

**STATE OF WYOMING**  
**AGRICULTURE & NATURAL RESOURCES CLUSTER AND**  
**AGRICULTURAL MECHANICS PATHWAY COMPETENCIES**

**AGRICULTURE COMPETENCIES**

*Cluster Level Core Competencies & Objectives*

**COMPETENCY**

**AS1**            **Students will demonstrate knowledge of impacts of agriculture on society.**

**OBJECTIVES**

AS1-1            Students will identify careers in agriculture/ industries

- Identify occupations in agriculture
- Identify individual agriculture career interests

AS1-2            Students will recognize the role of agriculture in society

- Trace major changes and accomplishments in the history of agriculture
- Analyze the importance of agriculture to society
- Demonstrate understanding of the scope of world agricultural production
- Describe the role of consumers in world agriculture systems
- Describe the use of science and technology in world food and fiber production

**COMPETENCY**

**AS2**            **Students will demonstrate written and verbal communication skills.**

**OBJECTIVES**

AS2-1            Students will demonstrate public speaking skills

- Demonstrate effective speaking techniques
- Organize and present a persuasive message

AS2-2            Students will read, comprehend, and interpret technical materials/publications

AS2-3            Students will produce

- Technical report/research paper
- Resume, letter of job application, cover letter application, cover letter and/or job application form

### **COMPETENCY**

**AS3 Students will demonstrate an understanding of agribusiness principles and skills.**

#### **OBJECTIVES**

- AS3-1 Students will describe personal finance management
- Demonstrate the components of personal finances and goal making
  - Distinguish the pros and cons of borrowing money
  - Identify sources of credit.
- AS3-2 Students will maintain and complete a set of financial records based on a Supervised Agricultural Experience Project (SAE) or a simulated class activity
- AS3-3 Students will explain keeping and using records in agricultural occupations
- Explain the purpose of record keeping
  - Complete a balance sheet
  - Demonstrate understanding of cash flow, income statements, and computerized record keeping

### **COMPETENCY**

**AS4 Students will demonstrate understanding of applied sciences in agriculture.**

#### **OBJECTIVES**

- AS4-1 Students will describe how the scientific method is used in agricultural research
- AS4-2 Students will explain the steps of the scientific method

### **COMPETENCY**

**AS5 Students will demonstrate understanding of the Future Farmers of America (FFA) organization.**

#### **OBJECTIVES**

- AS5-1 History and membership of FFA
- AS5-2 Parliamentary procedure
- AS5-3 Identify opportunities through FFA
- AS5-4 Demonstrate leadership, citizenship, and cooperation skills

## Agriculture & Natural Resources Cluster

### AGRICULTURAL MECHANICS PATHWAY

#### *Pathway Core Competencies & Objectives*

##### COMPETENCY

**ASAM1** Students will demonstrate safe practices when working in laboratories and other enclosed facilities and when operating and working around laboratory equipment, materials, and chemicals.

##### OBJECTIVES

- ASAM1-1 Students will demonstrate understanding of information from MSDS manuals (material safety data sheets)
- ASAM1-2 Students will understand appropriate use of clothing protection and personal protection equipment
- ASAM1-3 Students will identify appropriate practices for use of electricity for safe practices
- ASAM1-4 Students will identify appropriate fire safety practices
- ASAM1-5 Students will explain how to create a safe place to work
- ASAM1-6 Students will describe what each safety color means and where it is used

##### COMPETENCY

**ASAM2** Students will repair, recondition, and safely operate hand tools.

##### OBJECTIVES

- ASAM2-1 Students will sharpen, recondition, maintain, and properly store tools

##### COMPETENCY

**ASAM3** Students will safely operate power tools.

##### OBJECTIVES

- ASAM3-1 Students will safely use portable and stationary power tools

**COMPETENCY**

**ASAM4 Student will understand welding orientation.**

**OBJECTIVES**

- ASAM4-1 Student will identify welding processes
- ASAM4-2 Student will understand and use welding safety and first aid
- ASAM4-3 Student will identify welding tools and equipment

**COMPETENCY**

**ASAM5 Student will use shielded metal arc welding processes.**

**OBJECTIVES**

- ASAM5-1 Student will perform safety inspections of equipment and accessories
- ASAM5-2 Student will set up for shielded metal arc welding operations on mild steel
- ASAM5-3 Student will start and restart an arc, crater, and backfill at the edge while running a bead on mild steel plate
- ASAM5-4 Student will build a pad on mild steel plate in the flat position on mild steel
- ASAM5-5 Student will weld to specifications a groove and fillet weld in the flat position on mild steel

**COMPETENCY**

**ASAM6 Student will use gas metal arc welding processes.**

**OBJECTIVES**

- ASAM6-1 Student will perform safety inspections of equipment and accessories
- ASAM6-2 Student will set up for gas metal arc welding operations on mild steel
- ASAM6-3 Student will operate gas metal arc welding equipment
- ASAM6-4 Student will use Short Circuit Transfer to make fillet & groove welds in flat position on mild steel

**COMPETENCY**

**ASAM7            Students will select, maintain, and safely operate oxyfuel welding and cutting equipment systems.**

**OBJECTIVES**

- ASAM7-1        Student will perform safety inspections of equipment and accessories
- ASAM7-2        Students will apply oxyfuel welding processes and techniques
- ASAM7-3        Students will weld mild steel with filler rod
- ASAM7-4        Students will cut and weld various thickness of mild steel with an oxy-acetylene unit
- ASAM7-5        Students will perform straight and shape cutting operations on mild steel

**COMPETENCY**

**ASAM8            Students will fabricate with metal.**

**OBJECTIVES**

- ASAM8-1        Students will identify types and shapes of metals
- ASAM8-2        Students will plan and design projects with a bill of materials included
- ASAM8-3        Students will fabricate shop projects using metal
- ASAM8-4        Student will use basic math and measuring skills (tape measures, adding, subtracting, fractions)
- ASAM8-5        Student will read welding project plans

**COMPETENCY**

**ASAM9            Students will demonstrate basic electrical wiring knowledge.**

**OBJECTIVES**

- ASAM9-1        Students will explain electricity and identify safety practices that should be observed in doing electrical work
- ASAM9-2        Students will compare single-phase and three-phase systems

**COMPETENCY**

**ASAM10           Students will paint and/or apply protective coatings.**

**OBJECTIVES**

- ASAM10-1       Students will prepare surfaces and select paints/preservatives
- ASAM10-2       Students will select applicators and apply finishes

***Note: We would like to acknowledge that some schools within the state currently or will in the future offer the following. However, these topics are NOT OFFERED STATEWIDE due to size or time limitations and as such, competencies have not been identified at this time.***

- Small engine
- Equipment and vehicle maintenance
- Trailer maintenance
- Plumbing
- Electrical wiring and motors
- Soldering
- Masonry
- Surveying