South Carolina CTE

Equipment Operation and Maintenance

Power and Technology in the Agricultural Industry A

1 The Importance of Agricultural Power and Technology A.1

1 Describe the emergence of agricultural power and technology A.1.1

2 Identify areas of the agricultural power and technology industry. A.1.2

3 Select and use information, resources and systems of operation in agricultural power. A.1.3

2 Opportunities in Agricultural Power and Technology A.2

1 Identify career opportunities A.2.1

2 Discuss Personal needed education and technical skills A.2.2

3 Plan and manage a supervised agricultural education experience. A.2.3

3 Safety in Agricultural Power and Technology A.3

1 Identify and describe the major causes of accidents. A.3.1

2 Discuss methods of accident prevention. A.3.2

3 Describe appropriate procedures in case of an accident. A.3.3

4 Select and use personal safety equipment. A.3.4

4 Tools used in Equipment Maintenance A.4

1 Select, Identify and properly use tools utilized in machinery and equipment maintenance. A.4.1

2 Discuss the use of diagnostic instruments and testers. A.4.2

3 Identify worn and damaged tools. A.4.3

5 Maintenance and storage facilities A.5

1 Explain the importance of maintenance and storage of equipment. A.5.1

2 Design a maintenance and storage facility. A.5.2

3 Discuss the procedures in storing of equipment. A.5.3

4 Discuss the handling and storing of petroleum products. A.5.4

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Skip to main content

pplying Science Principles and Practices B.1

1 Explain the importance of physical science in agricultural power equipment. B.1.1

2 Describe mechanical advantage B.1.2

3 Explain how changing the state of matter can be used to transfer heat. B.1.3

4 Explain how chemical energy is converted to electrical energy and then mechanical energy. B.1.4

2 Tractors B.2

1 Identify the kinds and uses of agricultural tractors. B.2.1

2 Demonstrate the use of the equipment operators manual. B.2.2

3 Demonstrate the safe operation of a tractor. B.2.3

4 Describe the role of a tractor operator in maintenance. B.2.4

5 Perform preventive maintenance procedures. B.2.5

6 Explain the purpose and procedure of keeping proper maintenance records. B.2.6

7 Explain troubleshooting and how it is used. B.2.7

3 Production Equipment B.3

1 Describe the importance of equipment in agricultural production. B.3.1

2 Identify types and uses of tillage equipment. B.3.2

3 Identify the types and uses of planting equipment, including calibration. B.3.3

4 Identify the kinds and uses of application equipment, including calibration. B.3.4

5 Identify the kinds and uses of harvesting equipment. B.3.5

4 Turf and Landscape Equipment B.4

1 Identify the kinds and uses of hand tools in turf and landscaping. B.4.1

2 Identify the kinds and uses of turf power equipment. B.4.2

3 Demonstrate mower blade sharpening. B.4.3

4 Identify the kinds and uses of landscape power equipment. B.4.4

5 Maintain landscape power equipment. B.4.5

5 Specialty Equipment B.5

1 Describe the kinds, uses and maintenance of materials-handling equipment. B.5.1

2 Describe the uses and safe operation of an all terrain vehicle. B.5.2

Power Sources and Operation C

1 Internal Combustion Engine Systems and Functions C.1

1 Explain the meaning of internal combustion and related engine terms. C.1.1

2 Describe the operation of a four stroke and two cycle engine. C.1.2

3 Identify and describe the functions of engine components. C.1.3

Skip to main content

ebuilding small air-cooled gasoline engines C.2

1 Identify considerations in rebuilding or replacing a small, air-cooled gasoline engine C.2.1

2 Describe how to use an engine service and repair manual. C.2.2

3 Read and interpret engine identification numbers. C.2.3

4 Describe a general method of diagnosing small-engine problems.. C.2.4

5 Perform and conduct small-engine diagnostic tests. C.2.5

6 Correctly and safely disassemble a small engine. C.2.6

7 Clean small engine components C.2.7

8 Evaluate small-engine components and recondition as appropriate. C.2.8

