

## DESE Model Curriculum

GRADE LEVEL/UNIT TITLE: 11-12/Concrete

Course Code:

### **COURSE INTRODUCTION:**

This course includes electrical wiring, electrical motors, concrete masonry, plumbing and sewage disposal, farm fences, product handling and processing equipment, and farm buildings. (CD 016720, CIP 01.0201)

Course Rationale – Agriculture encompasses the food, fiber, conservation and natural resource systems, employing over 20% of the nation's workforce. Basic construction skills and knowledge in electricity, plumbing, concrete, and masonry are necessary for the building of agricultural structures.

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<b>UNIT DESCRIPTION:</b>  Students will learn to determine safe, proper, concrete installation practices based upon agriculture applications.		<b>SUGGESTED UNIT TIMELINE: 4 WEEKS</b>  <b>CLASS PERIOD (min.): 50 MINUTES</b>				
<b>ESSENTIAL QUESTIONS:</b>  1. Based on agricultural applications, what are proper concrete installation practices?						
ESSENTIAL MEASURABLE LEARNING OBJECTIVES	CCSS LEARNING GOALS (Anchor Standards/Clusters)	CROSSWALK TO STANDARDS				
		GLEs/CLEs	PS	CCSS	ANFR Standards	DOK
1. Investigate safety in working with concrete.				RST11-12.7 SL11-12.1.a SL11-12.1.c	PST 01.01 PST 01.02 PST 01.03 PST 02.01 PST 02.02 PST 03.01 PST 03.02 PST 03.03 PST 04.01 PST 04.02 PST 04.03 PST 04.04	2
2. Identify factors that affect the quality of				8-G-9 N-Q-1	PST 01.01 PST 01.02	3

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fresh concrete.				N-Q-3 G-MGD-3 RST11-12.9 SL11-12.1.a SL11-12.1.c	PST 01.03 PST 02.01 PST 02.02 PST 03.01 PST 03.02 PST 03.03 PST 04.01 PST 04.02 PST 04.03 PST 04.04	
3. Identify site preparation requirements.				8-G-9 N-Q-1 N-Q-3 G-MGD-3 RST11-12.7 RST11-12.9 SL11-12.1.a SL11-12.1.c	PST 01.01 PST 01.02 PST 01.03 PST 02.01 PST 02.02 PST 03.01 PST 03.02 PST 03.03 PST 04.01 PST 04.02 PST 04.03 PST 04.04	<b>3</b>
4. Describe the procedure for preparing to pour a concrete slab.				8-G-9 N-Q-1 N-Q-3 G-MGD-3 SL11-12.1.a SL11-12.1.c SL11-12.4	PST 01.01 PST 01.02 PST 01.03 PST 02.01 PST 02.02 PST 03.01 PST 03.02	<b>3</b>

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					PST 03.03 PST 04.01 PST 04.02 PST 04.03 PST 04.04	
5. Explain the procedure for ordering, pouring, and finishing concrete.				8-G-9 N-Q-1 N-Q-3 G-MGD-3 SL11-12.1.a SL11-12.1.c SL11-12.4	PST 01.01 PST 01.02 PST 01.03 PST 02.01 PST 02.02 PST 03.01 PST 03.02 PST 03.03 PST 04.01 PST 04.02 PST 04.03 PST 04.04	<b>3</b>
6. Identify factors affecting the quality of cured concrete.				8-G-9 N-Q-1 N-Q-3 G-MGD-3 RST11-12.9 SL11-12.1.a SL11-12.1.c	PST 01.01 PST 01.02 PST 01.03 PST 02.01 PST 02.02 PST 03.01 PST 03.02 PST 03.03 PST 04.01 PST 04.02 PST 04.03 PST 04.04	<b>3</b>

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7. Describe the procedure for pouring a concrete wall.				8-G-9 N-Q-1 N-Q-3 G-MGD-3 RST11-12.9 SL11-12.1.a SL11-12.1.c SL11-12.4	PST 01.01 PST 01.02 PST 01.03 PST 02.01 PST 02.02 PST 03.01 PST 03.02 PST 03.03 PST 04.01 PST 04.02 PST 04.03 PST 04.04	<b>3</b>
8. Apply principles of correct concrete construction procedures by making a concrete patio block.				8-G-9 N-Q-1 N-Q-3 G-MGD-3 RST11-12.9 SL11-12.1.a SL11-12.1.c	PST 01.01 PST 01.02 PST 01.03 PST 02.01 PST 02.02 PST 03.01 PST 03.02 PST 03.03 PST 04.01 PST 04.02 PST 04.03 PST 04.04	<b>4</b>
<p><b>ASSESSMENT DESCRIPTIONS*:</b> (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 use common equipment, materials, and procedures to make a concrete patio block. To complete the project, students must make a form for the patio block; determine the volume of the form; calculate and mix the correct amount of Portland cement, sand, gravel, and water to fill the form; and cure the project.</p>						

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Assessment will be based on the overall quality of the work and the ability to safely and correctly complete the project within the available time. <b>*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 #.)</b>	
<b>Obj. #</b>	<b>INSTRUCTIONAL STRATEGIES (research-based): (Teacher Methods)</b>
1-7	1. Lecture, guest speaker, and demonstrations.
1-8	2. Student application using various concrete techniques, materials and on sight characteristics.
<b>Obj. #</b>	<b>INSTRUCTIONAL ACTIVITIES: (What Students Do)</b>
1-7	1. Students will engage in study questions in lessons 1 through 7.
1-8	2. Students will complete “AS 1.1, Concrete Safety”; “AS 2.1, Mixing Concrete”; “AS 3.1, Subgrade Preparation”; “AS 3.2, Laying Out a Building”; “AS 3.1, Reinforcing Concrete”; “JS 5.1, Pouring a Concrete Curb”; “AS 6.1, Curing Concrete”; and “JS 7.1, Preparing Forms for a Concrete Wall.”
	3. Additional activities that relate to the unit objective can be found under the heading “Other Activities” in the following locations: p. IV-14 (1), p. IV-28 (1, 2), p. IV-46, and p. IV-68.
<b>UNIT RESOURCES: (include internet addresses for linking)</b> <ul style="list-style-type: none"> <li>• <i>Agricultural Structures</i>. University of Missouri-Columbia, Instructional Materials Laboratory, 1999.</li> <li>• Agriculture Publications. MU Extension. University of Missouri-Columbia. Accessed January 17, 2012, from <a href="http://muextension.missouri.edu/explore/agguides/">http://muextension.missouri.edu/explore/agguides/</a>.</li> <li>• Cook, J. B., &amp; Nickolaus, G. F. <i>Basic Procedures in Administration of Zoning Regulations: Appeals</i>. MU Extension. University of Missouri-Columbia. Accessed January 17, 2012, from <a href="http://muextension.missouri.edu/explore/commdm/dm7613.htm">http://muextension.missouri.edu/explore/commdm/dm7613.htm</a>.</li> <li>• Cook, J. B., &amp; Nickolaus, G. F. <i>Basic Procedures in Administration of Zoning Regulations: Making Applications</i>. MU Extension. University of Missouri-Columbia. Accessed January 17, 2012, from <a href="http://muextension.missouri.edu/explore/commdm/dm7612.htm">http://muextension.missouri.edu/explore/commdm/dm7612.htm</a>.</li> <li>• Local regulatory agencies, such as the planning and development department, public works department, and county board of commissioners</li> </ul>	