Instructional Materials Service # RB-321

SAEP ACTIVITIES FOR AGRICULTURAL STRUCTURES TECHNOLOGY AGSC 321

This publication contains a partial listing of potential SAEP activities that can be used to enhance learning. Plan, seek approval of, and verify activities with the teacher of agricultural science and technology.

A. Knowledge of the Employability Characteristics of a Successful Worker in the Modern Workplace

- Search for agricultural job openings using an Internet browser and search engine.
- Tour and plan for an agricultural structures construction business.
- Visit with the manager of an agricultural structures related job.
- Train for and/or participate in a career development event related to agricultural structures technology.
- Conduct a skills demonstration related to agricultural structures technology.
- Exhibit an agricultural structure or structures at an organized show.
- Speak to an organization on an agricultural structures technology related topic.
- Prepare and conduct a workshop on safety in building agricultural structures.
- Visit an agricultural construction company. Record the safety precautions observed in the shop and/or at a construction site. In addition, observe any safety precautions that may be violated. Report findings to the class.
- Visit companies related to agriculture structures technology and observe the different products constructed. Report findings to the class.
- Interview employees of an agricultural structures technology field concerning their job description, training, and other requirements for employment.
- Select and secure speakers on an agricultural structures technology topic for a meeting of an agricultural club.
- Participate in an activity of an agricultural structures technology organization.
- Apply for awards related to agricultural structures technology.
- Review a video program on hand/power tool safety and construction procedures.
- Write to a college, university, or trade school regarding degree programs in agricultural structures technology.
- Serve as an officer of an agricultural club.
- Attend a state or national meeting/convention sponsored by the FFA or other related organizations.
- Attend a district or area meeting/convention sponsored by the FFA or other related organizations.
- Attend a workshop on an agricultural structures related topic.
- Prepare an accident prevention program for your school laboratory or an agricultural construction company.

Other Approved Activities:

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B. Plan and Construct Agricultural Buildings

- Compare the cost of remodeling an old structure to the cost of building a new structure. Prepare an itemized cost list of materials for each and suggest changes. Discuss with other members of the class.
- Obtain samples of different types of building materials. Compare the advantages and disadvantages and costs of each. Discuss with other members of the class.

- Use a computer aided drafting program (CAD) to design an agricultural structure.
- Compare methods of applying paints/preservatives to an agricultural structure. (Include ease of application, quality of finish, coverage, cleanup of equipment, etc. in your comparisons.)
- Prepare a complete bill of materials for an agricultural structures project.
- Collect photographs of different roof types and provide a caption for each. (Examples of roof types include shed, hip, gable, and gable with a valley.)
- Collect photographs of agricultural buildings that are weak in structure and low in energy efficiency. Explain problems of each structure.
- Assist in constructing an agricultural structure in the community.
- Compare the energy efficiency and safety of similar agricultural structures in the community and report advantages and disadvantages of each.
- Obtain aerial photographs available through the Consolidated Farm Service Agency (CFSA) or Natural Resource Conservation Service (NRCS) for a section of land. Determine if it would be feasible to build an agricultural structure on this land. (Note: Consider such things as topography, slope, drainage, etc.)
- Compare the ventilation systems of similar agricultural structures.
- Calculate amount of exterior sheeting needed to enclose an agricultural building.
- Assist in framing out and hanging a door.
- Assist in replacing a window in a building.
- Calculate the amount of roofing material needed for an agricultural building.
- Calculate the pitch and length of rafters required on an agricultural building.
- Using the proper symbols, prepare a floor plan for an agricultural structure.

Other Approved Activities:

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C. Plan and Construct Agricultural Enclosures

- Visit local agricultural products supply centers and record the different types of fence materials available in the community. Report findings to the class.
- Collect photographs of types of fence line corner construction used throughout the community. Report good and bad qualities of each to the class.
- Collect samples of different types of fencing materials. Compare costs and common uses of each. (Examples include barbed, welded, and mesh wire.)
- Assist in the construction of animal enclosures for a farm or ranch.
- Assist in the construction of an electric fence on a farm or ranch.
- Obtain information and samples of fencing materials made of synthetic materials.
- Develop a site plan for a feedlot operation.
- Develop a site plan for the construction of animal working pens and corrals.
- Develop a site plan for the fencing of a farm or ranch.
- Determine the number of posts needed and the type of corner construction to be used on a fence project.

