Agricultural Science and Business Courses

Duty, Task, and Performance Objective
Agribusiness Management

DUTY A-1. Analyzing how basic economic principles relate to agribusiness management decisions.

TASK: 1. Determine the basic economic factors that affect farm and agribusiness management decisions.

PERFORMANCE
OBJECTIVE: Given the list of basic economic factors, distinguish their affects on farm and agribusiness management decisions with 90% accuracy.

TASK: 2. Give evidence of how supply and demand affect prices.

PERFORMANCE
OBJECTIVE: Given one farm product and one agribusiness product, contrast how supply and demand affect prices with 90% accuracy.

TASK: 3. Analyze factors that affect prices other than supply and demand.

PERFORMANCE
OBJECTIVE: Given a list of five factors, analyze how they affect product prices with 95% accuracy.

TASK: 4. Evaluate supplementary, complementary, competitive and independent enterprises.

PERFORMANCE
OBJECTIVE: Given a set of enterprise case studies, determine and list the factors that distinguish each enterprise as supplementary, complementary, competitive, and/or independent with 90% accuracy.

TASK: 5. Describe the concept of diminishing returns.

PERFORMANCE
OBJECTIVE: Given a specific management problem, assess the point of diminishing return with 95% accuracy.

TASK: 6. Evaluate between fixed and variable costs.

PERFORMANCE
OBJECTIVE: Given a farm or agribusiness budget, categorize the costs into fixed or variable costs with 95% accuracy.

TASK: 7. Calculate marginal cost and marginal return.
PERFORMANCE
OBJECTIVE: Given a specific case study, distinguish what are marginal cost and marginal return with 90% accuracy.

TASK: 8. Describe the monetary system and its implications in agribusiness management.

PERFORMANCE
OBJECTIVE: Given an agribusiness case study, analyze the implications that the monetary system has on the management practices with 90% accuracy.

TASK: 9. Calculate the estimated fixed costs and variable costs for an agricultural commodity.

PERFORMANCE
OBJECTIVE: Given a proposed budget for a new agricultural commodity, calculate the fixed costs and variable costs with 95% accuracy.

DUTY A-2. Evaluating the advantages and disadvantages of diversification and specialization.

TASK: 1. Evaluate the advantages and disadvantages of diversification and specialization.

PERFORMANCE
OBJECTIVE: Given a farm or agribusiness case study, assess the decisions to diversify or specialize with 90% accuracy.


TASK: 1. Analyze the importance of agribusiness and its impact upon the Gross National Product and the total global economy.
PERFORMANCE
OBJECTIVE: Given an agribusiness case study, evaluate the importance and impact that the agribusiness has upon the Gross National Product and the global economy with 90% accuracy.

DUTY A-4. Evaluating the decision-making tools used in agribusiness management.

TASK: 1. Describe economic decision-making tools that can be used to help determine the profitability of agricultural enterprises.

PERFORMANCE
OBJECTIVE: Given an agricultural enterprise, assess the economic decision-making tools to be used in turning a profit for this enterprise with 90% accuracy.


TASK: 1. Analyze the operation of the U.S. Monetary System.

PERFORMANCE
OBJECTIVE: Using information from class discussion, appraise the U.S. Monetary System with 90% accuracy.

TASK: 2. Describe the relationship of agribusiness and the United States Monetary System.

PERFORMANCE
OBJECTIVE: Using information from class discussion, describe the relationship of an agribusiness to the U.S. Monetary System with 90% accuracy.

DUTY B-1. Identifying the primary governmental agencies involved with agriculture.

TASK: 1. Identify the primary agencies involved with agriculture.

PERFORMANCE
OBJECTIVE: Given a list of the primary agencies involved with agriculture, write the services they provide with 100% accuracy.

DUTY B-2. Analyzing how government policies and laws affect an agribusiness.

TASK: 1. Identify the provisions of the current U.S. Farm Bill.
OBJECTIVE: Given a copy of the current U.S. Farm Bill, compare it to previous legislation with 85% accuracy.

TASK: 2. Discuss regulatory laws related to agriculture.

PERFORMANCE
OBJECTIVE: Using knowledge obtained in class, evaluate the characteristics regarding regulatory laws related to agriculture.

TASK: 3. Identify the provisions of federal, state, and local legislation in regards to environmental regulations.

PERFORMANCE
OBJECTIVE: Given an example of an environmental regulation, compare the legislation provisions for that example with 90% accuracy.

DUTY B-3. Examining the purposes of agricultural contracts and leases.

TASK: 1. Discuss the purpose of agricultural contracts and leases.

PERFORMANCE
OBJECTIVE: Given an agricultural contract or lease, evaluate its components with 90% accuracy.

DUTY B-4. Examining the agricultural laws and regulations governing agribusiness.

TASK: 1. Describe the property rights of agricultural landowners.

PERFORMANCE
OBJECTIVE: Using information given in class, examine the property rights of agricultural agribusiness with 90% accuracy.
DUTY B-5. Evaluating the systems for taxing agribusiness.

TASK: 1. Evaluate the purposes of taxes.

PERFORMANCE
OBJECTIVE: Using information given in class, justify the purpose of taxing agribusiness with 95% accuracy.

TASK: 2. Describe the purposes of tax planning.

PERFORMANCE
OBJECTIVE: Using information given in class, select records and information which may be helpful for tax management with 90% accuracy.

TASK: 3. Analyze taxable and non-taxable items.

PERFORMANCE
OBJECTIVE: Given a list of taxable and non-taxable items, differentiate between those items with 100% accuracy.

TASK: 4. Identify deductible business expenses.

PERFORMANCE
OBJECTIVE: Given a list of business expenses, write down those expenses which are deductible with 100% accuracy.

TASK: 5. Examine the various types of tax credits.

PERFORMANCE
OBJECTIVE: Given sample tax record information, analyze the various types of tax credits with 90% accuracy.

TASK: 6. Discuss the Homestead Act.

PERFORMANCE
OBJECTIVE: Using information obtained from class, defend the Homestead Act's affect on agribusiness with 100% accuracy.
DUTY C-1. Identifying the different management factors that need to be considered to start and operate an agribusiness.

TASK: 1. Describe what is meant by agribusiness management.

PERFORMANCE
OBJECTIVE: Given a model agribusiness, suggest how it differs from a non-agribusiness with 90% accuracy.

TASK: 2. Examine the role of a manager.

PERFORMANCE
OBJECTIVE: Given a visit with a manager of an agribusiness, evaluate the role of that manager with 90% accuracy.

TASK: 3. Evaluate the functions of organizing, directing, planning, coordinating and controlling in agribusiness management.

PERFORMANCE
OBJECTIVE: Given a case study of an agribusiness, evaluate the functions of organizing, directing, planning, coordinating, and controlling in management with 80% accuracy.

DUTY C-2. Evaluating the necessity for setting goals and objectives.

TASK: 1. Determine the importance of setting goals and objectives.

PERFORMANCE
OBJECTIVE: Given the information, examine the importance of setting goals and objectives with 80% accuracy.

DUTY C-3. Examining the processes involved in locating a successful business, organizing proposals, and promoting a product or service.

TASK: 1. Utilize market analysis to determine business potential.

PERFORMANCE
OBJECTIVE: Given a market analysis, determine the potential of a business with 90% accuracy.

TASK: 2. Evaluate business locations for site suitability.
PERFORMANCE
OBJECTIVE: Given a business location, evaluate the location for suitability of that business with 90% accuracy.

TASK: 3. Organize a business proposal.

PERFORMANCE
OBJECTIVE: Given a specific business, design a proposal with 90% accuracy.

TASK: 4. Construct a plan to promote a product or service.

PERFORMANCE
OBJECTIVE: Given a product or service, create a plan to promote that product or service with 80% accuracy.

DUTY C-4. Evaluating the various types of ownership found in agribusiness.

TASK: 1. Identify the distinguishing characteristics between individual proprietorships, partnerships and corporations.

PERFORMANCE
OBJECTIVE: Given the information, compare the main characteristics of individual proprietorships, partnerships and corporations with 80% accuracy.

TASK: 2. Describe entrepreneur.

PERFORMANCE
OBJECTIVE: Using the information from class discussion, explain the term entrepreneur with 85% accuracy.

TASK: 3. Identify personal potential as an entrepreneur.

PERFORMANCE
OBJECTIVE: Using a self-analysis, evaluate personal potential as an entrepreneur with 80% accuracy.

TASK: 4. Examine career opportunities for entrepreneurs in agribusiness.
PERFORMANCE
OBJECTIVE: Given a list of career opportunities, analyze them for entrepreneurs in agribusiness with 80% accuracy.

DUTY C-5. Evaluating the different sources of credit.

TASK: 1. Analyze the role of credit in agriculture.

PERFORMANCE
OBJECTIVE: Given the information, evaluate the role of credit in agriculture with 80% accuracy.

TASK: 2. Identify specific kinds of credit.

PERFORMANCE
OBJECTIVE: Given the information, explain specific kinds of credit with 90% accuracy.

