

DESE Model Curriculum

GRADE LEVEL/UNIT TITLE: 9-12 / Masonry — Specialized 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: Specialized Technique These lessons build upon knowledge and skills attained in the previous unit, Basic Technique. They are designed to give the masonry student more exposure to holistic concepts related to building masonry structures.</p>		<p>SUGGESTED UNIT TIMELINE: 3 lessons Lesson 1: Advanced Laying Lesson 2: Specialized Materials and Techniques Lesson 3: Inspection and Repair CLASS PERIOD (min.): 90 minutes</p>				
<p>ESSENTIAL QUESTIONS:</p> <ol style="list-style-type: none"> 1. How are masonry structures protected from damage due to gravity and elements? 2. How do masonry units work together in different masonry structures? 3. How do masonry construction techniques differ based on weather conditions? 4. How are specialized masonry materials treated differently? 5. How are masonry structures built to standards? 6. How can damaged and deteriorated masonry be repaired? 						
ESSENTIAL MEASURABLE LEARNING OBJECTIVES						
ESSENTIAL MEASURABLE LEARNING OBJECTIVES	CCSS LEARNING GOALS (Anchor Standards/Clusters)	CROSSWALK TO STANDARDS				
		GLEs/CLEs	PS	CCSS	NCCER	DOK
1. Students will explain the structural principles of masonry.				L 9-10.1 L 9-10.2 L 9-10.6 L 11-12.1 L 11-12.2 L 11-12.6 RST 9-10.7 RST 11-12.7	28205-05	Level 1
2. Students will demonstrate their knowledge of a variety of masonry structures.				L 9-10.1 L 9-10.2 L 9-10.6 L 11-12.1 L 11-12.2 L 11-12.6 RST 11-12.9	28205-05	Level 1

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<p>3. Students will explain the differences among hot-weather, cold-weather, and all-weather masonry techniques for construction and protection.</p>			<p>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</p>	<p>28302-05</p>	<p>Level 1</p>
<p>4. Students will demonstrate their knowledge of specialized masonry materials and how to use them.</p>			<p>WHST 9-10.2 WHST 9-10.4 WHST 9-10.10 WHST 11-12.2 WHST 9-10.4 WHST 9-10.10 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 9-10.7 RST 11-12.7 RST 11-12.9</p>	<p>28302-05</p>	<p>Level 1</p>
<p>5. Students will demonstrate their knowledge of masonry standards and processes for preventing and correcting masonry damage.</p>			<p>WHST 9-10.2 WHST 9-10.4 WHST 9-10.10 WHST 11-12.2 WHST 9-10.4 WHST 9-10.10 L 9-10.1 L 9-10.2</p>	<p>28207-05 28303-05</p>	<p>Level 1</p>

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									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 9-10.7 RST 11-12.7 RST 11-12.9		
<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"> • Creating “tour maps” of the masonry features in their school building (Summative) • As a class, completing a Venn diagram of masonry techniques in hot, cold, and all weather (Formative) • Designing product brochures for specialized masonry materials (Summative) • Designing a “masonry deterioration handbook” (Summative) <p>*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 #).</p>											
Obj. #	INSTRUCTIONAL STRATEGIES (research-based): (Teacher Methods)										
1, 2	Direct: Instructor-led tour										
3, 5	Direct: Instructor-led demonstrations										
4, 5	Indirect/Independent Study: Instructor provides materials to guide student learning.										
Obj. #	INSTRUCTIONAL ACTIVITIES: (What Students Do)										
1, 2, 3	Didactic Questions										
4, 5	Reading for Meaning										
1, 2, 4, 5	Writing to Inform										

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UNIT RESOURCES: (include Internet addresses for linking)

Support documents:

- [TOUR MAP RUBRIC]
- [PRODUCT BROCHURE RUBRIC]
- [HANDBOOK RUBRIC]

Internet resources:

- Vocational Information Center, Masonry Career Guide (<http://www.khake.com/page24.html>)
- Mason Contractors Association of America (MCAA) (<http://www.masoncontractors.org>)
- http://www.vatican.va/various/cappelle/sistina_vr/index.html
- http://www.vatican.va/various/basiliche/san_giovanni/vr_tour/index-en.html
- www.smith.edu/about-smith/visiting-smith/virtual-tour
- <http://pittsburghcorning.com/Default.aspx>
- <http://www.refractorybrick.com/>
- <http://www.stonefoundation.org/links.html>
- <http://www.masonry-restoration.com/>
- <http://www.astm.org/Standards/masonry-standards.html>

Resources available from MCCE free loan library (www.mcce.org):

- 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
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.

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- **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.