

Girard High School

Ag Technology Explorations

Name _____ SSN ____-____-_____

Instructor _____

RATING SCALE: 3: Skilled, works independently
2: Competent, may need assistance
1: Received instruction, skill undeveloped
0: No exposure, instruction or training

INTEGRATION: (M) Math (S) Science
(E) Language Arts (C) Career Development Skill
(L) Lab Activity

Enrollment Date _____ Completion Date _____ Hours completed _____

_____/_____/_____ ____/____/_____ _____

I certify that the student received the training in the area indicated.

Student Signature _____ Date _____

Instructor Signature _____ Date _____

Administrator Signature _____ Date _____

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| <p>I. FFA/SAE</p> <ul style="list-style-type: none">3 2 1 0 1. Relates FFA to classroom and SAE3 2 1 0 2. Shares the mission statement of the National FFA Organization3 2 1 0 3. Identifies 5 dates of significant importance in the FFA3 2 1 0 4. Plans or has an SAE (C)3 2 1 0 5. Analyzes and orally presents the FFA Creed (E)3 2 1 0 6. Outlines the constitutional office positions3 2 1 0 7. Names the constitutional FFA officer positions3 2 1 0 8. Explains the FFA symbols and meaning on the emblem3 2 1 0 9. Recites the FFA Motto (E)3 2 1 0 10. Demonstrates 10 motions in Parliamentary Procedure (E,L)3 2 1 0 11. Reads through the FFA Code of Ethics (E)3 2 1 0 12. Participates in fund raising activities3 2 1 0 13. Chooses to participate in CDE activities (C)3 2 1 0 14. Serves on a POA committee <p>II. Public Speaking</p> <ul style="list-style-type: none">3 2 1 0 1. Follows directions in preparing a speech3 2 1 0 2. Researches the library and internet looking for information on speech (E,C) | <ul style="list-style-type: none">3 2 1 0 3. Presents a speech on a Agriculture topic (E)3 2 1 0 4. Evaluates other students speeches <p>III. Agriculture Mechanics</p> <ul style="list-style-type: none">3 2 1 0 1. Demonstrates shop safety (L)3 2 1 0 2. Locates fire extinguishers in the lab/shop (L)3 2 1 0 3. Reconstructs the fire triangle3 2 1 0 4. Recognizes safety colors and symbols associated with classes of fires3 2 1 0 5. Identifies 20 hand tools (L)3 2 1 0 6. Names 5 power tools3 2 1 0 7. Summarizes components needed to build or design a shop <p>IV. Record Keeping</p> <ul style="list-style-type: none">3 2 1 0 1. Gives examples of why record keeping is done3 2 1 0 2. Compiles information in a record book (E,M)3 2 1 0 3. Develops long range leadership goals involving committee work, CDE's and chapter participation (E)3 2 1 0 4. Records information when participating in leadership activities (E)3 2 1 0 5. Reports income and expenses in the record book (M)3 2 1 0 6. Performs a cash flow at the end of each month (M) | <ul style="list-style-type: none">3 2 1 0 7. Produces an accuracy check at the end of each month (M)3 2 1 0 8. Creates inventories in the record book (M)3 2 1 0 9. Gives financial information in recording liabilities3 2 1 0 10. Computes a financial statement (M)3 2 1 0 11. Summarizes information in the SAE program packet <p>V. Tool Conditioning</p> <ul style="list-style-type: none">3 2 1 0 1. Practices safety when reconditioning tools (L)3 2 1 0 2. Follows directions when using the grinder (L)3 2 1 0 3. Assists with refacing a grinding wheel (L)3 2 1 0 4. Analyzes and explains how a twist drill bit cuts through material (S)3 2 1 0 5. Identifies the parts of a twist drill bit3 2 1 0 6. Names the angles associated with the twist drill bit3 2 1 0 7. Demonstrates use of the tool gauge (L)3 2 1 0 8. Sharpens a twist drill bit or cold chisel (L)3 2 1 0 9. Explains discoloration process of tools if not kept cool (S) <p>VI. Cold Metal Work</p> <ul style="list-style-type: none">3 2 1 0 1. Adheres to safety precautions while working with cold metal work(L) |
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3 2 1 0 2. Matches the names and functions for the tap and die set

3 2 1 0 3. Outlines the sequence of steps for using the tap and die (E)

3 2 1 0 4. Uses correct techniques with the tap and die

3 2 1 0 5. Connects the hacksaw blade the proper way (L)

3 2 1 0 6. Demonstrates proper use of hacksaw cutting (L)

3 2 1 0 7. Creates a mark with the center punch before drilling (L)

