

# Spanish Fork High School 2014-2015

## Don Learning Targets for Agricultural Systems 1

### FFA and SAE in Agricultural Systems

- 1. I can explain the role of FFA in agricultural education**
  - I can identify the events for the most important dates in FFA history
  - I can explain the FFA motto, colors and creed
  - I can label the parts of the FFA emblem
  - I can examine and explain three common FFA Career Development events
  - I can list and explain the FFA degree areas
- 2. I can explain the role of supervised agricultural experience (SAE) programs in agricultural education.**
  - I can describe the types of SAEs
  - I can explain the following recordkeeping terminology: budget, asset, liability, net worth, capital, balance sheet, and inventory.
  - I can develop a plan for a personal SAE program
  - I can keep records on a personal SAE program in AET
- 3. I can investigate agricultural power, structural and technical systems.**
  - I can explain the meaning and importance of agricultural power, structural and technical systems.
  - I can identify and describe career opportunities in agricultural systems.

### Safety

- 4. I can explain the meaning and importance of safety in agricultural systems.**
  - I can define safety and why it is important.
  - I can identify safety hazards, and demonstrate the actions needed to minimize or eliminate risk.
  - I can identify, select, and properly use appropriate personal protective equipment (PPE).
  - I can explain the standard OSHA color codes for marking physical hazards.
  - I can verify that all equipment is in good operating condition according to OSHA standards and that appropriate safety devices are in place and working (e.g., guards in place, tool rests adjusted, etc.).
  - I can maintain a neat, well-organized laboratory or shop working area.
  - I can identify fire hazard conditions and actions to take in case of fire.
  - I can explain combustion, and identify three conditions necessary for it to occur.
  - I can describe fire prevention in agricultural power, structural, and technical systems.
  - I can explain classes of fires and appropriate extinguishers.

- I can take appropriate actions in an accident or emergency.
- I can demonstrate the use of simple first aid in an accident with an injury.
- I can locate first-aid kits, and investigate their contents and use in power, structural, and technical systems settings.
- I can discuss appropriate safety responses in an accident or emergency.

## **Agricultural Structures**

### **5. I can create and/or use sketches, plans, and specifications for agricultural structures.**

- I can identify symbols and drawing techniques used in creating sketches and plans.
- I can use scale measurement and dimensions with sketches and plans.
- I can identify and interpret different views of a construction drawing.
- I can develop sketches or plans for an agricultural structure.

### **6. I can determine materials needed for agricultural structures.**

- I can identify types and grades of materials used in constructing agricultural structures, including lumber, plywood, manufactured materials (e.g., particle board and wafer board), roofing, insulation, and doors and windows.
- I can identify fasteners and other devices used in constructing agricultural structures.
- I can identify dimensions and sizes of materials and fasteners used in agricultural structures.

### **7. I can construct a small agricultural structure or project**

- I can identify and demonstrate safe and proper use of common tools used in agricultural construction.
- I can select materials for a construction project.
- I can prepare a bill of materials for a small structure or project, including a cost estimate.
- I can measure, mark, and cut materials according to plans for an agricultural structure.
- I can assemble an agricultural structure by properly fitting materials and using fasteners.
- I can evaluate a completed structure in terms of plans and quality of work.

### **8. I can select and use appropriate protective coatings, such as paints and preservatives.**

- I can discuss the importance of properly selecting and using paints and preservatives.
- I can identify and use appropriate application methods for coating materials, including surface preparation and safety.
- I can maintain painting tools and equipment by proper cleaning, storage, and on-job use.

## **Plumbing**

### **9. I can distinguish between plumbing materials and products.**

- I can describe the meaning and importance of plumbing systems for air, water, wastes, and other fluid-based materials.
- I can identify components of plumbing supply systems and waste systems, including pipe, tubing, valves, faucets, fittings, and fixtures.
- I can identify materials used in manufacturing plumbing materials, such as plastics (PVC and CPVC), copper, iron, and steel.
- I can describe how plumbing system components are sized, and appropriately match sizes to jobs.
- I can prepare a bill of materials for a plumbing job.

