

Lesson A1–7

Exploring Careers in Agricultural Mechanics and Technology Systems

Unit A. Mechanical Systems and Technology

Problem Area I. Introduction to Agricultural Mechanics and Technology Systems

Lesson 7. Exploring Careers in Agricultural Mechanics and Technology Systems

New Mexico Content Standard:

Pathway Strand: Power, Structural and Technical Systems

Standard: VII: Develop skills required to use construction/fabrication equipment and tools.

Benchmark: VII-A: Use tools in the workplace to demonstrate safe and proper skills with construction/fabrication hand tools.

Performance Standard: 1. Demonstrate proper use of measurement and layout tools. 2. Apply proper use of measurement and layout tools in construction/fabrication of an actual project. 3. Demonstrate safe and proper techniques in using hand and power tools in construction/fabrication. 4. Demonstrate hand and power tools use to construct/fabricate an actual project according to blueprints or plans. 5. Identify and demonstrate proper hand and power tool maintenance procedures.

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:

1. Explain the importance of agricultural mechanics to the industry of agriculture.
2. Identify the major areas of specialization within agricultural mechanics.
3. Identify the skills needed to be successful in a career in agricultural mechanics.

List of Resources. The following resources may be useful in teaching this lesson:

Recommended Resources. One of the following resources should be selected to accompany the lesson:

Burke, Stanley R., and T. J. Wakeman. *Modern Agricultural Mechanics*. Danville, Illinois: Interstate Publishers, Inc., 1992. (Chapter 19)

Other Resources. The following resources will be useful to students and teachers:

Cooper, Elmer L. *Agricultural Mechanics Fundamentals & Applications*. Albany, New York: Delmar Publishers, 1992. (Unit 2)

Lee, Jasper S., and Diana L. Turner. *AgriScience*, Third Edition. Danville, Illinois: Interstate Publishers, Inc., 2003. (Textbook, Chapter 1)

List of Equipment, Tools, Supplies, and Facilities

Writing surface
Overhead projector
Transparencies from attached masters

Terms. The following terms are presented in this lesson (shown in bold italics):

Adaptability
Personal skills
Practical Experience

Interest Approach. Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

Ask students to write the name of a person they know who they feel is very successful. Under their name, ask the students to list the traits that person has that makes them successful. Discuss some of the traits that were listed. Why are these important traits?

Summary of Content and Teaching Strategies

Objective 1: Explain the importance of agricultural mechanics to the industry of agriculture.

Anticipated Problem: Is agricultural mechanics important to the industry of agriculture?

- I. Agriculture in the United States is becoming more and more mechanized every year. Mechanization has been the key to reducing the labor and time required to produce the products needed to feed our growing population. This situation provides a great opportunity to individuals that wish to pursue a rewarding and challenging career in agricultural mechanics. Mechanics and service people are necessary to keep the machines and equipment operating for agribusiness operators and farmers. To agricultural producers and agribusinesses, mechanization systems that function properly are essential for business survival. Such a system may be the difference between profit and loss for the business owner. For the farmer, reliable machinery may be the difference between getting a crop planted on time or not.

A variety of techniques may be used to assist students in mastering this objective. Students should use text materials to understand the importance of agricultural mechanics to the industry of agriculture. Chapter 19 in Modern Agricultural Mechanics is recommended.

Objective 2: Identify the major areas of specialization within agricultural mechanics.

Anticipated Problem: What are the major areas of specialization within agricultural mechanics?

- II. Agricultural mechanics is an area that can lead to great specialization or it may provide supplemental skills for most agricultural-related careers. It can lead to business and career opportunities. Agricultural mechanics skills may be helpful in many career areas, or may be absolutely necessary, depending on the career choice. The following is a list of the major specialization areas within agricultural mechanics along with some specific careers within each area:
 - A. Agricultural Electrification, Power, and Controls—electrician, electrician assistant, safety technician, service company representative.
 - B. Agricultural Power Machinery—equipment delivery person, equipment mechanic, local dealer, parts person, salesperson, service representative.
 - C. Soil and Water Mechanical Practices—agronomist, appraiser, conservationist, irrigation operator, soil technician.
 - D. Agricultural Mechanics, Construction, and Maintenance Skills—construction maintenance worker, lubrication specialist, shop foreperson, safety specialist.
 - E. Agricultural Structures, Equipment, and Facilities—structure contractor, appraiser, building maintenance supervisor, farmstead planner, waste handling specialist.