9 Reassemble a small engine and make preliminary adjustments.. C.2.9

3 Maintaining Diesel Engines C.3

1 Explain the operation of a diesel engine. C.3.1

2 Identify the importance of fuel-injection systems. C.3.2

3 Identify the maintenance practice for with diesel engines. C.3.3

4 Troubleshoot a diesel engine. C.3.4

4 Engine Power and Efficiency C.4

1 Define and calculate work, torque, power and horsepower using correct units. C.4.1

2 Explain types of power ratings. C.4.2

3 Describe the measurement of engine and tractor power and use the findings to improve efficiency. C.4.3

4 Discuss the meaning of efficiency. C.4.4

5 Power Trains C.5

1 Explain the meaning and components of a power train. C.5.1

2 Describe how to maintain a transmission and drive system. C.5.2

3 Differentiate types of transmission fluid. C.5.3

4 Describe how to service a power train. C.5.4

6 Precision Technology C.6

1 Define precision technology and explain its role in agriculture. C.6.1

2 Explain the use of Global Positioning System in precision agriculture.. C.6.2

3 Explain the use of a geographic information system in precision agriculture. C.6.3

4 Discuss the advantages and disadvantages of precision technology. C.6.4

Su in Skip to main content **eeping and Using SAE Records** D.1

1 Explain how SAE records are organized. D.1.1

2 Identify the procedures to making entries in the SAE records. D.1.2

3 Explain how to summarize and analyze the SAE records. D.1.3

2 Making Long Range Plans for Expanding SAE Programs D.2

1 Identify the factors that should be considered in expanding an SAE program. D.2.1

2 Explain how placement and ownership SAE programs may be expanded. D.2.2

Developing Leadership Skills in Agriculture E

1 Planning and Organizing an FFA Meeting E.1

1 Explain how to plan a meeting and develop the order of business. E.1.1

2 Describe how to set up the meeting room. E.1.2

3 Explain the parliamentary procedure used in an FFA meeting. E.1.3

2 Developing an Awareness for Your Community E.2

1 Describe the meaning and importance of community service. E.2.1

2 List and identify community service organizations. E.2.2

3 Explain how FFA members can be involved with community improvement and development. E.2.3

3 State FFA Degree E.3

1 List the requirements for the State FFA Degree. E.3.1

2 Explain how a FFA member can obtain the State FFA Degree. E.3.2

Developing Communication Skills F

1 Introduction to Communication F.1

1 Define communication and explain its purpose. F.1.1

2 Identify the components of the communication process. F.1.2

3 Identify the five different levels of communication. F.1.3

4 Explain the barriers of successful communication. F.1.4

5 Explain the relationship between communication and leadership. F.1.5

2 Organizing and Presenting a Persuasive Message F.2

1 Explain the steps in preparing a persuasive message. F.2.1

2 Describe delivery techniques in a persuasive message. F.2.2

3 Using Communication Skills In Appropriate Situations F.3

1 Understand the role of communication skills in the workplace. F.3.1

2 Understand how to present a problem to a supervisor. F.3.2

3 Identify the techniques used in requesting information from a supervisor. F.3.3

Skip to main content

Explain the role of written communication in an agribusiness. F.3.4

Gaining Employment G

1 Developing Goals G.1

1. Explain the process of goal setting. G.1.1
2. Describe the terms and types of goals. G.1.2
3. Explain some aspects of effective goals. G.1.3

2 Finding a Job G.2

1. Describe information sources for job opportunities. G.2.1
2. Develop a system to evaluate job openings. G.2.2

3 Applying for a Job G.3

1. Explain how to research a job opportunity. G.3.1
2. Describe two methods of applying for a job. G.3.2
3. Identify the common types of information requested on a job application form.. G.3.3

4 Writing a Résumé and Letter of Application G.4

1. Explain the purpose of a résumé. G.4.1
2. List the main items that should be included in a résumé. G.4.2
3. Describe the purpose of a letter of application and its primary elements. G.4.3