### **10. I can perform simple plumbing jobs.**

- I can identify and select appropriate tools for a plumbing job.
- I can measure, cut, fit, and install PVC and/or CPVC materials as used in water supply systems, including use of cleaner and cement.
- I can measure, cut, thread, and install iron or steel pipe materials as used in water supply systems.
- I can demonstrate the use of soldering in plumbing applications.
- I can repair and maintain plumbing systems.

## **Small Engines**

### **11. I can select and operate internal combustion engines.**

- I can identify components and systems of internal combustion engines.
- I can describe the operation of internal combustion engines by cycle and fuel used.
- I can use the operator's manual to operate and maintain an engine properly.
- I can list and explain criteria to use in selecting an engine.
- I can obtain and/or prepare the proper fuel for an internal combustion engine.
- I can start, operate, and shut down an internal combustion engine.

### **12. I can analyze and troubleshoot internal combustion engines.**

- I can identify the major components of internal combustion engines and the functions of each.
- I can explain the meaning of troubleshooting, and list the common engine problems identified/solved by troubleshooting.
- I can troubleshoot an engine that does not start.

### **13. I can maintain internal combustion engines.**

- I can perform routine maintenance, such as cleaning an engine, changing the oil, and cleaning or replacing the air filter.
- I can replace and adjust spark plugs as needed.
- I can winterize or otherwise prepare an engine for extended storage.
- I can practice environmental responsibility through the proper disposal of engine wastes, such as oil and filters.

**14. I can operate small equipment powered by internal combustion engines.**

- I can identify safety hazards and practices to follow to assure safe operation with small equipment, including mowers, tillers, blowers, and edgers.
- I can explain the meaning and importance of pre-operation inspections, including those of fuel and oil levels, the air system, and the condition of engine components.
- I can start and safely operate engine-powered equipment.
- I can stop and properly cool down and store engine-powered equipment.

**Metal Fabrication**

**15. I can explain kinds of metals and their uses.**

- I can identify kinds of metals by appearance and testing, such as spark testing.
- I can classify metals according to characteristics and uses.
- I can identify, maintain, recondition, and use tools in hot and cold metal work.

**16. I can fabricate with hot and cold metal.**

- I can select and use appropriate safety practices in metal fabrication.
- I can apply cold metal processes in fabrication, including measuring and marking, cutting, bending, tapping and threading, filing and drilling, and riveting.
- I can discuss the use of hot metal processes, including annealing, tempering, bending, cutting, and hole punching.

**17. I can weld using shielded metal arc welding (SMAW) processes.**

- I can set up for SMAW operations on carbon steel.
- I can start and restart an arc and backfill at the edge while running a bead on carbon steel.
- I can build a weld pad on carbon steel in the flat position.
- I can make 1F (flat position-fillet weld) welds on carbon steel.
- I can make 2F (horizontal position-fillet weld) welds on carbon steel.
- I can make 1G (flat position-groove weld) welds on carbon steel.
- I can make 2G (horizontal position-groove weld) welds on carbon steel.

**18. I can use manual oxyfuel gas cutting processes.**

- I can perform safety inspections of equipment and accessories.
- I can set up for manual oxyfuel gas cutting operations on carbon steel.
- I can perform straight cutting operations on carbon steel.
- I can perform shape-cutting operations on carbon steel.
- I can perform bevel-cutting operations on carbon steel.
- I can pierce a hole through a carbon steel plate.

**19. I can weld using gas metal arc welding (GMAW) processes.**

- I can set up for GMAW operations on carbon steel.
- I can start and restart an arc and backfill at the edge while running a bead on carbon steel.
- I can use Short Circuit Transfer welding process to make 1F (flat position-fillet weld) welds on carbon steel.

- I can use Short Circuit Transfer welding process to make 2F (horizontal position-fillet weld) welds on carbon steel.
- I can use Short Circuit Transfer welding process to make 1F (flat position-fillet weld) multi-pass weld on carbon steel.
- I can use Short Circuit Transfer welding process to make 1G (flat position-groove weld) welds on carbon steel.
- I can use Short Circuit Transfer welding process to make 2G (horizontal position-groove weld) welds on carbon steel.