A variety of techniques may be used to assist students in mastering this objective. Students should use text materials to understand the major areas of specialization within agricultural mechanics. Unit 2 in Agricultural Mechanics Fundamentals & Applications is recommended. Use TM: A1–7A to aid in the discussion on this topic.

Objective 3: Identify the skills needed to be successful in a career in agricultural mechanics.

Anticipated Problem: What skills are needed to be successful in a career in agricultural mechanics?

- III. Young people need to have skills so they can be productive. They need skills in agricultural mechanics and technology. They also need to be willing to put forth effort to achieve. There are five important skill areas for the success of young people in the exciting and challenging industry of agricultural mechanics and technology. They are:
 - A. Education—Most agricultural mechanics jobs require training in how to do the work. Students can begin preparation in high school by taking courses in agricultural mechanics. Then students may want additional training from a community college or a university.
 - B. **Practical experience**—Activity that involves observation of practice, participation, and training in a specific job or event. Practical experience in agricultural mechanics work is important. Students may begin while in high school with part-time and summer jobs.
 - C. Personal skills—Many kinds of personal skills are needed. **Personal skills** include the ability to get along with others, courtesy in dealing with others, and the ability to provide leadership. Honesty, responsibility, and dependability are also essential for success. Employers want people who will get to work on time and put effort into the work.
 - D. Personal appearance—Employers want their employees to dress and groom appropriately. Employees should dress neatly in clean, well-kept clothes. Proper safety clothing may need to be provided as well.
 - E. **Adaptability**—The ability to adjust to new or changed circumstances, The way things are done change. People need to be able to adapt to these changes. Agricultural mechanics work often changes as new developments become available. Continuing education and training will be needed to keep up-to-date. Each individual has a personal responsibility to learn new techniques and new information.

A variety of techniques may be used to assist students in mastering this objective. Students should use text materials to understand the skills needed to be successful in a career in agricultural mechanics. Chapter 1 in AgriScience is recommended. Use TM: A1–7B to reinforce important skill areas in agricultural mechanics.

Review/Summary. Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Questions at the end of each chapter in the recommended textbooks may also be used in the review/summary.

Evaluation. Evaluation should focus on student achievement of the objectives for the lesson. Various techniques can be used, such as student performance on the application activity. A sample written test is attached

Answers to Sample Test:

Part One: Matching

1 = e, 2 = c, 3 = a, 4 = b, 5 = d

Part Two: Completion

1. specialization
2. training
3. individual
4. Mechanization
5. Personal Skills

Part Three: Short Answer

See Objective 3 in the lesson to score this question.

Test

Lesson A1–7: Exploring Careers in Agricultural Mechanics and Technology Systems

Part One: Matching

Instructions. Match the career area with the specific job. Write the letter of the area by the job title.

- a. Agricultural Electrification, Power and Controls
- b. Agricultural Power Machinery
- c. Soil and Water Mechanical Practices
- d. Agricultural Mechanics, Construction, and Maintenance
- e. Agricultural Structures, Equipment, and Facilities