Other Approved Activities:

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D. Install, Service, and Maintain Electrical Systems

- Using a wiring board, assemble examples of different types of branch circuits. Demonstrate the operation of each to a civic organization or other group.
- Visit local hardware or electrical supply stores and determine the availability of different types of electrical equipment. Report findings to the class.
- Calculate the amount of electrical equipment needed to wire a structure.

- Interview a local building inspector. Determine local and state electrical codes and inspection procedures. Report findings to the class.
- Work as an electrician's assistant. Record the safety precautions taken with electricity.
- Using correct symbols, draw a floor plan showing all electrical equipment used in an agricultural structure.
- Using the latest NEC, determine which types of agricultural structures need dust and moisture resistant electrical wiring and fixtures.
- Using the latest NEC, determine current regulations concerning the use of safety grounding equipment and ground fault circuit interrupters.
- Conduct a survey of your home and record and eliminate electrical hazards found.
- Write to an electric power supply company for information on electrical distribution systems and safety. Prepare a summary of information received.
- Determine the amount of amperage required to operate a piece of electrical equipment used in your daily routine. [Hint: amps x volts = watts.]
- Install a circuit protection device in your home or in an agricultural structure.
- Assist in minor electrical repairs or changes in electrical systems.

Other Approved Activities:

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E. Place, Finish, and Cure Concrete Slabs and Structures

- Visit hardware or agriculture supply stores and record the various types of cement and reinforcements available. Report findings to the class.
- Interview a concrete construction contractor. Discuss admixtures and finishing and curing procedures used to produce quality products under various conditions. Report findings to the class.
- Assist in site preparation and the construction of forms for a concrete structure.
- Assist in pouring and finishing concrete.
- Assist in constructing a masonry structure.
- Assist in building tilt-up concrete structures.
- Prepare a site plan for a concrete slab using topographical maps or a level.
- Determine the water-cement ratio, admixtures, and types of finishing and curing procedures needed for a concrete structure.
- Compare the costs of mixing your own concrete to buying ready-mix concrete.
- Calculate and mix the approximate amount of concrete needed for a concrete structure.
- Calculate the amount of reinforcement needed to prepare a concrete structure.

Other Approved Activities:

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F. Construct and Maintain Structures

- Determine the soil load bearing capacity of a land area to be used for a building construction site. Secure the assistance of a construction engineer.
- Construct a slab or wood floor for an agricultural structure.
- Construct a wall for an agricultural structure.
- Install and adjust manufactured doors and windows in an agricultural structure.
- Construct a roof for an agricultural structure.
- Install gutters and downspouts on an agricultural structure.
- Maintain the flooring, walls, doors, windows, roof, gutters, and downspouts for an agricultural structure.

Other Approved Activities:

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G. Traditional and Non-Traditional Building Techniques

- Assist in planning tilt-up construction for an agricultural facility.
- Assist in planning masonry construction for an agricultural facility.
- Interview a local contractor to see what passive energy structures are being used in your community. Report findings to the class.
- Collect photographs of passive energy structures used in the community.
- Collect photographs of agricultural structures constructed by non-traditional building techniques.
- Prepare a plan for an agricultural structure that uses passive energy such as solar power. Include size of collector needed and size of storage system needed.
- Compare building costs of traditional and non-traditional buildings.
- Compare costs of passive energy structures and traditional structures.
- Calculate the size of a solar collector and storage system needed to operate an agricultural structure.

Other Approved Activities:

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H. Select and Use Surveying Equipment

- Use a level to determine the amount of slope needed for water collection and diversion structures.
- Use a level to set a form for a concrete structure at an agricultural site.
- Use a level to construct an agricultural building.
- Use a level to lay out fence lines.
- Calculate the land area in a small field or pasture.

Other Approved Activities:

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I. Plan, Establish, and Maintain Water Management Systems

- Interview a local health department official on the current regulations regarding water well and sewage disposal system location and construction.
- Work with a farmer or rancher in designing an irrigation system to meet needs and report on how your input was used.
- Assist in drilling a water well.
- Assist in repairing a water system.
- Plan a water system to supply water to meet the peak use rate of a farm or ranch.
- Estimate the daily water requirements of a farm or ranch.
- Prepare a water system for winter weather.
- Diagram a water system used in an agricultural operation or in a home.
- Calculate the amount of water pipe and fixtures needed in a water system.
- Collect a water sample. Get it analyzed. Upon receiving results, determine how the impurities would affect you or your animals in drinking the water.

Other Approved Activities:

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