3 2 1 0 8. Selects the proper size of drill bit before pop riveting

3 2 1 0 9. Uses the pop rivet gun to form metal together (L)

3 2 1 0 10. Shows correct procedures while filing (L)

VII. Oxyacetylene Welding

3 2 1 0 1. Follows instructions for safety while oxyacetylene welding

3 2 1 0 2. Explains the difference between a flashback and backfire

3 2 1 0 3. Identifies the parts of the oxyacetylene welding equipment

3 2 1 0 4. Compares and contrasts Acetylene and Oxygen cylinders (E)

3 2 1 0 5. Writes the steps in lighting and adjusting the torch (E)

3 2 1 0 6. Explains the chemical make up of Acetylene (S)

3 2 1 0 7. Demonstrates the lighting and adjusting of the torch (L)

3 2 1 0 8. Performs the procedure of extinguishing the torch and bleeding the lines (L)

3 2 1 0 9. Summarize capillary action as to how it works in brazing (S)

3 2 1 0 10. Assists in checking for unsafe equipment, low cylinder pressures or plugged tips (L)

3 2 1 0 11. Knows the purpose of why propane gas is used instead of acetylene while sweat soldering

3 2 1 0 12. Listens to instructions on how to sweat solder copper fittings

3 2 1 0 13. Practices proper techniques and procedures while oxyacetylene welding

VII. Shielded Metal Arc Welding

3 2 1 0 1. Demonstrates proper safety equipment and procedures associated with SMAW welding (L)

3 2 1 0 2. Identifies necessary equipment while SMAW welding

3 2 1 0 3. Defines terminology associated with arc welding

3 2 1 0 4. Selects the correct electrode for the job (C)

3 2 1 0 5. Describes the different kinds of polarity and when they would be used

3 2 1 0 6. Differentiates kinds of welding techniques (L)

3 2 1 0 7. Lists the advantages and disadvantages of arc welding (E)

3 2 1 0 8. Identifies and explains why welds were correctly formed or not formed (S)

3 2 1 0 9. Points out equipment that may be defective or need repaired

IX. Shop Safety

3 2 1 0 1. Knows the expectations of shop/lab safety

3 2 1 0 2. Reports unsafe tools to instructor (L)

3 2 1 0 3. Locates all safety equipment such as first aid kit, exit doors, fire extinguishers, fire blanket associated in the shop or lab (L)

3 2 1 0 4. Completes a safety test to 100%

3 2 1 0 5. Compiles all safety materials needed for shop such as: safety glasses, pliers, clothing and gloves

X. Student Lab/Shop

3 2 1 0 1. Follows all safety rules for each skill done in shop (L)

3 2 1 0 2. Creates a pad weld with different kinds and sizes of electrodes (L)

3 2 1 0 3. Practices a SMAW butt weld for the purpose of testing (L)

3 2 1 0 4. Demonstrates vertical down arc welding (L)

3 2 1 0 5. Performs a fusion weld with oxyacetylene welding (L)

3 2 1 0 6. Produces a fusion weld with the filler rod (L)

3 2 1 0 7. Makes a braze weld (L)

3 2 1 0 8. Sharpens a twist drill bit to the satisfaction of the instructor (L)

3 2 1 0 9. Constructs a tap and die skill by cutting, filing, drilling and threading metal (L)

3 2 1 0 10. Demonstrates pop riveting two pieces of metal together (L)

3 2 1 0 11. Performs a sweat soldering skill on copper fittings (L)

3 2 1 0 12. Exhibits good work habits by cleaning up work station each day (L)

3 2 1 0 13. Initiates responsibility by always staying on task (L)

XI. Career Development Skills

3 2 1 0 1. Follows oral instructions by listening for steps or actions to be performed

3 2 1 0 2. Participates in group communication activities

3 2 1 0 3. Estimates, applies, and solves problems involving fractions, decimals, percentages, and real numbers

3 2 1 0 4. Compiles and maintain records, logs, lab notebooks, and other documents

3 2 1 0 5. Uses functions to store, query, retrieve, and sort data

3 2 1 0 6. Performs a self assessment by developing personal goals

3 2 1 0 7. Apply the steps in the decision making process

3 2 1 0 8. Participates in team tasks by establishing a plan of action

3 2 1 0 9. Explains the relationship between setting goals and managing money

3 2 1 0 10. Identifies influences on use of time

3 2 1 0 11. Interprets standard workplace policies related to safety

3 2 1 0 12. Accesses and use information to develop educational and career options

XII. Life Knowledge Skills

3 2 1 0 1. Defines leadership (HS 1)

3 2 1 0 2. Defines personal growth (HS 2)

3 2 1 0 3. Defines career success (HS 3)

3 2 1 0 4. Understands values, beliefs, character integrity (HS 9)

Ag Technology Exploration Content Outline

Course Name: Ag Technology Exploration

Teacher: Mr. Alan Boultinghouse

Credits: 1 credit for the full year.

