

Lesson

Identifying Basic Areas of Agricultural Mechanization

Student Learning Objectives

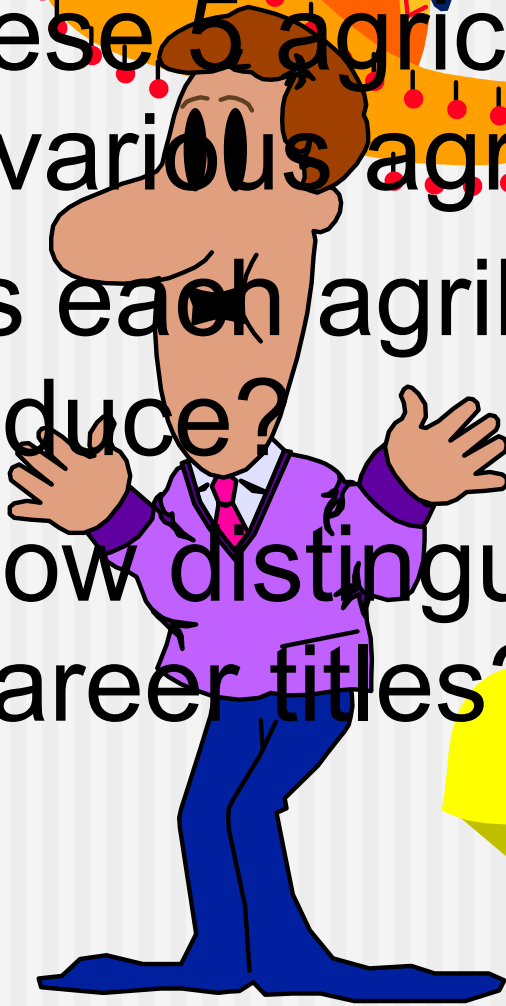
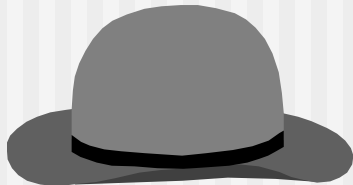
- Identify the different areas of agricultural mechanics.
- Identify careers available in agricultural mechanics.
- Identify the important physical science areas in agricultural mechanics.

Terms

- A Classification of Instructional Programs
- Agricultural power
- Carpentry
- Chemistry
- Earth science
- Electricity
- Energy
- Matter
- Occupational division
- Physical science
- Physics
- Surveying
- Welding

Interest Approach

- Look at these 5 agricultural related hats from various agribusinesses.
- What does each agribusiness do and/or produce?
- Can you now distinguish different areas or career titles?



Objective: 1

What are the different areas of agricultural mechanics?

Agricultural Mechanics

- Agriculture continues to be one of the most sophisticated and mechanized industries in the world.
- Mechanization was and is key to increasing the productiveness of the American worker.

Agricultural Mechanics

- Agricultural mechanics has been divided into five major areas.
- They are:
 - Agricultural Power
 - Carpentry
 - Electricity
 - Surveying
 - Welding

Agricultural Power



- The agricultural power area deals with working with small and diesel engines.
- Persons involved in this area must be familiar with all of the different systems of the engine.

Carpentry



- The carpentry area deals with woodworking for a variety of purposes in agriculture, including the building of agricultural structures.
- Persons involved in this area must be familiar with all the different tools and safety procedures used in carpentry.

Electricity

- The electricity area deals with the uses of electric power in agriculture.
- This includes dealing with electric motors, lights, and other electric controls.

Electricity

- Electricity is one of the most useful tools in agriculture mechanics.
- It is important that everyone involved in agriculture has a basic understanding of the benefits and dangers associated with electricity.

Surveying



- The surveying area deals with the measurement of land.
- This includes not only finding the area of a piece of land, but also its legal description.

Surveying



Welding

- The welding area deals with the joining of two pieces of metal through fusion.
- This area of agricultural mechanics is used in manufacturing agriculture equipment and structures.

Welding



Objective: 2

What careers are available in agricultural mechanics?

Agriculture is the largest industry in the United States.

- It is estimated that 20 -25 percent of the nation's work force is employed in agriculture or agricultural-related occupations.