TASK: 3. List factors to consider in selecting an appropriate source of credit.

PERFORMANCE
OBJECTIVE: Given different sources of credit, determine the factors to consider when selecting an appropriate source of credit with 90% accuracy.

TASK: 4. Indicate advantages and disadvantages of a source of credit.

PERFORMANCE
OBJECTIVE: Given a list of advantages and disadvantages and sources of credit, match the items on each list with 80% accuracy.

TASK: 5. Analyze factors affecting repayment capacity.

PERFORMANCE
OBJECTIVE: Given the information, analyze the factors affecting repayment capacity with 90% accuracy.

TASK: 6. Describe various types of assets and liabilities.
OBJECTIVE: Given the information, distinguish among various types of assets and liabilities with 85% accuracy.

TASK: 7. Analyze factors that affect cost of credit.

OBJECTIVE: Given an example of credit, evaluate the factors that affect the cost of that credit with 80% accuracy.

DUTY C-6. Evaluating the various methods of obtaining equipment, land, and supplies.

TASK: 1. List advantages and disadvantages of purchasing new versus used equipment.

OBJECTIVE: Given a scenario, explain your reasons for purchasing new versus used equipment with 80% accuracy.

TASK: 2. Determine the advantages and disadvantages of leasing.

OBJECTIVE: Given the information, examine the advantages and disadvantages of leasing with 80% accuracy.

TASK: 3. List factors to consider in purchasing seed, fertilizer, fuel, repairs, and other services.

OBJECTIVE: Given a case study, determine factors to consider when purchasing seed, fertilizer, fuel, repairs and other services with 90% accuracy.

TASK: 4. List the advantages and disadvantages of co-ownership.

OBJECTIVE: Given the information, explain the advantages and disadvantages of co-ownership with 80% accuracy.
DUTY C-7. Examining decision-making aids available for agribusiness management.

TASK: 1. Utilize the management decision-making aids available.

PERFORMANCE
OBJECTIVE: Given different decision-making aids, demonstrate the use of them with 90% accuracy.

TASK: 2. Describe the latest aids available in marketing crops or livestock.

PERFORMANCE
OBJECTIVE: Given the latest aids available, explain how they could be used in marketing crops or livestock with 90% accuracy.

TASK: 3. Identify guidelines for selecting a suitable computer system.

PERFORMANCE
OBJECTIVE: Given an agribusiness and references, determine the computer needs of that business and justify your answer with 90% accuracy.

TASK: 4. Use decision aid software and computerized recordkeeping systems.

PERFORMANCE
OBJECTIVE: Given an individual project, determine and use decision-aid software and computerized recordkeeping systems with 100% accuracy.

DUTY C-8. Evaluating the different types of insurance available to an agribusiness.

TASK: 1. Describe the impact of various types of insurance on risk management.

PERFORMANCE
OBJECTIVE: Given a specific agribusiness, justify the selection of an insurance policy to reduce risk with 95% accuracy.

DUTY C-9. Evaluating safety procedures used in the agricultural industry.

TASK: 1. List factors which contribute to agricultural industry accidents.
PERFORMANCE
OBJECTIVE: Given information on agricultural industry accidents, compose a list of factors which contribute to agricultural industry accidents with 100% accuracy.

TASK: 2. Describe management's responsibility in agricultural industry safety.

PERFORMANCE
OBJECTIVE: Given information on a specific agricultural industry, design a safety plan which will provide a safe working environment for employees with 100% accuracy.

TASK: 3. Identify sources of safety information.

PERFORMANCE
OBJECTIVE: Given the opportunity to go to the library, create a list of sources for safety information with 100% accuracy.

DUTY D-1. Explaining the function and importance of farm cooperatives in the agricultural sector.

TASK: 1. Describe the basis for the original formation of farm cooperatives.

PERFORMANCE
OBJECTIVE: Using information given in classroom discussion, determine the factors that show how the original formation of farm cooperatives were organized with 95% accuracy.

TASK: 2. Describe some of the changes which have taken place within the coop structure.

PERFORMANCE
OBJECTIVE: Given the example of an agricultural cooperative, assess those changes that have taken place to benefit the coop with 85% accuracy.

DUTY D-2. Examining the advantages and disadvantages of cooperatives.

TASK: 1. Describe how cooperatives have acted as pacesetters.
PERFORMANCE
OBJECTIVE: Given the example of an agricultural cooperative in your community, evaluate its position as a power balancer in agribusiness with 85% accuracy.

DUTY D-3. Examining the organization of cooperatives and the basic principles utilized to ensure their success.

TASK: 1. Identify the basic principles that ensure that cooperatives serve the needs of member-patrons.

PERFORMANCE
OBJECTIVE: Using information from classroom discussion, examine how local and regional cooperatives are organized with 95% accuracy.

DUTY D-4. Identifying the challenges and opportunities offered to agricultural cooperatives.

TASK: 1. Evaluate the challenges and opportunities that face agricultural cooperatives.

PERFORMANCE
OBJECTIVE: Given the current status of agricultural cooperatives in the local community, assess the future role of cooperatives in the market economy with 90% accuracy.


TASK: 1. Analyze the two methods of accounting.

PERFORMANCE
OBJECTIVE: Using financial records from a farm management system, justify the financial savings of each accounting method with 90% accuracy.

DUTY E-2. Examining inventory control and the importance of depreciation schedules.

TASK: 1. Examine the functions of inventory and depreciation schedules.
PERFORMANCE
OBJECTIVE: Given a partial inventory list from an agribusiness, evaluate the role of depreciation in inventory control with 90% accuracy.

TASK: 2. Analyze the importance of an inventory.

PERFORMANCE
OBJECTIVE: Given a list of inventory from two comparable agribusinesses, appraise the inventory value of each business by the two accounting methods with 95% accuracy.

DUTY E-3. Evaluating the various methods of calculating depreciation.

TASK: 1. Evaluate the importance of depreciation schedules with respect to inventory control.

PERFORMANCE
OBJECTIVE: Given an inventory list from an agribusiness, justify the role of depreciation in inventory control with 90% accuracy.


PERFORMANCE
OBJECTIVE: Given an inventory list from an agribusiness, calculate the amount of depreciation by one of three methods in accordance with government regulations.

DUTY E-4. Examining the different types of budgeting.

TASK: 1. Analyze the different types and purposes of budgets.

PERFORMANCE
OBJECTIVE: Given different sample budgets, diagnose the types of budgets to a 90% accuracy level.

TASK: 2. Determine the steps in developing a budget.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, generate the steps in developing a budget for an agribusiness with 95% accuracy.

TASK: 3. Examine the purposes of financial records.
OBJECTIVE: Using class notes or other references, assess the extent and quality of financial records of two agribusinesses to a 90% accuracy level.


PERFORMANCE
OBJECTIVE: Given the necessary cost figures from an agribusiness, design a budget for that business with 90% accuracy.

DUTY E-5. Examining the process of constructing a balance sheet and income statement.

TASK: 1. Calculate fixed and variable operating costs.

PERFORMANCE
OBJECTIVE: Using the appropriate accounting procedures, compute the fixed and operating costs of an agribusiness to a 100% accuracy level.

TASK: 2. Analyze the benefits of cash flow planning.

PERFORMANCE
OBJECTIVE: Using an income statement and balance sheet from two similar agribusinesses, evaluate the methods of altering cash flow to a 90% accuracy level.

TASK: 3. Complete a cash flow statement.

PERFORMANCE
OBJECTIVE: Given financial records from an agribusiness, create a cash flow statement by appropriate accounting methods.

TASK: 4. Analyze the role of financial statements in agribusiness management.

PERFORMANCE
OBJECTIVE: Based on five years of financial statements from an agribusiness, justify the decisions of the agribusiness owner/manager with 95% accuracy.

TASK: 5. Analyze the functions of a balance sheet.

PERFORMANCE
OBJECTIVE: Using class notes or other references, construct a balance sheet for a new agribusiness to a 90% accuracy level.

PERFORMANCE
OBJECTIVE: Using three months of cash flow statements from an agribusiness, devise a quarterly income statement according to state tax regulations.

TASK: 7. Arrange a complete repayment plan.

PERFORMANCE
OBJECTIVE: Using class notes or other reference materials, devise a complete repayment plan to meet lending institution requirements.

DUTY E-6. Analyzing a financial statement.

TASK: 1. Determine the process for finding and correcting errors in records.

PERFORMANCE
OBJECTIVE: Given a sample balance sheet, calculate the potential cost amounts of errors with 95% accuracy.

TASK: 2. Complete a break-even analysis for an agribusiness.

PERFORMANCE
OBJECTIVE: Using a balance sheet from an agribusiness, calculate the break-even analysis with 95% accuracy.

TASK: 3. Analyze the various financial ratios.

PERFORMANCE
OBJECTIVE: Given a financial statement for an agribusiness, analyze the various financial ratios with 85% accuracy.
DUTY F-1. Investigating agribusiness marketing concepts.

TASK: 1. Determine what is meant by the term, free enterprise system.

