Nevada CTE

Agricultural Mechanics Technology: High school

DEMONSTRATE GENERAL SHOP SAFETY PROCEDURES 1.0

PS1.1 UNDERSTAND PERSONAL AND GROUP SAFETY 1.1

- 1.1.1 Demonstrate personal safety precautions in an agricultural mechanics environment 1.1.1
- 1.1.2 Describe group safety precautions in an agricultural mechanics environment, including lockout/tagout procedures 1.1.2
- 1.1.3 Identify safe and unsafe working conditions in the agricultural mechanics environment 1.13
- 1.1.4 Distinguish between the different types of fires 1.14
- 1.1.5 Classify the three components of the fire triangle 1.1.5
- 1.1.6 Describe the different types of fire extinguishers 1.1.6
- 1.1.7 Demonstrate appropriate fire extinguisher use 1.1.7
- 1.1.8 Identify general shop housekeeping procedures 1.1.8

DEMONSTRATE SAFE AND PROPER WELDING PROCEDURES 2.0

PS2.1 : DEMONSTRATE SAFE AND PROPER TECHNIQUES IN OXY/FUEL CUTTING (OFC) 2.1

- 2.1.1 Demonstrate proper safety practices while operating all welding and cutting equipment 2.1.1
- 2.1.2 Select appropriate welding and cutting tips for specific applications 2.1.2
- 2.1.3 Properly assemble oxy/fuel apparatus 2.1.3
- 2.1.4 Properly diagnose equipment failure 2.1.4
- 2.1.5 Properly cut mild steel to specification 2.1.5

PS 2.2 : DEMONSTRATE SAFE AND PROPER TECHNIQUES IN SHIELDED METAL ARC WELDING (SMAW) 2.2

- 2.2.1 Demonstrate proper safety practices while operating SMAW equipment 2.2.1
- 2.2.2 Select appropriate electrodes for specific applications 2.2.2
- 2.2.3 Properly adjust SMAW apparatus 2.2.3
- 2.2.4 Properly diagnose equipment failure 2.2.4
- 2.2.5 Produce three AWS standard welds in the flat and horizontal position 2.2.5
- 2.2.6 Identify welding electrodes using AWS electrode classification system 2.2.6
- 2.2.7 Determine the correct shade of lens used for a given application and type of welding process 2.2.7

PS2.3 : DEMONSTRATE SAFE AND PROPER TECHNIQUES IN GAS METAL ARC WELDING (GMAW) 2.3

- 2.3.1 Demonstrate proper safety practices while operating GMAW equipment 2.3.1
- 2.3.2 Select appropriate electrodes, contact tips, gas nozzles and diffusers, and shielding gas for specific applications 2.3.2
- 2.3.3 Properly adjust GMAW apparatus for specific application 2.3.3
- 2.3.4 Properly diagnose equipment failure 2.3.4
- 2.3.5 Produce three AWS standard welds in the flat and horizontal position 2.3.5

PS2.4 : DEMONSTRATE SAFE AND PROPER TECHNIQUES IN GAS TUNGSTEN ARC WELDING (GTAW) 2.4

- 2.4.1 Demonstrate proper safety practices while operating GTAW equipment 2.4.1
- 2.4.2 Select appropriate consumables and shielding gas for specific applications 2.4.2
- 2.4.3 Properly adjust GTAW apparatus for specific application 2.4.3
- 2.4.4 2.4.4 Properly diagnose equipment failure 2.4.4
- 2.4.5 Produce three AWS standard welds in the flat and horizontal position on ferrous metals 2.4.5

PS2.5 : DEMONSTRATE SAFE AND PROPER TECHNIQUES IN PLASMA CUTTING (PAC) PROCEDURES 2.5

- 2.5.1 Demonstrate proper safety practices while operating plasma cutting equipment 2.5.1
- 2.5.2 Select appropriate consumables for specific applications 2.5.2
- 2.5.3 Properly assemble plasma cutting apparatus 2.5.3
- 2.5.4 Properly diagnose equipment failure 2.5.4
- 2.5.5 Properly cut ferrous metals 2.5.5

UNDERSTAND THE PRINCIPLES OF ELECTRICITY IN AGRICULTURE 3.0

PS3.1 : UNDERSTAND PRINCIPLES AND THEORIES OF ELECTRICITY 3.1

- 3.1.1 Describe proper safety practices applicable to agricultural electrification 3.1.1
- 3.1.2 Describe the principles of generation, transmission and distribution of electricity 3.1.2
- 3.1.3 Describe voltage, current, and resistance 3.1.3
- 3.1.4 Differentiate between direct and alternating current 3.1.4

PS 3.2 : APPLY THE PRINCIPLES AND THEORIES OF ELECTRICAL CIRCUITS 3.2

- 3.2.1 Determine the proper conductor for specific applications 3.2.1
- 3.2.2 Explain the function of circuit breakers and overcurrent protection devices 3.2.2
- 3.2.3 Explain the function and importance of grounding in electrical circuits 3.2.3
- 3.2.4 Use the multimeter to measure voltage, current, and resistance 3.2.4

