

DESE Model Curriculum

GRADE LEVEL/UNIT TITLE: 11-12/Plumbing

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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| UNIT DESCRIPTION: Students will learn viable plumbing methods and demonstrate an understanding of plumbing equipment and procedures. | | SUGGESTED UNIT TIMELINE: 3 WEEKS CLASS PERIOD (min.): 50 MINUTES | | | | |
| ESSENTIAL QUESTIONS: 1. What is a viable method of plumbing based on water requirements and application? | | | | | | |
| | | | | | | |
| ESSENTIAL MEASURABLE LEARNING OBJECTIVES | CCSS LEARNING GOALS (Anchor Standards/Clusters) | CROSSWALK TO STANDARDS | | | | |
| | | GLEs/CLEs | PS | CCSS | AFNR Standards | DOK |
| 1. Estimate how much water is needed for a farmstead. | | | | 8-G-9 N-Q-1 N-Q-2 G-MGD-3 RST11-12.9 | PST 01.01 PST 01.03 PST 02.01 PST 03.03 PST 03.04 PST 04.01 PST 04.02 PST 04.03 PST 04.04 PST 05.01 | 2 |
| 2. Investigate safety practices for plumbing. | | | | 8-G-9 N-Q-1 N-Q-2 G-MGD-3 RST11-12.7 | PST 01.01 PST 01.03 PST 02.01 PST 03.03 PST 03.04 | 3 |

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| | | | | SL11-12.1 | PST 04.01 PST 04.02 PST 04.03 PST 04.04 PST 05.01 | |
| 3. Identify pipe types and determine size requirements. | | | | 8-G-9 N-Q-1 N-Q-2 G-MGD-3 SL 11-12.1 RST11-12.9 L11-12.6 | PST 01.01 PST 01.03 PST 02.01 PST 03.03 PST 03.04 PST 04.01 PST 04.02 PST 04.03 PST 04.04 PST 05.01 | 2 |
| 4. Measure, cut, and connect pipes and tubing. | | | | 8-G-9 N-Q-1 N-Q-2 G-MGD-3 RST11-12.9 | PST 01.01 PST 01.03 PST 02.01 PST 03.03 PST 03.04 PST 04.01 PST 04.02 PST 04.03 PST 04.04 PST 05.01 | 3 |
| 5. Investigate methods of protecting water pipes against freezing. | | | | 8-G-9 N-Q-1 N-Q-2 G-MGD-3 | PST 01.01 PST 01.03 PST 02.01 PST 03.03 | 3 |

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| | | | | RST11-12.7 SL11-12.1 | PST 03.04 PST 04.01 PST 04.02 PST 04.03 PST 04.04 PST 05.01 | |
| 6. Demonstrate an understanding of plumbing equipment and procedures by applying different techniques to join dissimilar types of pipe—copper, PVC, CPVC, and black iron. | | | | 8-G-9 N-Q-1 N-Q-2 G-MGD-3 SL11-12.4 RST11-12.9 L11-12.6 | PST 01.01 PST 01.03 PST 02.01 PST 03.03 PST 03.04 PST 04.01 PST 04.02 PST 04.03 PST 04.04 PST 05.01 | 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 different techniques to join dissimilar types of pipe—copper, PVC, CPVC, and black iron. 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) | | | | | |
| 1-6 | 1. Lecture, guest speaker, demonstrations, student application with various plumbing techniques and materials. | | | | | |
| 1-6 | 2. Independent Learning - Student application with various plumbing techniques and materials. | | | | | |
| Obj. # | INSTRUCTIONAL ACTIVITIES: (What Students Do) | | | | | |

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| 1-6 | Students will engage in study questions in lessons 1 through 5. |
| 1-6 | Students will complete “AS 1.1, Determining Water Needs”; “AS 2.1, Working With Plumbing Safely”; “AS 3.1, Pipe Usage”; “AS 4.1, Cutting and Joining Plastic Pipe”; and “JS 4.1, Sweating Copper Pipe.” |
| | Additional activities that relate to the unit objective can be found under the heading “Other Activities” in the following locations: p. VI-4 and p. VI-47 (1, 2). |
| UNIT RESOURCES: (include internet addresses for linking) <ul style="list-style-type: none">• <i>Agricultural Mechanics Building Plans</i>. University of Missouri-Columbia, Instructional Materials Laboratory, 1994.• <i>Agricultural Structures</i>. 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. <i>Basic Procedures in Administration of Zoning Regulations: Appeals</i>. 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. <i>Basic Procedures in Administration of Zoning Regulations: Making Applications</i>. 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 | |