PERFORMANCE OBJECTIVE: Given a variety of marketing systems found in agribusinesses in both the United States and foreign countries, select those that would be considered free enterprise with 95% accuracy.

TASK: 2. Identify the different types of markets for an agribusiness.

PERFORMANCE OBJECTIVE: Given a specific commodity, create a way to market the commodity for profit with 100% accuracy.

TASK: 3. Evaluate the importance of grades and standards.

PERFORMANCE OBJECTIVE: Given different qualities of a commodity, evaluate which ones will sell for the highest price and defend your decision with 100% accuracy.

TASK: 4. Analyze the purpose and function of local markets.

PERFORMANCE OBJECTIVE: Given information on the different markets available to agribusinesses in the local area, decide which ones provide the most popular service to the local community and predict why with 90% accuracy.

TASK: 5. Analyze global and domestic markets for agricultural products.

PERFORMANCE OBJECTIVE: Given a list of agricultural products, contrast the effects global and domestic markets have upon the products with 90% accuracy.

TASK: 6. Analyze the difference between a command economy and a market economy.
PERFORMANCE

OBJECTIVE: Given a command type economy case study and a market economy case study, analyze the differences and their effect on the global economy with 90% accuracy.

DUTY F-2. Examining the factors involved in marketing and the different cycles involved.

TASK: 1. Describe key factors involved in marketing.

PERFORMANCE

OBJECTIVE: Given a specific marketing plan, describe the key factors involved in formulating the plan with 90% accuracy.

TASK: 2. Describe price and market cycles on various commodities.

PERFORMANCE

OBJECTIVE: Given a list of commodity products, describe how the price and market cycles affect the marketing of these products with 90% accuracy.

DUTY F-3. Investigating the reasons for and methods used in commodity futures and options trading.

TASK: 1. Investigate commodity futures and options trading.

PERFORMANCE

OBJECTIVE: Given two products, assess a plan to market each using futures and option trading with 90% accuracy.

TASK: 2. Evaluate hedging and speculation.

PERFORMANCE

OBJECTIVE: Given two products, assess a plan to market each using hedging and speculation with 90% accuracy.

TASK: 3. Evaluate a marketing plan for a commodity.

PERFORMANCE

OBJECTIVE: Given a commodity, develop a marketing plan utilizing at least two methods of trading from production to consumer with 90% accuracy.
DUTY G-1. Examining the career opportunities in agribusiness.

TASK: 1. Describe how to prepare for a career in agribusiness.

PERFORMANCE

OBJECTIVE: Given two career options, assess in writing how one would prepare for the given career with 90% accuracy.

TASK: 2. Examine the career opportunities available in agribusiness.

PERFORMANCE

OBJECTIVE: Given a list of possible careers in agribusiness, assess education level needed to obtain with 90% accuracy.

TASK: 3. Design a systematic approach for finding and getting a job in agribusiness.

PERFORMANCE

OBJECTIVE: Using an agribusiness of your choice, design a systematic approach for finding and getting a job with 95% accuracy.

DUTY G-2. Identifying and exhibiting the personal skills required to be successful in different areas of agribusiness.

TASK: 1. Identify factors affecting self-image.

PERFORMANCE

OBJECTIVE: Using a special notebook designated as a journal, identify the factors, both positive and negative, that affect your self-image with 90% accuracy.

TASK: 2. Instill social skills necessary for success in agribusiness.

PERFORMANCE

OBJECTIVE: Using your list of necessary social skills for success in agribusiness, write a proposal that outlines your strategy for instilling these skills in yourself and others with 90% accuracy.

TASK: 3. Present a plan for improving your professional image.
PERFORMANCE
OBJECTIVE: Using your journal, make an entry that proposes your time line for improving your professional self-image with 90% accuracy.

TASK: 4. Establish personal goals.

PERFORMANCE
OBJECTIVE: Using your journal, specify a list of five personal goals to achieve within the school year listing the steps necessary to achieve these goals with 95% accuracy.

DUTY G-3. Evaluating the methods used in recruiting and keeping desirable employees.

TASK: 1. Determine methods of staffing an organization.

PERFORMANCE
OBJECTIVE: Given a specific agribusiness, determine the number and types of employees needed to run the agribusiness with 90% accuracy.

TASK: 2. Design employee orientation/training procedures manual.

PERFORMANCE
OBJECTIVE: Given a specific agribusiness, design an employee handbook and training guide for an entry level position with 80% accuracy.

TASK: 3. Analyze employee benefits.

PERFORMANCE
OBJECTIVE: Given examples of the employee benefits of both a large and small agribusiness, compare the benefits that are commonly offered by large and small agribusinesses and suggest what can be done to improve employee benefit packages.

TASK: 4. Describe the employer/employee relationship.

PERFORMANCE
OBJECTIVE: Using class examples and personal experience, determine the factors of the employer/employee relationship and the responsibilities of each to the other with 90% accuracy.

DUTY G-4. Identifying the importance of communication in a successful agribusiness.

TASK: 1. Determine the importance of work related ethics.
OBJECTIVE: Using case studies, analyze whether or not work related ethics were operating in each scenario and suggest how ethics could be improved with 90% accuracy.

TASK: 2. Effectively associate with co-workers. Troubleshoot potential communication problems between co-workers.

OBJECTIVE: Given five work scenarios, evaluate each situation and make recommendations as to how each scenario could be handled effectively with 80% accuracy.

TASK: 3. Determine employer responsibilities.

OBJECTIVE: Working in small groups, decide what responsibilities an employer has and report your findings to the class with 100% accuracy.

TASK: 4. Determine the importance of business related ethics.

OBJECTIVE: Given case studies, analyze whether or not business related ethics were operating in each scenario and suggest how ethics could be improved in the future with 90% accuracy.

TASK: 5. Utilize business practices to improve written, verbal, and non-verbal communications.

OBJECTIVE: Given a scenario, plan a ten minute verbal presentation and write a memo concerning a topic vital to your business illustrating how non-verbal communication can alter the meaning of the message.

TASK: 6. Present your ideas in group discussions.

OBJECTIVE: Given a discussion topic, present your ideas in small group discussion, then elect a representative and present your ideas to the class with 100% accuracy.

TASK: 7. Organize and conduct a successful meeting.
OBJECTIVE: Working in small groups and given an agribusiness and a video camera, organize and conduct a business meeting evaluating your performance using video tape.

TASK: 8. Exhibit the ability to work with diverse groups.

PERFORMANCE
OBJECTIVE: Given a volunteer organization, spend twenty hours working with the organization and report your experience to the class.

TASK: 9. Identify and remove barriers to communication.

PERFORMANCE
OBJECTIVE: Using video taped scenarios, identify the barriers to effective communication suggesting ways to remove them with 80% accuracy.

TASK: 10. Identify effective listening techniques in group and in personal situations.

PERFORMANCE
OBJECTIVE: Using class notes and other reference materials, diagram and explain effective listening techniques in groups and in personal situations with 90% accuracy.

DUTY G-5. Investigating work programs and time management strategies.

TASK: 1. Determine employer expectations.

PERFORMANCE
OBJECTIVE: Given the name of the manager of an agricultural business, predict what they would say, during an interview, they would look for in a good employee with 100% accuracy.

TASK: 2. Plan a program of work.
PERFORMANCE
OBJECTIVE:Given a specific job, put in priority order the tasks and skills needed to complete the work with 95% accuracy.

TASK: 3. Organize group activities and programs.

PERFORMANCE
OBJECTIVE:Given a completed FFA Program of Activities, suggest ways and means to accomplish the activities which will be beneficial to the FFA Chapter and its membership.

TASK: 4. Apply various time management strategies.

PERFORMANCE
OBJECTIVE:Given specific classroom assignments to complete, formulate a plan to complete work on time and in proper order with 100% accuracy.


TASK: 1. Evaluate job applicants and employee performance.

PERFORMANCE
OBJECTIVE:Given a case study on an individual that is applying for a certain job, evaluate their job application and previous work experience for success on the new job which they are applying for with 95% accuracy.

TASK: 2. Construct an effective complaint and appeals procedure.

PERFORMANCE
OBJECTIVE:Given a specific concern about the operation of a specific agribusiness, plan how you would effectively handle the complaint and appeals procedure with 90% accuracy.

TASK: 3. Solve problems that arise in an agribusiness.

PERFORMANCE
OBJECTIVE:Given a variety of problems dealing with several different types of agribusinesses, defend your decision on how to handle each problem with 95% accuracy.
TASK: 4. Practice the decision-making skills needed to facilitate the operation of an agribusiness.

PERFORMANCE OBJECTIVE: Given information on an agricultural business, formulate a plan to operate the business for profit with 95% accuracy.
Agricultural Mechanization

DUTY A. Implementing safe work practices which apply to agricultural mechanics.

TASK:  1. Justify the importance of safety in agricultural mechanics.

PERFORMANCE
OBJECTIVE: Using information given in class, write why safety should be given top priority in agricultural mechanics with 100% accuracy.