UNDERSTAND WATER AND WASTEWATER MANAGEMENT IN AGRICULTURAL AND INDUSTRIAL SETTINGS 4.0

PS4.1 : DEMONSTRATE SAFE PRACTICES AND PROCEDURES IN AGRICULTURAL AND INDUSTRIAL WATER MANAGEMENT 4.1

- 4.1.1 Explain the role of water use, management and conservation in the agricultural industry 4.1.1
- 4.1.2 Select and use safety equipment appropriate to working conditions 4.1.2

PS4.2 : DEMONSTRATE BASIC PIPE FITTING SKILLS 4.2

- 4.2.1 Describe how to select and identify fittings and pipe 4.2.1
- 4.2.2 Describe how to measure, mark, cut, ream, thread, and join pipe 4.2.2

UNDERSTAND PRINCIPLES AND APPLICATIONS IN AGRICULTURAL CONSTRUCTION 5.0

PS5.1 : DEMONSTRATE PRACTICES, APPLICATIONS AND PROCEDURES OF DRAFTING IN AGRICULTURAL PROJECTS 5.1

- 5.1.1 Differentiate between the various plans used in projects (blueprints, shop plans and wiring schematics) 5.1.1
- 5.1.2 Draw basic plans using proper drafting techniques 5.1.2
- 5.1.3 Develop a bill of materials from a selected set of plans 5.1.3

PS5.2 : DEMONSTRATE PRACTICES AND PROCEDURES IN CONSTRUCTION OF AGRICULTURAL PROJECTS 5.2

- 5.2.1 Explain safety procedures required while working on a project site, including personal safety, hand and power tools and equipment 5.2.1
- 5.2.2 Select appropriate design, type and materials to meet the building needs while considering use, environment and budget 5.2.2

UNDERSTAND PRINCIPLES AND APPLICATIONS OF SINGLE AND MULTIPLE CYLINDER ENGINES 6.0

PS6.1 : DEMONSTRATE SAFE PRACTICES AND PROCEDURES OF THE OPERATION, MAINTENANCE AND REPAIR OF SMALL GAS ENGINES AND EQUIPMENT 6.1

- 6.1.1 Describe personal and environmental safety practices associated with the operation, maintenance and repair of small gas engines and equipment 6.1.1
- 6.1.2 Describe personal and environmental safety practices associated with the operation, maintenance and repair of gas and diesel power as applied to agricultural equipment 6.1.2

PS6.2 : DEMONSTRATE A WORKING KNOWLEDGE OF THE ESSENTIAL ENGINE OPERATING SYSTEMS 6.2

- 6.2.1 Classify small gas engines according to ignition, fuel, cooling, lubrication and compression systems 6.2.1
- 6.2.2 Explain functions of ignition, fuel, cooling, lubrication and compression systems and their interrelationships 6.2.2

PS6.3 : RECOGNIZE APPROPRIATE POWER ATTACHMENTS AND THEIR APPLICATIONS 6.3

- 6.3.1 List and describe appropriate uses and applications of small engine attachments 6.3.1
- 6.3.2 Explain the various methods of connecting attachments to small engines 6.3.2

PS6.4 : DEMONSTRATE MAINTENANCE AND REPAIR PROCEDURES ON SINGLE AND MULTIPLE CYLINDER ENGINES AND ATTACHMENTS 6.4

- 6.4.1 Identify common failures relating to ignition, fuel, cooling, lubrication and compression systems and attachments 6.4.1
- 6.4.2 Interpret service manual information for small engine and equipment maintenance and repair 6.4.2
- 6.4.3 Diagnose and repair common failures relating to ignition, fuel, cooling, lubrication, electrical and compression systems 6.4.3

DEMONSTRATE BASIC SKILLS IN OPERATION, MAINTENANCE AND REPAIR OF AGRICULTURAL MACHINERY 7.0

PS7.1 : DEMONSTRATE SAFE PRACTICES AND PROCEDURES OF OPERATION, MAINTENANCE AND REPAIR OF AGRICULTURAL MACHINERY AND EQUIPMENT 7.1

- 7.1.1 Demonstrate the safety practices and procedures that must be practiced when working with agricultural machinery 7.1.1
- 7.1.2 Classify agricultural machinery according to function, type, and style 7.1.2
- 7.1.3 Explain the importance of preventive maintenance programs and keeping accurate maintenance records 7.1.3
- 7.1.4 Prepare an applicable piece of equipment for storage 7.1.4
- 7.1.5 Determine the cost of routine equipment maintenance 7.1.5
- 7.1.6 Repair common failures relating to agricultural machinery by utilizing repair and parts manuals 7.1.6
- 7.1.7 Perform manufacturers recommended pre-operation safety inspection 7.1.7