Agriculture is the largest industry in the United States.

- A large number of this agricultural workforce is made up of persons involved in agricultural mechanics.
- A number of United States government agencies have worked to classify occupations.

Agricultural Occupations

- The National Center for Educational Statistics publishes *A Classification of Instructional Programs*, a book that lists all occupations arranged into occupational clusters and divisions.

Agricultural Occupations

- An occupational division is a group of occupations or jobs within a cluster that requires similar skills.
- All jobs in agriculture are in one of three areas under the agriculture cluster.

Agribusiness and agricultural production

- This area contains eight divisions.
 1. agricultural business and management
 2. agricultural mechanics
 3. agricultural production
 4. agricultural products and processing
 5. agricultural services and supplies
 6. horticulture
 7. international agriculture
 8. agribusiness and agricultural production, other

Agricultural Sciences



- This area has six divisions.
 - 1. agricultural sciences, general
 - 2. animal sciences
 - 3. food sciences
 - 4. plant sciences
 - 5. soil sciences
 - 6. agricultural sciences, other

Renewable Natural Resources

- This area contains seven divisions.
 - 1. renewable natural resources, general
 - 2. conservation and regulation
 - 3. fishing and fisheries
 - 4. forestry production and processing
 - 5. forestry and related sciences
 - 6. wildlife management
 - 7. renewable natural resources, other



There are several specific job titles in agricultural mechanics.

- They are classified under the following categories:
 - 1. agricultural mechanics, general
 - 2. agricultural electrification, power, and controls
 - 3. agricultural mechanics, construction, and maintenance skills
 - 4. agricultural power machinery
 - 5. agricultural structures, equipment, and facilities
 - 6. soil and water mechanical practices
 - 7. agricultural mechanics, other



Objective 3

What are the important physical science areas in agricultural mechanics?

Physical Science

- The agricultural industry is becoming increasingly technology based.
- Agricultural mechanics' foundation is the relationship of the laws of science and mathematics which explains why what is done in this area is possible.

Physical Science

- Persons in agricultural mechanics must have a basic understanding of these principles.
- Many of these science principles used in agricultural mechanics fall into the area of physical science.

Physical Science

- Physical science is the study of the nonliving factors in our environment.
- This includes matter and energy.
- Matter and energy may or may not depend on each other

Matter

- Matter is anything that takes up space and has mass, such as a rock, piece of wood, or tool.
- Matter also includes gases and other substances that may not be easy to see, such as the air or vapors from fuel.

Energy

- Energy is the ability to do work or cause change.
- It is found in different forms, such as heat, chemical, light, and movement.

Energy

- Engines use heat energy.
- Batteries use chemical energy.
- Lasers make use of light energy.
- Movement, called mechanical energy, is seen when a wheel on a tractor moves

Physical science has three important areas in agricultural mechanics:



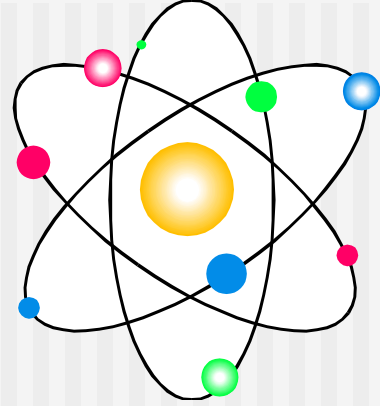
1. Earth science

- Earth science deals with the environment in which plants and animals grow.
- This includes the composition of the earth and the atmosphere.
- Soil, water, and air are studied in Earth science.

2. Chemistry



- Chemistry deals with the makeup of matter, which is made of elements.
- 92 natural elements have been discovered;
- 17 artificial elements have been developed in laboratories and named.
- All substances on the earth are made of these elements arranged in different combinations.



3. Physics

- Physics deals with matter and energy and how the two relate.
- Application of physics is very much a part of agricultural mechanics.
- Modern machinery involves many areas of physics.

REVIEW/SUMMARY

- Identify the different areas of agricultural mechanics.
- Identify careers available in agricultural mechanics.
- Identify the important physical science areas in agricultural mechanics.