TASK:  2. Differentiate between safe and unsafe work practices.

PERFORMANCE
OBJECTIVE: Using case histories of known injury victims, contrast the importance of safe and unsafe work practices with 100% accuracy.

TASK:  3. Describe the methods utilized to implement safe work practices.

PERFORMANCE
OBJECTIVE: Given a dangerous situation in the shop, decide what methods could be used to make working conditions safer with 100% accuracy.

TASK:  4. Identify the purpose of signals and symbols in agricultural safety.

PERFORMANCE
OBJECTIVE: Given a copy of signals and symbols in agricultural safety, compare them with 100% accuracy.

TASK:  5. Explain the importance and function of an operator's manual.

PERFORMANCE
OBJECTIVE: Given an operator's manual, defend its importance to any given type of machinery with 100% accuracy.

DUTY B. Recognizing the importance of safe work practices in the agricultural shop.

TASK:  1. Evaluate the importance of shop safety.
PERFORMANCE

OBJECTIVE: Using the agricultural shop, make a list of items that may be unsafe or cause serious injury with 100% accuracy.

TASK: 2. Explain the role that various agencies play in regulating shop safety.

PERFORMANCE

OBJECTIVE: Given a list of those agencies discussed in class, justify the importance of each to shop safety with 100% accuracy.

TASK: 3. Demonstrate the proper use of safety equipment which should be worn in the agricultural shop.

PERFORMANCE

OBJECTIVE: Given a variety of safety equipment, support its importance and demonstrate its proper use with 100% accuracy.

TASK: 4. Locate the first aid and emergency equipment found in an agricultural shop.

PERFORMANCE

OBJECTIVE: Given the needed first aid equipment, demonstrate its use in a hypothetical emergency with 100% accuracy.

TASK: 5. Develop proper safety skills to use for hand and power tools.

PERFORMANCE

OBJECTIVE: Using various hand and power tools found in the shop, demonstrate their proper use, keeping safety in mind, with 100% accuracy.

DUTY C. Examining the scope of career opportunities in and the importance of agricultural mechanics.

TASK: 1. Evaluate the career opportunities for an agricultural mechanics occupation.

PERFORMANCE

OBJECTIVE: Using the knowledge obtained in lecture, assess the criteria to achieve in order to satisfy the requirements for an agricultural mechanics occupation with 100% accuracy.

TASK: 2. Assess the factors involved in career decision making.
OBJECTIVE: Given a variety of career opportunities, put in priority order those of highest interest with 90% accuracy.

TASK: 3. Examine the various SAE programs which are related to agricultural mechanics.

PERFORMANCE
OBJECTIVE: Using information given in class, analyze the various SAE programs which are related to agricultural mechanics with 95% accuracy.

TASK: 4. Perform a career self-analysis.

PERFORMANCE
OBJECTIVE: Using a specific career of the students choice, compose a career self-analysis with 100% accuracy.

DUTY D. Utilizing hand tools, power tools, and measuring and marking devices.

TASK: 1. Identify the hand tools utilized in agricultural mechanics.

PERFORMANCE
OBJECTIVE: Given various hand tools from the shop, write down what each is with 100% accuracy.

TASK: 2. Demonstrate the proper techniques to employ when utilizing hand tools.

PERFORMANCE
OBJECTIVE: Given a specific hand tool, show its proper use with 100% accuracy.

TASK: 3. Identify the power tools utilized in agricultural mechanics.

PERFORMANCE
OBJECTIVE: Given various power tools from the shop, write down what each is with 100% accuracy.

TASK: 4. Demonstrate the proper techniques to employ when utilizing power tools.

PERFORMANCE
OBJECTIVE: Given a specific power tool, show its proper use with 100% accuracy.
TASK: 5. Demonstrate the correct use of measuring and marking devices.

PERFORMANCE
OBJECTIVE: Given a specific measuring tool, specify its correct use with 100% accuracy.

TASK: 6. Demonstrate the correct procedures to follow when preparing to grind and sharpen equipment.

PERFORMANCE
OBJECTIVE: Given a specific piece of equipment, determine the factors of correctly grinding and sharpening it with 100% accuracy.

TASK: 7. Identify the correct methods for reconditioning hand tools such as hammers, twist drills, chisels, punches, and screwdrivers.

PERFORMANCE
OBJECTIVE: Given a hand tool such as a hammer, twist drill, chisel, punch, or screwdriver, demonstrate the correct method of reconditioning with 100% accuracy.

TASK: 8. Identify the correct methods for reconditioning keen edge wood cutting tools.

PERFORMANCE
OBJECTIVE: Using knowledge obtained in class, defend the proper techniques used when reconditioning keen edge wood cutting tools with 100% accuracy.

TASK: 9. Identify the correct methods of reconditioning keen edge metal cutting tools.

PERFORMANCE
OBJECTIVE: Using knowledge obtained in class, reconstruct the proper techniques of reconditioning keen edge metal cutting tools with 100% accuracy.

DUTY E. Investigating the procedures used in basic electric wiring.

TASK: 1. Define basic electrical terminology.

PERFORMANCE
OBJECTIVE: Using information from class, distinguish basic electrical terminology with 95% accuracy.

TASK: 2. Identify the basic principles of electricity.
PERFORMANCE OBJECTIVE: Using information from class, analyze the basic principles of electricity with 95% accuracy.

TASK: 3. Develop the abilities needed in order to read schematics and sketch wiring circuits.

PERFORMANCE OBJECTIVE: Given an electrical schematic, diagram the circuit with 90% accuracy.

TASK: 4. Demonstrate a proficiency in safe wiring practices and basic wiring skills.

PERFORMANCE OBJECTIVE: Given a model electrical circuit, generate a properly working circuit with 100% accuracy.

TASK: 5. Explain the methods used to attach conductors to terminals, install attachment plugs, and install cord connector bodies.

PERFORMANCE OBJECTIVE: Using supplies from the shop, demonstrate the methods used to attach conductors to terminals, install attachment plugs, and install cord connector bodies with 100% accuracy.

TASK: 6. Explain the methods used to make proper splices and connections.

PERFORMANCE OBJECTIVE: Using scrap wire, reconstruct proper splices and connections with 100% accuracy.

TASK: 7. Explain the methods used to measure electrical circuits for voltage, amperage, resistance, and wattage.

PERFORMANCE OBJECTIVE: Given a voltmeter, demonstrate the proper methods used to measure electrical circuits for voltage, amperage, resistance, and wattage with 100% accuracy.

TASK: 8. Demonstrate the methods used to install electrical circuits, switching devices, and appliances.
PERFORMANCE
OBJECTIVE: Using information from class, select the methods used to install electrical circuits, switching devices, and appliances with 100% accuracy.

TASK: 9. Explain the methods used to install ground-fault circuit interrupters.

PERFORMANCE
OBJECTIVE: Given the needed equipment, demonstrate the proper method of installing ground-fault circuit interrupters with 100% accuracy.

DUTY F. Investigating the procedures used in basic plumbing.

TASK: 1. Define basic plumbing terminology.

PERFORMANCE
OBJECTIVE: Given a piece of paper, write the definitions to basic plumbing terminology with 100% accuracy.

TASK: 2. Demonstrate the proper procedures for cutting and assembling plastic pipe.

PERFORMANCE
OBJECTIVE: Given the needed equipment and supplies, select the proper procedures for cutting and assembling plastic pipe with 100% accuracy.

TASK: 3. Demonstrate the proper procedures for cutting, threading, and assembling steel pipe.

PERFORMANCE
OBJECTIVE: Given the needed equipment and supplies, determine the proper procedures for cutting, threading, and assembling steel pipe with 100% accuracy.

TASK: 4. Demonstrate the proper procedures utilized to connect flare and compression fittings.

PERFORMANCE
OBJECTIVE: Given the needed supplies and equipment, produce the proper procedures to connect flare and compression fittings with 100% accuracy.

TASK: 5. Demonstrate the proper procedures to utilize when soldering copper fittings.

PERFORMANCE
OBJECTIVE: Given the needed equipment and supplies, generate the proper procedures utilized when soldering copper fittings with 100% accuracy.

TASK: 6. Demonstrate the proper procedures to follow when assembling dissimilar plumbing materials.

PERFORMANCE
OBJECTIVE: Given a variety of needed materials, choose the proper procedures to follow when assembling dissimilar plumbing materials with 100% accuracy.

TASK: 7. Explain the proper procedures to follow in order to maintain a water system.

PERFORMANCE
OBJECTIVE: Using information from lecture, defend the proper procedures to follow in order to maintain a water system with 90% accuracy.

DUTY G. Demonstrating the proper application of basic concrete principles.

TASK: 1. Define basic concrete terminology.

PERFORMANCE
OBJECTIVE: Given a piece of paper, write the basic definitions to concrete terminology with 100% accuracy.

TASK: 2. Develop a list of necessary materials.

PERFORMANCE
OBJECTIVE: Utilizing given information, select a list of needed materials with 100% accuracy.