IDENTIFY AND DEMONSTRATE THE PROPER USE OF AGRICULTURAL HAND AND POWER TOOLS 8.0

PS8.1 : IDENTIFY GENERAL SHOP HAND AND POWER TOOLS 8.1

- 8.1.1 Identify and explain the safe and proper use of shop hand and power tools 8.1.1

PS8.2 : DEMONSTRATE APPROPRIATE PROCEDURES FOR THE MAINTENANCE AND REPAIR OF HAND TOOLS 8.2

- 8.2.1 Determine if the tool can be safely used in its present condition or, if damaged, reconditioned/replaced 8.2.1
- 8.2.2 Demonstrate proper care and storage of tools 8.2.2
- 8.2.3 Repair a damaged tool to a safe working condition 8.2.3

DEMONSTRATE THE OPERATION, MAINTENANCE AND USE OF ELECTRICAL POWER, MOTORS AND CONTROLS IN AGRICULTURAL APPLICATIONS 9.0

PS9.1 : DEMONSTRATE PROCEDURES ASSOCIATED WITH THE OPERATION, MAINTENANCE AND REPAIR OF ELECTRICAL POWER 9.1

- 9.1.1 Recognize possible safety hazards while working with electrical motors and controls 9.1.1
- 9.1.2 Select and properly use safety equipment appropriate to working conditions 9.1.2
- 9.1.3 Explain the function of various controls used in electrical applications 9.1.3
- 9.1.4 Demonstrate a working knowledge of repair manuals and parts manuals 9.1.4
- 9.1.5 Diagnose and repair common failures relating to electrical motors and controls 9.1.5

UNDERSTAND AGRICULTURAL HYDRAULIC SYSTEMS 10.0

P10.1 : DEMONSTRATE KNOWLEDGE OF THE BASIC PRINCIPLES, OPERATION AND MAINTENANCE OF HYDRAULIC SYSTEMS IN THE AGRICULTURAL INDUSTRY 10.1

- 10.1.1 Identify essential safety practices relating to the operation of agricultural equipment using hydraulics 10.1.1
- 10.1.2 Explain the four basic principles of hydraulics 10.1.2
- 10.1.3 Describe the functions and relationships of the basic components of a hydraulic system 10.1.3
- 10.1.4 Perform routine service and maintenance utilizing appropriate service manuals 10.1.4
- 10.1.5 Identify problems associated with hydraulic systems 10.1.5

DESCRIBE THE RELATIONSHIP BETWEEN A SUPERVISED AGRICULTURAL EXPERIENCE (SAE) AND PREPARATION OF STUDENTS FOR A CAREER IN AGRICULTURE 11.0

P11.1 : ACTIVELY DEVELOP AND PARTICIPATE IN SUPERVISED AGRICULTURAL EXPERIENCE, WHICH ENABLES STUDENTS TO OBTAIN WORK-BASED SKILLS 11.1

- 11.1.1 Identify and describe a career interest in agriculture or agriculture related occupation 11.1.1
- 11.1.2 Participate in and manage their individual Supervised Agricultural Experience 11.1.2
- 11.1.3 Keep accurate records as prescribed by the Nevada State FFA policies and procedures 11.1.3

PARTICIPATE IN LEADERSHIP TRAINING THROUGH MEMBERSHIP IN FFA 12.0

PS12.1 : RECOGNIZE THE TRAITS OF EFFECTIVE LEADERS AND PARTICIPATE IN LEADERSHIP TRAINING THROUGH INVOLVEMENT IN FFA 12.1

- 12.1.1 Recognize opportunities in high-wage, high-skill careers in leadership and communications 12.1.1
- 12.1.2 Explain the FFA creed, motto, salute, and FFA Mission Statement 12.1.2
- 12.1.3 Demonstrate knowledge of the history of the organization, the chapter constitution and bylaws, and the chapter program of activities 12.1.3
- 12.1.4 Demonstrate knowledge of the FFA Code of Ethics, official dress, and the proper use of the FFA jacket 12.1.4
- 12.1.5 Describe the meaning of the FFA colors 12.1.5

PS12.2 : UNDERSTAND THE OPPORTUNITIES IN FFA 12.2

- 12.2.1 Describe how FFA develops leadership skills, personal growth, and career success 12.2.1
- 12.2.2 Identify major state and national activities and awards available to FFA members 12.2.2
- 12.2.3 Participate in at least one Career Development Event at the local level 12.2.3

PS12.3 : UNDERSTAND THE IMPORTANCE OF SCHOOL AND COMMUNITY AWARENESS 12.3

- 12.3.1 Discuss the meaning and importance of community service 12.3.1
- 12.3.2 Identify and describe some community service organizations 12.3.2
- 12.3.3 Explain how FFA members can become involved in community improvement and development 12.3.3