIDIAN EDUCATION CORPORATION, 2000. VIDEO — In this video an apprentice tackles residential masonry. Working alongside a professional, he and the viewers learn basic skills in forming block wall foundations, different types of cement, and forming, pouring, and finishing concrete. We also learn skills in using mortar and bricklaying. 11 minutes.

- **Building Construction: Basic Masonry**
CEV Multimedia, LUBBOCK, TX, CEV MULTIMEDIA. DVD ROM — An experienced agricultural education instructor teaches equipment identification, safety and masonry techniques as he demonstrates how to build a brick wall and a block wall. Follow along as he selects the building material, sets up guide lines, mixes mortar, "butters" the bricks and blocks, lays rows and explains cleanup procedures for building these standard construction structures. He points out the consequences of poor workmanship and gives tips on how create professional-looking masonry structures. A supplement is included. 46 minutes.
- **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 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.
- **Footing Forms**
The Associated General Contractors of America and CIMC, WASHINGTON, DC 20006, THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA AND CIMC. VIDEO — Common practices in setting footing and slab forms on grade; constructing and setting forms for a pile cap; constructing and setting forms for a pier footing. 27 minutes
- **Edge Forms On-Grade**
The Associated General Contractors of America and CIMC, WASHINGTON, D.C., GENERAL CONTRACTORS OF AMERICAN, CIMC. VIDEO — On-grade setting screeds with stakes and screed chairs; setting edge forms for a slab on-grade with foundation; setting forms with a radius. 18 minutes
- **Vertical Piers and Columns**
The Associated General Contractors of America and CIMC, WASHINGTON, D.C., GENERAL CONTRACTORS OF AMERICA & CIMC. VIDEO — Constructing forms for a round fluted column. 11 minutes
- **Wall Forms**

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General Contractors of America & CIMC, WASHINGTON, D.C., CIMC & GENERAL CONTRACTORS OF AMERICA & CIMC. VIDEO — Constructing circular wall forms (built in place). 19 minutes

- On-Grade Curb Forms

General Contractors of America & CIMC, WASHINGTON, D.C., GENERAL CONTRACTORS OF AMERICA & CIMC. VIDEO — Constructing straight curb forms, setting metal curb & gutter forms with a radius, constructing curb and gutter forms. 21 minutes.

- Horizontal Beam Forms

General Contractors of America & CIMC, WASHINGTON, D.C., GENERAL CONTRACTORS OF AMERICA & CIMC. VIDEO — Constructing an interior beam form; constructing a spandrel beam form; constructing a post-tensioned inverted beam form. 29 minutes.

- Above-Grade Slab Systems

General Contractors of America & CIMC, WASHINGTON, D.C., GENERAL CONTRACTORS OF AMERICA & CIMC. VIDEO — Constructing forms for a two-way joist system; constructing forms for a one-way joist system. 14 minutes.

- Preparing the Site for Form Building

General Contractors of America & CIMC, WASHINGTON, D.C., GENERAL CONTRACTORS OF AMERICA & CIMC. VIDEO — Covers site preparation for form building. 8 minutes.