TASK: 3. Demonstrate the proper methods used to construct forms.

PERFORMANCE
OBJECTIVE: Given needed materials, construct concrete forms with 100% accuracy.

TASK: 4. Prepare a site for concrete and masonry construction.
OBJECTIVE: Using information from class, select and prepare a site for concrete and masonry construction with 100% accuracy.

TASK: 5. Demonstrate the proper methods used to lay out a building foundation.

OBJECTIVE: Given prior knowledge, specify the proper methods to lay out a building foundation with 95% accuracy.

TASK: 6. Calculate the cost and amounts of materials needed to formulate a concrete or mortar mix.

OBJECTIVE: Using paper and a pencil, compute the costs and amounts of materials needed to formulate a concrete or mortar mix with 100% accuracy.

TASK: 7. Explain the methods used to determine moisture content in sand.

OBJECTIVE: Given the needed equipment, demonstrate the methods used to determine moisture content in sand with 90% accuracy.

TASK: 8. Demonstrate the methods used to mix concrete or mortar on the job site.

OBJECTIVE: Given needed materials, put in priority order the methods used to mix concrete or mortar on the job site with 100% accuracy.

TASK: 9. Demonstrate the necessary techniques for conducting and evaluating a slump test.

OBJECTIVE: Using information given in class, plan the necessary techniques for conducting and evaluating a slump test with 90% accuracy.

TASK: 10. Explain the necessity for and the proper procedures to use when placing concrete or masonry reinforcement.
PERFORMANCE
OBJECTIVE: Using knowledge obtained in class, examine the necessity for and the proper procedures to use when placing concrete or masonry reinforcement with 95% accuracy.

TASK: 11. Demonstrate how to properly make control and construction joints.

PERFORMANCE
OBJECTIVE: Given the needed materials, demonstrate how to properly make control and construction joints with 95% accuracy.

TASK: 12. Explain all of the necessary steps to place, consolidate, finish, and cure concrete.

PERFORMANCE
OBJECTIVE: Given prior knowledge, list all necessary steps to place, consolidate, finish, and cure concrete with 100% accuracy.

TASK: 13. Explain how to produce special finishes on concrete.

PERFORMANCE
OBJECTIVE: Given a section of unfinished concrete, create a quality finished product with 85% accuracy.

TASK: 14. Demonstrate the proper methods for use and maintenance of concrete and masonry finishing tools and equipment.

PERFORMANCE
OBJECTIVE: Given prior knowledge, choose the proper methods for use and maintenance of concrete and masonry finishing tools and equipment with 100% accuracy.

DUTY H. Investigating proficiency in basic carpentry skills.

TASK: 1. Define basic carpentry terminology.

PERFORMANCE
OBJECTIVE: Using paper and a pencil, write the definitions of basic carpentry terminology with 100% accuracy.

TASK: 2. Explain the uses for the various building materials.

PERFORMANCE
OBJECTIVE: Given information from class, suggest the uses for the various building materials with 90% accuracy.
TASK: 3. Demonstrate the proper methods for planning cost effective construction.

PERFORMANCE
OBJECTIVE: Using prior information, predict proper methods for planning cost effective construction with 90% accuracy.

TASK: 4. Demonstrate the proper methods for laying out a building foundation.

PERFORMANCE
OBJECTIVE: Using knowledge from class, distinguish the proper method for laying out a building foundation with 90% accuracy.

TASK: 5. Identify, select, and apply construction fasteners.

PERFORMANCE
OBJECTIVE: Given needed supplies, select and apply construction fasteners with 95% accuracy.

TASK: 6. Demonstrate the proper methods for constructing buildings or building components.

PERFORMANCE
OBJECTIVE: Using knowledge from class, plan the proper methods for constructing buildings or building components with 95% accuracy.

TASK: 7. Demonstrate the proper methods for laying out and cutting structural components.

PERFORMANCE
OBJECTIVE: Given the needed materials and supplies, demonstrate the proper methods for laying out and cutting structural components with 95% accuracy.

TASK: 8. Demonstrate the proper methods for construction of trusses from different types of building materials.
PERFORMANCE OBJECTIVE: Using information from class, design the proper methods for construction of trusses from different types of building materials with 95% accuracy.

TASK: 9. Demonstrate the proper methods for the installation of composition shingles as well as, metal and fiberglass roofing materials.

PERFORMANCE OBJECTIVE: Using knowledge from class, justify the proper methods for the installation of composition shingles as well as, metal and fiberglass roofing materials with 95% accuracy.

DUTY I. Selecting and applying paints and preservatives.

TASK: 1. Explain the uses of the materials which are needed.

PERFORMANCE OBJECTIVE: Utilizing information given in class, assess the uses of the materials which are needed with 100% accuracy.

TASK: 2. Explain the correct techniques for brush painting.

PERFORMANCE OBJECTIVE: Given the needed materials and supplies, demonstrate the correct techniques for brush painting with 90% accuracy.

TASK: 3. Explain the correct techniques for spray painting.

PERFORMANCE OBJECTIVE: Given needed materials, give an example of the correct techniques for spray painting with 90% accuracy.

TASK: 4. Explain the proper methods of applying different types of finishing materials.

PERFORMANCE OBJECTIVE: Using information from class, select the proper methods of applying different types of finishing materials with 100% accuracy.
DUTY J. Determining the various methods of fencing.

TASK: 1. Explain the uses of, the amount of materials which are needed.

PERFORMANCE
OBJECTIVE: Given prior knowledge, decide the amount of materials which are needed with 90% accuracy.

TASK: 2. Select fencing materials which are appropriate for the type of fence which is being built.

PERFORMANCE
OBJECTIVE: Using information given in class, distinguish the type of fencing materials which are appropriate for the fence which is being built with 95% accuracy.

TASK: 3. Develop a plan for the construction of a fence.

PERFORMANCE
OBJECTIVE: Using information from class, design a plan for the construction of a fence with 95% accuracy.

TASK: 4. Demonstrate the proper method of putting up fences.

PERFORMANCE
OBJECTIVE: Given all needed materials, construct a proper method of putting up fences with 100% accuracy.

DUTY K. Applying hot and cold metal skills.

TASK: 1. Define the basic terminology.

PERFORMANCE
OBJECTIVE: Using a pencil and paper, write the definitions to basic terminology with 100% accuracy.

TASK: 2. Identify the different types of metal.

PERFORMANCE
OBJECTIVE: Given several types of metal, compare them to one another with 95% accuracy.

TASK: 3. Explain how to correctly cut, file, shape, and drill metal.
OBJECTIVE: Given scrap metal, demonstrate how to correctly cut, file, shape, and drill metal with 95% accuracy.

TASK: 4. Explain the methods used to correctly solder copper joints, sheet metal, and electrical connections.

PERFORMANCE
OBJECTIVE: Given the needed materials, examine the methods used to correctly solder copper joints, sheet metal, and electrical connections with 100% accuracy.

TASK: 5. Demonstrate the correct use of heat treating tools.

PERFORMANCE
OBJECTIVE: Given the proper equipment, specify the correct use of heat treating tools with 100% accuracy.

TASK: 6. Explain how to join metals with appropriate fasteners.

PERFORMANCE
OBJECTIVE: Given scrap metal, decide how to join metals with appropriate fasteners with 90% accuracy.

TASK: 7. Explain the proper procedures for cutting threads with taps and dies.

PERFORMANCE
OBJECTIVE: Given a tap and die set, demonstrate the proper procedures for cutting threads with taps and dies with 100% accuracy.

TASK: 8. Explain the methods utilized to lay out and drill holes with a twist drill.

PERFORMANCE
OBJECTIVE: Given the needed materials, determine the methods utilized to lay out and drill holes with a twist drill with 100% accuracy.

TASK: 9. Explain how to bend sheet and strap steel to angles or shapes.
PERFORMANCE
OBJECTIVE: Given sheet and strap steel, choose the proper way to bend sheet and strap steel to angles or shapes with 90% accuracy.

TASK: 10. Explain the proper procedures for repairing damaged threads.

PERFORMANCE
OBJECTIVE: Using prior knowledge, reconstruct the proper procedures for repairing damaged threads with 100% accuracy.

TASK: 11. Identify the uses for the equipment needed for electric arc welding.

PERFORMANCE
OBJECTIVE: Given all arc welding equipment, assess the uses of the equipment with 90% accuracy.

TASK: 12. Demonstrate how to correctly operate electric arc welding equipment.

PERFORMANCE
OBJECTIVE: Given an arc welder, suggest how to correctly operate electric arc welding equipment with 100% accuracy.

TASK: 13. Explain the proper procedures for laying out and preparing metal for arc welding.

PERFORMANCE
OBJECTIVE: Given needed materials and an arc welder, select the proper procedures for laying out and preparing metal for arc welding with 95% accuracy.

TASK: 14. Demonstrate proficiency in the proper methods utilized to weld basic joints in all positions.

PERFORMANCE
OBJECTIVE: Using knowledge given in class, specify the proper methods utilized to weld basic joints in all positions with 95% accuracy.