Clock Hours: 182 days

Grade Level: 9-10-11-12

Prerequisites: None

Teaching Resources: Current FFA Manual, FFA Record Book, Textbook: Agricultural Mechanics, Author: Elmer L. Cooper; Copyright 1996, Also, we use a wide variety of other teaching resources that have been collected over the years.

Course Description: The Ag Technology Exploration course will be an introduction to the Agriculture Education program at Girard High School and to the National FFA Organization. Students will learn a diversity of skills as we explore a variety of Agricultural topics.

- Students will become familiar with the aim and purposes of the FFA on the local, district, state and national levels. Through the FFA Organization, students will have the opportunity to participate in several Career Development Events throughout the year. The FFA record book will be introduced in this class as a way for students to maintain records on their SAE program.
- Students will be exposed to leadership activities as they will give a speech and participate in Parliamentary Procedure.
- Ag Mechanics will be introduced in this class as basic hand tools and shop procedures will be covered. Shop skills on areas covered will be performed during the last 9-weeks of instruction.
- Students will be required to have shop clothes, safety glasses and pliers during the last 9 weeks of school.

Ag Technology Exploration Curriculum Outline

Areas on Instruction/Topic Headings	Weeks/Quarter
I. FFA/SAE	6-1st
A. What is the FFA	
B. History and dates of the FFA	
C. SAE exploration	
D. Creed explanation	
E. Officers/symbols and meanings	
F. Parliamentary procedure	
G. Students Activities: Creed Speaking, Greenhand Conference CDE, Parliamentary Procedure mock meeting	
II. Public Speaking	2-1st
A. How to prepare for a speech	

- B. Speech topic research
 - C. Student Activities: Speech on Agriculture Topic, evaluation of other students public speaking, District Speech CDE
- III. Agricultural Mechanics 4-2nd
- A. Shop Safety
 - B. Types of fire extinguishers
 - C. Hand tools and their uses
 - D. Power tools and their uses
 - E. Student Activities: Identify and locate basic shop tools, Demonstration on fire extinguishers
- IV. Record Keeping 5-2nd
- A. Why do we keep records
 - B. What is an FFA Record Book
 - C. Opportunities for awards on record keeping
 - D. Record keeping on your SAE
 - E. Student Activities: Do an example practice in the record book, Bring information to put in the record book for their planned or current SAE program
- V. Tool Conditioning 2-3rd
- A. How to sharpen tools
 - B. Refacing a grinding wheel
 - C. Types of grinders and grinding stones
 - D. Student Activities: Sharpen a twist drill bit and cold chisel
- VI. Cold Metal Work 2-3rd
- A. Parts of the tap and die set and uses
 - B. Procedure for using the tap and die
 - C. Hacksaw and proper use
 - D. Center Punching
 - E. Pop Riveting
 - F. Filing Metal
 - G. Student Activities: Tap a hole, cut threads on round stock, use a hacksaw, use a center punch, file metal after cutting, pop rivet metal
- VII. Oxyacetylene Welding 2.5-3rd
- A. Oxyacetylene safety
 - B. Uses of Oxyacetylene welding
 - C. How to Oxyacetylene weld
 - D. Brazing
 - E. Sweat Soldering with a propane torch
 - F. Student Activities: Do a fusion weld, fusion weld with a filler rod, braze weld, sweat solder copper fittings
- VIII. Shielded Metal Arc Welding 2.5-3rd
- A. Arc Welding Safety

- B. Equipment needed
- C. Types of electrodes and uses
- D. Types of polarity and their uses
- E. Welding techniques
- F. Student Activities: Perform a pad weld, use different sizes and kinds of electrodes, perform a butt weld and vertical down

IX. Shop Safety 1-3rd

- A. Expectations of shop safety
- B. Recognize damaged tools unfit for use in shop
- C. Locate all safety equipment in shop (fire extinguishers, first aid kit, fire blankets etc.)
- D. Student Activities: Pass a safety test, bring safety protection in for shop/lab, tour of shop for location of all safety equipment

X. Student Lab/Shop 9-4th

- A. Student Activities:
 - 1. Arc welding skills
 - 2. Oxyacetylene welding skills
 - 3. Tool sharpening skills
 - 4. Tap and Die skills
 - 5. Pop Riveting skills
 - 6. Sweat Soldering skills