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| **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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| **UNIT DESCRIPTION:**  Students will learn to determine safe, proper, concrete installation practices based upon agriculture applications. | | | **SUGGESTED UNIT TIMELINE: 4 WEEKS**  **CLASS PERIOD (min.): 50 MINUTES** | | | | | |
| **ESSENTIAL QUESTIONS:**  **1. Based on agricultural applications, what are proper concrete installation practices?** | | | | | | | | |
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| **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** |
| 1. Identify factors that affect the quality of fresh 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 | **3** |
| 1. 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 | **3** |
| 1. 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  PST 03.03  PST 04.01  PST 04.02  PST 04.03  PST 04.04 | **3** |
| 1. 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 | **3** |
| 1. 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 | **3** |
| 1. 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 | **3** |
| 1. 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 | **4** |
| **ASSESSMENT DESCRIPTIONS\*: (Write a brief overview here. Identify Formative/Summative. Actual assessments will be accessed by a link to PDF file or Word doc. )**  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.  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.  **\*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)** | | | | | | | |
| 1-7 | 1. Lecture, guest speaker, and demonstrations. | | | | | | | |
| 1-8 | 1. Student application using various concrete techniques, materials and on sight characteristics. | | | | | | | |
| **Obj. #** | **INSTRUCTIONAL ACTIVITIES: (What Students Do)** | | | | | | | |
| 1-7 | 1. Students will engage in study questions in lessons 1 through 7. | | | | | | | |
| 1-8 | 1. 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.” | | | | | | | |
|  | 1. 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. | | | | | | | |
| **UNIT RESOURCES: (include internet addresses for linking)**   * *Agricultural Structures*. University of Missouri-Columbia, Instructional Materials Laboratory, 1999. * Agriculture Publications. MU Extension. University of Missouri-Columbia. Accessed January 17, 2012, from <http://muextension.missouri.edu/explore/agguides/>. * Cook, J. B., & Nickolaus, G. F. *Basic Procedures in Administration of Zoning Regulations: Appeals*. MU Extension. University of Missouri-Columbia. Accessed January 17, 2012, from <http://muextension.missouri.edu/explore/commdm/dm7613.htm>. * Cook, J. B., & Nickolaus, G. F. *Basic Procedures in Administration of Zoning Regulations: Making Applications*. MU Extension. University of Missouri-Columbia. Accessed January 17, 2012, from <http://muextension.missouri.edu/explore/commdm/dm7612.htm>. * Local regulatory agencies, such as the planning and development department, public works department, and county board of commissioners | | | | | | | | |