TASK: 15. Demonstrate the methods used to join pipes by welding.

PERFORMANCE
OBJECTIVE: Using information from class, decide the methods used to join pipes by welding with 90% accuracy.

TASK: 16. Demonstrate the procedures to follow when preparing for and applying hard surfacing alloys.
PERFORMANCE
OBJECTIVE: Using information given in class, categorize the procedures to follow when preparing for and applying hard surfacing alloys with 90% accuracy.

TASK: 17. Identify the uses for the equipment needed for oxy-fuel welding and cutting.

PERFORMANCE
OBJECTIVE: Given oxy-fuel tanks and torch, reconstruct the proper use of welding and cutting with 100% accuracy.

TASK: 18. Demonstrate how to correctly operate oxy-fuel welding and cutting equipment.

PERFORMANCE
OBJECTIVE: Given oxy-fuel tanks and torch, demonstrate the proper use of welding and cutting with 100% accuracy.

TASK: 19. Explain the need to light and adjust the torch flame for specific welding or cutting operations.

PERFORMANCE
OBJECTIVE: Given an oxy-fuel torch, differentiate the ways to light and adjust the torch flame for specific welding or cutting operations with 100% accuracy.

TASK: 20. Demonstrate the procedures to follow when laying out and preparing metal for welding or cutting.

PERFORMANCE
OBJECTIVE: Given scrap metal, determine the factors and explain the procedures to follow when laying out and preparing metal for welding or cutting with 100% accuracy.

TASK: 21. Compare and contrast fusion and braze welding joints on mild steel and cast iron.

PERFORMANCE
OBJECTIVE: Given scrap mild steel and cast iron, suggest the proper method of fusion and braze welding joints with 85% accuracy.

TASK: 22. Demonstrate the proper methods for cutting mild steel, including pipe.
OBJECTIVE: Given a torch and the needed materials, decide the proper methods of cutting with 100% accuracy.

TASK: 23. Demonstrate the proper methods utilized to join steel pipe, tubing or shapes by welding.

PERFORMANCE
OBJECTIVE: Given the needed materials, demonstrate the proper methods utilized to join steel pipe, tubing or shapes by welding with 100% accuracy.

DUTY L. Investigating the operation of small engines.

TASK: 1. Identify the function of the following systems and components:
   a. Air and fuel intake and carburetion system
   b. Ignition system
   c. Cooling components
   d. Lubrication system
   e. Combustion components

PERFORMANCE
OBJECTIVE: Given the following list, evaluate the systems and components with 95% accuracy.
   a. Air and fuel intake and carburetion system
   b. Ignition system
   c. Cooling components
   d. Lubrication system
   e. Combustion components

TASK: 2. Explain how to service and maintain fuel, air intake, exhaust, cooling, and lubrication systems.

PERFORMANCE
OBJECTIVE: Using knowledge obtained in class, justify how to service and maintain fuel, air intake, exhaust, cooling, and lubrication systems with 100% accuracy.

TASK: 3. Explain the methods used in the generation of electricity and the production of a timed spark.

PERFORMANCE
OBJECTIVE: Using information from class, write the methods used in the generation of electricity and the production of a timed spark with 90% accuracy.

TASK: 4. Explain the methods used in the combustion of fuel and the generation of usable energy.
PERFORMANCE
OBJECTIVE: Given a diagram, visualize the methods used in the combustion of fuel and the generation of usable energy with 90% accuracy.

TASK: 5. Identify the individual parts of a small engine.

PERFORMANCE
OBJECTIVE: Given a disassembled engine, label the individual parts with 100% accuracy.

TASK: 6. Describe the function of the following:

a. Engine governor
b. Hot vs. cold spark plug
c. Air cleaner
d. Cooling fins
e. Crankcase breather
f. Carburetor choke
g. Condenser
h. Breaker points
i. Engine oil
j. Cam shaft
k. Connecting rod
l. Piston and rings

PERFORMANCE
OBJECTIVE: Given a list of the following, appraise the function of each with 100% accuracy.

a. Engine governor
b. Hot vs. cold spark plug
c. Air cleaner
d. Cooling fins
e. Crankcase breather
f. Carburetor choke
g. Condenser
h. Breaker points
i. Engine oil
j. Cam shaft
k. Connecting rod
l. Piston and rings

TASK: 7. Compare and contrast a 4 stroke-cycle and a 2 stroke-cycle engine.

PERFORMANCE
OBJECTIVE: Given a 4 stroke-cycle and a 2 stroke-cycle engine, differentiate between the two with 95% accuracy.
TASK: 8. Explain the proper methods for using engine overhaul equipment, including valve, cylinder, piston, seal, and bearing tools.

PERFORMANCE
OBJECTIVE: Given all needed materials, demonstrate the proper methods for using engine overhaul equipment, including valve, cylinder, piston, seal, and bearing tools with 95% accuracy.

TASK: 9. Explain proficiency in the use of measuring tools and test instruments such as micrometer, thickness gauge, telescoping and small hole gauge, dial indicator, compression tester, torque wrench, tachometer, coil-condenser tester, ignition timing tester, ignition circuit tester, and VOA (volt-ohm-amp)-meter or DMM (digital multi-meter).

PERFORMANCE
OBJECTIVE: Given the proper equipment, demonstrate the use of measuring tools and test instruments such as micrometer, thickness gauge, telescoping and small hole gauge, dial indicator, compression tester, torque wrench, tachometer, coil-condenser tester, ignition timing tester, ignition circuit tester, and VOA (volt-ohm-amp)-meter or DMM (digital multi-meter) with 90% accuracy.

TASK: 10. Explain the methods for assembling and adjusting ignition and fuel systems.

PERFORMANCE
OBJECTIVE: Given an ignition and fuel system, justify the methods for assembling and adjusting with 90% accuracy.

TASK: 11. Demonstrate the proper methods for operating an engine and adjust or check ignition timing, engine speed, and carburetor adjustments.

PERFORMANCE
OBJECTIVE: Given a small engine, specify the proper methods for operating an engine and adjust or check ignition timing, engine speed, and carburetor adjustments with 100% accuracy.

TASK: 12. Troubleshoot, evaluate and replace valves, electrical, governor, and carburetion parts.

PERFORMANCE
OBJECTIVE: Given a small engine, diagnose, evaluate and replace valves, electrical, governor, and carburetion parts with 95% accuracy.
Animal Science

DUTY A-1a. Examining the circulatory system of animals.

TASK: 1. Diagram the pathway of blood through the heart.

PERFORMANCE
OBJECTIVE: Given a model, diagram, and/or an animal heart, label the parts and diagram the pathway of blood through the heart with 90% accuracy.

TASK: 2. Diagram the pathway of blood through the circulatory system.

PERFORMANCE
OBJECTIVE: Given a model, diagram, and parts of an animal's circulatory system, label the parts and diagram the pathway of blood through the heart and circulatory system with 80% accuracy.

TASK: 3. Evaluate the functions of the circulatory system in animals.

PERFORMANCE
OBJECTIVE: Given a living animal, construct its circulatory system and put in priority five functions of the animal's circulatory system with 80% accuracy.

TASK: 4. Compare the functions of veins, arteries, and capillaries.

PERFORMANCE
OBJECTIVE: Using models or diagrams of veins, and/or an animal carcass, evaluate the functions and locations of veins, arteries, and capillaries with 80% accuracy.

Duty A-1b. Examining the respiratory systems of animals.

TASK: 1. Diagram the parts of a respiratory system.

PERFORMANCE
OBJECTIVE: Using paper and pencil and an animal species, make a diagram of the parts of the animal's respiratory system labeling parts with 90% accuracy.

TASK: 2. Explain the process of respiration.
PERFORMANCE
OBJECTIVE: Given diagrams of three farm and three companion animals, compare the breathing mechanisms with 90% accuracy.

TASK: 3. Contrast the primary and secondary functions of the respiratory system.

PERFORMANCE
OBJECTIVE: Using your drawing of a respiratory system, explain the process of respiration and the primary and secondary functions of the respiratory system with 80% accuracy.

DUTY A-2a. Exploring the animal endocrine system.

TASK: 1. Explain the role of the endocrine system.

PERFORMANCE
OBJECTIVE: Using class notes and other reference materials, write a paragraph defining the endocrine system's role in the body with 90% accuracy.

TASK: 2. Determine the unique features of a gland.

PERFORMANCE
OBJECTIVE: Given pictures or models of glands and organs, analyze what differentiates the glands from other organs with 100% accuracy.

TASK: 3. Explain the endocrine system's role in the "fight or flight" phenomenon.

PERFORMANCE
OBJECTIVE: Given three hypothetical situations or case studies, justify whether an animal will fight or flee using all factors discussed in class to support your argument.

Duty A-2b. Exploring the animal nervous system.

TASK: 1. Examine the functions of the peripheral nervous system.

PERFORMANCE
OBJECTIVE: Using models or diagrams of the peripheral nervous system, evaluate the function and location of the major nerves with 90% accuracy.