_____ 1. Waste handling specialist.

_____ 2. Conservationist

_____ 3. Electrician

_____ 4. Local dealer

_____ 5. Lubrication specialist

Part Two: Completion

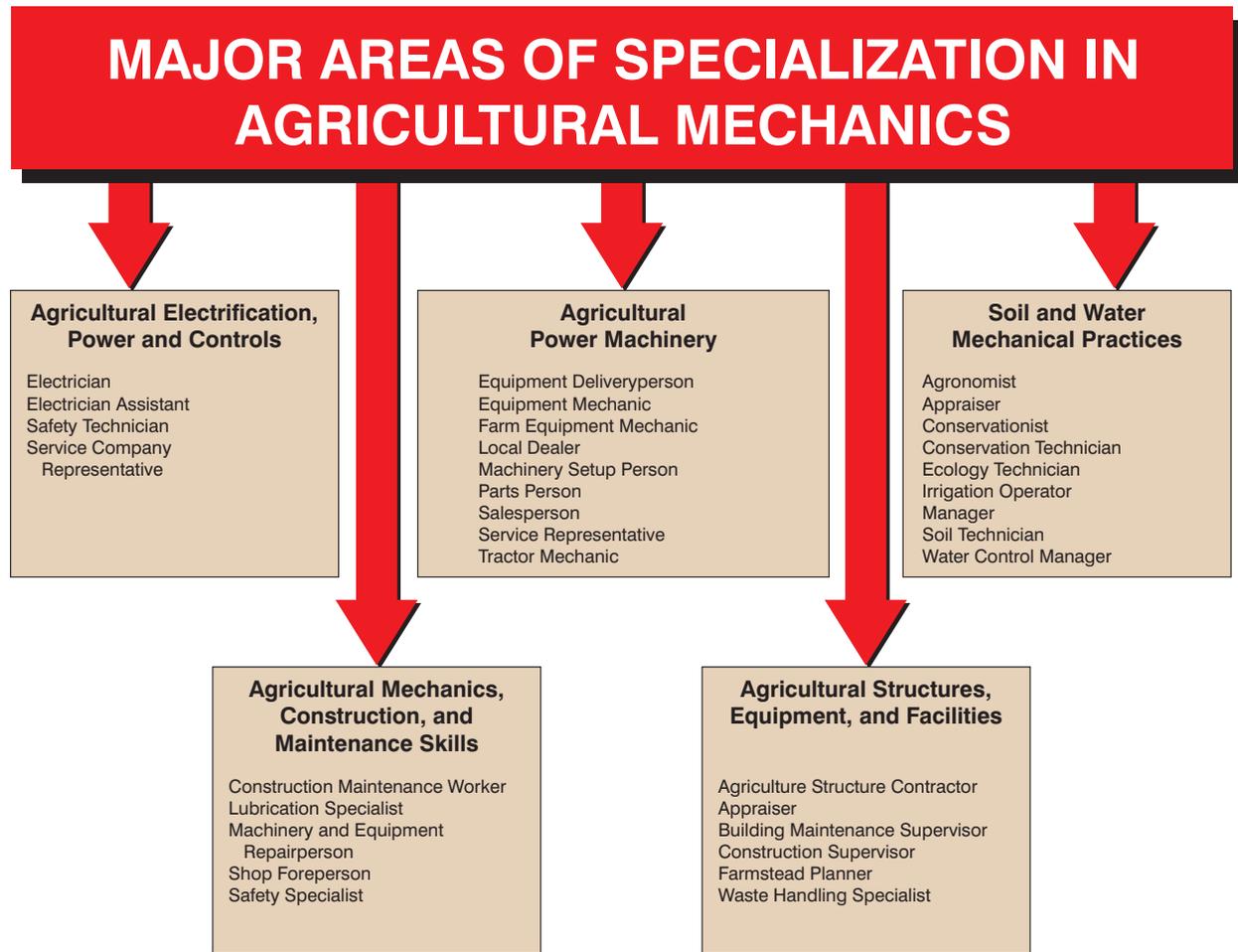
Instructions. Provide the word or words to complete the following statements.

1. Agricultural mechanics is an area that can lead to great _____ or it may provide supplemental skills for most agricultural-related careers.
2. Most agricultural mechanics jobs require _____ in how to do the work.
3. Each _____ has a personal responsibility to learn new techniques and new information.
4. _____ has been the key to reducing the labor and time required to produce the products needed to feed our growing population.
5. _____ is the ability to get along with others, courtesy in dealing with others, and the ability to provide leadership.

Part Three: Short Answer

Instructions. Provide information to answer the following questions.

What are the skills that a person should develop in order to be successful in an agricultural mechanics career?



FIVE IMPORTANT SKILL AREAS IN AGRICULTURAL MECHANICS

- 1. Education**
- 2. Practical Experience**
- 3. Personal Skills**
- 4. Personal Appearance**
- 5. Adaptability**