TASK: 2. Examine the functions of the central nervous system.
OBJECTIVE: Using models or diagrams of the central nervous system, evaluate the function and location of the major nerves with 90% accuracy.

TASK: 3. Determine what modifications can be made to epithelial tissues.

PERFORMANCE

OBJECTIVE: Using models and/or a carcass of an animal, determine the modifications of the epithelial tissues and where they are found in the body with 80% accuracy.

TASK: 4. Explain the functions of the skin.

PERFORMANCE

OBJECTIVE: Given examples of animal skin, compare the structure and function of each animal's principal outer covering with 80% accuracy.

TASK: 5. Analyze how the endocrine and nervous systems interact.

PERFORMANCE

OBJECTIVE: Using notes and reference materials, analyze the stimuli necessary to signal release of a particular hormone with 80% accuracy.

DUTY A-3a. Examining the muscular systems of animals.

TASK: 1. Identify the three basic forms of muscles.

PERFORMANCE

OBJECTIVE: Compare the functions of the three muscle forms in six different species of animals with 80% accuracy.

TASK: 2. Discuss the production and dissipation of energy in the contraction of a muscle.

PERFORMANCE

OBJECTIVE: Given a rubber band, demonstrate and describe the production and dissipation of energy in the contraction of a muscle with 100% accuracy.
DUTY A-3b. Examining the skeletal systems of animals.

TASK: 1. Analyze the function of bones in the body.

PERFORMANCE
OBJECTIVE: Using a model or an animal skeleton and class notes, draw examples of the six types of bones and compare the function of each type with 90% accuracy.

DUTY A-4a. Investigating the digestive systems of various animal species.

TASK: 1. Distinguish between the monogastric and ruminant digestive systems.

PERFORMANCE
OBJECTIVE: Given a model, diagram, or digestive system from a slaughterhouse, characterize between the monogastric and ruminant digestive system and give examples of each with 95% accuracy.

TASK: 2. Describe how the mouth assists in the digestive process.

PERFORMANCE
OBJECTIVE: Given a piece of bread, justify how the mouth assists in the digestive process with 85% accuracy.

TASK: 3. Discuss how the monogastric digestive system differs from an avian digestive system.

PERFORMANCE
OBJECTIVE: Given a model, diagram or digestive system from a slaughterhouse, differentiate between the monogastric and avian digestive system with 90% accuracy.

DUTY A-4b. Investigating the excretory systems of various animal species

TASK: 1. Explain how the shape of the kidneys differs from species to species.

PERFORMANCE
OBJECTIVE: Given pictures or the kidneys of several species of livestock from the slaughterhouse, compare their differences with 85% accuracy.

DUTY B-1. Exploring the process of sexual reproduction.

TASK: 1. Discuss how gender is determined in the process of reproduction for agricultural livestock.
PERFORMANCE
OBJECTIVE: Using information given in class, justify how gender is determined in reproduction of agricultural livestock with 100% accuracy.

TASK: 2. Examine mitosis and meiosis.

PERFORMANCE
OBJECTIVE: Given a piece of paper, design and label a drawing of a male and a female gamete, with 80% accuracy.

TASK: 3. Discuss puberty and its relation to the sexual maturation.

PERFORMANCE
OBJECTIVE: Using knowledge of the breeding process, evaluate puberty with respect to its role in the breeding of livestock with 80% accuracy.

TASK: 4. Explain the preparation required for the breeding of a female animal.

PERFORMANCE
OBJECTIVE: Given a specific female species, assess the process used in preparing the animal for breeding with 100% accuracy.

TASK: 5. Explain how the breeding of a female animal relates to the idea of "grading up".

PERFORMANCE
OBJECTIVE: Given pictures of superior versus inferior animals, specify the breeding characteristics of "grading up" with 90% accuracy.

TASK: 6. Explain estrus as it relates to the mating of animals.

PERFORMANCE
OBJECTIVE: Given a specific animal species, examine the role of estrus in the breeding process with 95% accuracy.

TASK: 7. Discuss parturition.

PERFORMANCE
OBJECTIVE: Given specific information an animal preparing for birth, determine the stage of parturition with 95% accuracy.

TASK: 8. Examine the different systems of mating.
PERFORMANCE
OBJECTIVE: Given a list of different mating systems, debate which is the optimum method for common domestic animals with 85% accuracy.

DUTY B-2. Investigating the role of the male in reproduction.

TASK: 1. Describe the various organs and functions of the male animal reproductive system.

PERFORMANCE
OBJECTIVE: Given an animal diagram, identify each organ that has an effect on reproduction and the function of that organ with 90% accuracy.

TASK: 2. Discuss the similarities and differences between the male reproductive systems of species of agricultural livestock.

PERFORMANCE
OBJECTIVE: Contrast the male-female reproductive systems of large and small animals with 90% accuracy.

TASK: 3. Describe the functions of the male hormones.

PERFORMANCE
OBJECTIVE: Given a picture or live animal of livestock species, determine the factors that may represent too much or too little male hormone in the body with 80% accuracy.

DUTY B-3. Examining the role of the female animal in reproduction.

TASK: 1. Describe the various organs and functions of the female animal reproductive system.

PERFORMANCE
OBJECTIVE: Given an animal diagram, identify each organ that has an effect on reproduction and the function of that organ to the 90% accuracy level.

TASK: 2. Construct a matrix of the similarities and differences between the female reproductive systems of species of agricultural livestock.

PERFORMANCE
OBJECTIVE: Contrast the female reproduction system of large animal (cattle, sheep, swine, goat, horse) species to small animal (dog, rabbit, poultry) species to a 90% accuracy level.

TASK: 3. Describe the functions of the female hormones in the estrous cycle and compare this process to that of human females.
OBJECTIVE: Given a diagram of the female reproductive system, classify the functions of each hormone produced by the body and its effect on the estrous cycle, 90% accuracy level.

DUTY B-4. Examining the processes of artificial insemination and embryo transfer and their practical and social implications.

TASK: 1. Describe the equipment and procedures involved in the artificial insemination of cattle and hogs.

PERFORMANCE
OBJECTIVE: Describe each piece of equipment and the procedures involved in artificial insemination of cattle and hogs to a 90% accuracy level.

TASK: 2. List the advantages and disadvantages of artificial insemination in livestock production.

PERFORMANCE
OBJECTIVE: Contrast the advantages and disadvantages for the use of artificial insemination in four livestock species at the level of 80% accuracy.

TASK: 2. Analyze the factors that effect the sperm mobility.

PERFORMANCE
OBJECTIVE: Discuss mobility in sperm and the factors affecting it and other aspects of sperm production in a given specie to 90% accuracy level.

TASK: 3. Describe the process of embryo transfer and the advantages and disadvantages of its use.
PERFORMANCE
OBJECTIVE: Defend the position that all farmers should begin embryo transfer, stating a minimum of three advantages and three disadvantages, to a 90% accuracy level.

TASK: 4. Evaluate the social implications and concerns involved in reproductive and genetic manipulation in animals.

PERFORMANCE
OBJECTIVE: Address the social implications and concerns involved in reproductive and genetic manipulation in one large animal species to 80% accuracy.

TASK: 5. Evaluate similarities in advances in animal reproduction and human infertility treatments.

PERFORMANCE
OBJECTIVE: Compose an argument for/or against infertility treatments to animals and humans to a 90% accuracy level.

DUTY C. Examining the genetics of animal breeding.

TASK: 1. Examine the differences between genotype and phenotype.

PERFORMANCE
OBJECTIVE: Given a color picture and a genetics chart of a specific animal, compare the animal's appearance to its genotype and phenotype, with 95 percent accuracy.

TASK: 2. Determine the law of segregation.

PERFORMANCE
OBJECTIVE: Using information on Gregor Mendel's original experiments, formulate five of six examples of the law of segregation.

TASK: 3. Determine the law of independent assortment.

PERFORMANCE
OBJECTIVE: Using information of Gregory Mendel's original experiments, predict five of six outcomes relative to the law of independent assortment.

TASK: 4. Describe the function of chromosomes and genes in the context of RNA and DNA information.

PERFORMANCE
OBJECTIVE: Given a diagram of a chromosome, classify the functions of RNA and DNA with 95 percent accuracy.

TASK: 5. Analyze the factors involved in dominant and recessive characteristics of canine genotype.

PERFORMANCE
OBJECTIVE: Given a live model of a specific breed of dog, assess the dominant and recessive characteristics in breeding pedigreed dogs, with 95 percent accuracy.

TASK: 6. Describe the process of complete and incomplete dominant traits.

PERFORMANCE
OBJECTIVE: Given models of three different animal species, visualize five of six traits by complete and incomplete dominance.

TASK: 7. Analyze how an animal's sex is genetically predetermined.

PERFORMANCE
OBJECTIVE: Given chromosomal diagrams of some domestic animals and humans, justify how an animal's sex is predetermined, with 90 percent accuracy.

TASK: 8. Calculate heritability estimates for economically important traits.

PERFORMANCE
OBJECTIVE: Given a heritability model for a specific animal, calculate the probability of acquiring the desired economic trait for that animal, with 95 percent accuracy.

TASK: 9. Analyze the importance of sex-linked characteristics in animals.

PERFORMANCE
OBJECTIVE: Given a list of 10 characteristics in animals, evaluate their effects on reproduction, with 100 percent accuracy.

TASK: 10. Apply the positive and negative effects of inbreeding to animals.

PERFORMANCE
OBJECTIVE: Given the genetic history of a specific inbred animal, generate all possible physical outcomes.
TASK: 11. Predict expected progeny from a specific animal.

PERFORMANCE
OBJECTIVE: Using the breeding history of a specific animal, evaluate the expected progeny outcomes.

DUTY D. Analyzing the diseases and parasites that affect animals.

TASK: 1. Examine viral, bacterial, fungal, protozoa diseases in animals.

PERFORMANCE
OBJECTIVE: Using 10 diagnostic reports from a lab, categorize all diseases by virus, bacterium, fungus, or protozoa.

TASK: 2. Arrange common diseases of various livestock by their mode of symptoms, and effects on the animal.

PERFORMANCE
OBJECTIVE: Given three species of livestock, classify 10 of 12 diseases by their mode of action, signs, and symptoms.

TASK: 3. Apply the principles of proper animal management to the prevention and control of diseases for various livestock.

PERFORMANCE
OBJECTIVE: Given case histories of farm herd management, generate a health care maintenance and prevention plan, with 95 percent accuracy.

TASK: 4. Describe the host and life cycle of various animal parasites.

PERFORMANCE
OBJECTIVE: With slides, live cultures, or preserved specimens of a specific animal parasite, reconstruct the parasite's entire life cycle.

TASK: 5. Diagnose the signs and symptoms of internal parasites on their hosts.

PERFORMANCE
OBJECTIVE: Using case histories of health care in a specific animal breed, evaluate the signs and symptoms of the parasite and justify appropriate treatments, with 100 percent accuracy.

TASK: 6. Examine the methods of administering medication and vaccines to animals.
PERFORMANCE
OBJECTIVE: Given a model of a specific animal, justify the preferred methods of administering medications and vaccines for nine of 10 diseases in animals.

TASK: 7. Analyze the problems involved in the treatment of diseases and parasites.

PERFORMANCE
OBJECTIVE: Given case histories of herd management, debate the issue of profitability of disease control with respect to animal rights, with 95 percent accuracy.

DUTY E. Analyzing proper animal nutrition.

TASK: 1. Compare the classification of nutrients of livestock feeds.

PERFORMANCE
OBJECTIVE: Given the information on a specific animal feed, classify the nutrients it contains with 80% accuracy.

TASK: 2. Compare the processes of synthesizing of nutrients by different animals.

PERFORMANCE
OBJECTIVE: Using the information from class discussion, compare the processes of synthesizing nutrients by different animals with 85% accuracy.

TASK: 3. Explain the purpose and function of minerals in the body.

PERFORMANCE
OBJECTIVE: Given a list of minerals, explain their purpose and function for a given animal with 80% accuracy.

TASK: 4. Explain the purpose and function of water in the body.

PERFORMANCE
OBJECTIVE: Given the information on water, explain its purpose and function in an animal's body with 80% accuracy.

TASK: 5. Classify feeds according to fiber content and total digestible nutrients.
PERFORMANCE
OBJECTIVE: Given different livestock feeds, classify them according to fiber content and total digestibility of nutrients with 90% accuracy.

TASK: 6. Classify concentrates on the basis of composition and feeding value.

PERFORMANCE
OBJECTIVE: Given a list of concentrates, classify them by composition and feeding value with 90% accuracy.

TASK: 7. Generate an evaluation system for commercially produced animal feeds.

PERFORMANCE
OBJECTIVE: Given different commercially produced animal feeds, generate an evaluation system for them with 100% accuracy.

TASK: 8. Describe the processing methods of by-products used in feeds.

PERFORMANCE
OBJECTIVE: After discussing and viewing different processing methods of by-products used in feeds, explain them to the instructor with 100% accuracy.

TASK: 9. Determine the sources of plant proteins available in livestock feeds.

PERFORMANCE
OBJECTIVE: After discussing plant proteins, determine the sources of these in livestock feeds with 80% accuracy.

TASK: 10. Determine the sources of animal proteins available in livestock feeds.

PERFORMANCE
OBJECTIVE: After discussing animal proteins, determine the sources of these in livestock feeds with 80% accuracy.

TASK: 11. Relate the sources of plant and animal proteins to the by-products used in livestock feeds.

PERFORMANCE
OBJECTIVE: Given a list of by-products used in livestock feeds, relate them to plant and animal proteins with 80% accuracy.

TASK: 12. Distinguish among the various classes of feed additives.
PERFORMANCE
OBJECTIVE: Given a key on the various classes of feed additives, describe the differences with 100% accuracy.

TASK: 13. Determine the production stimulants used in feeds for various species.

PERFORMANCE
OBJECTIVE: Given a specific livestock feed, determine the production stimulant(s) used with 80% accuracy.

TASK: 14. Assess concerns of environmentalists about the effects of these chemical additives on consumers.

PERFORMANCE
OBJECTIVE: Given a list of production stimulants, assess the environmental concerns associated with each these with 80% accuracy.

TASK: 15. Compare the process of digestion in ruminant, monogastric, and avian species.

PERFORMANCE
OBJECTIVE: Given drawings or models of digestive systems from a ruminant, monogastric, and avian species, compare the digestive process with 80% accuracy.

TASK: 16. Design feeding regiments that are appropriate to the different classes of animal digestion.

PERFORMANCE
OBJECTIVE: After discussing the digestion process of different species, design a feeding regimen that is appropriate for each species with 100% accuracy.

TASK: 17. Examine the nutritional requirements for several classes and species of livestock.

PERFORMANCE
OBJECTIVE: Given a specific class and species of livestock, determine the nutritional requirements with 90% accuracy.

TASK: 18. Select appropriate feed for various ages of animals.
PERFORMANCE
OBJECTIVE: Given a specific age of an animal, select the appropriate feed with 100% accuracy.

TASK: 19. Compute balanced rations for five different domestic animals.

PERFORMANCE
OBJECTIVE: Given the information on the nutritional requirements of animals, compute a balanced ration for five different animal species with 100% accuracy.

DUTY F. Exploring careers in the animals industry.

TASK: 1. Evaluate the types of careers related to the animal industry based upon educational requirements, employment opportunities, working conditions, type of pay and advancement opportunities.

PERFORMANCE
OBJECTIVE: Given a list of careers related to the animal industry, evaluate them based upon educational requirements, employment opportunities, working conditions, type of pay and advancement opportunities with 80% accuracy.

TASK: 2. Analyze how jobs related to the animal industry have changed over the past one hundred years.

PERFORMANCE
OBJECTIVE: Given the history of the animal industry, analyze how the jobs have changed over the past one hundred years with 80% accuracy.

TASK: 3. Create a scenario for animal industry jobs in the future.

PERFORMANCE
OBJECTIVE: Given the history on how jobs have changed over the past 100 years, predict the type of jobs in the future with 80% accuracy.

TASK: 4. Compare how worldwide population growth will influence plant and animal food production.

PERFORMANCE
OBJECTIVE: Given information on worldwide population growth, compare how this growth will influence plant and animal food production with 80% accuracy.
DUTY: G. Analyzing social and political issues in the animal industry.

TASK: 1. Examine animal rights issues and choose three on which to make a stand.

PERFORMANCE
OBJECTIVE: Justify either in writing or in oral presentation three animals rights issues that either support or contradict animal rights to the level of 80% accuracy.

TASK: 2. Analyze modern production practices that relate to animal rights issues from the perspective of both producers and animal rights groups.

PERFORMANCE
OBJECTIVE: Defend the position that animal production is to be "free range" and to be "organically grown" or "all natural" -- no medication or chemicals to an 80% accuracy level.

TASK: 3. Present a position related to the debate between vegetarians and livestock producers about the best use of land and grains.

PERFORMANCE
OBJECTIVE: Formulate a position related to the debate between vegetarians and livestock producers about the best use of land and grains providing three points to each side of the issue to a 90% accuracy level.

TASK: 4. Evaluate the economic ramifications for both the consumer and producer of altering production practices related to livestock animals.

PERFORMANCE
OBJECTIVE: Determine and state the economic factors and their ramifications for both you the consumer and you the producer of altering production practices related to livestock animals to an 80% accuracy level.

DUTY H. Examining management practices in the care and maintenance of animals.

TASK: 1. Describe the appropriate land, housing, pens, fencing, and watering facilities needed for the proper care of a given livestock species.

PERFORMANCE
OBJECTIVE: Given a specific species of livestock, design the appropriate land, housing, pens, fencing and watering facilities necessary for their survival with 90% accuracy.

TASK: 2. Perform the procedures necessary for the technical maintenance of livestock and pets, such as yearly vaccinations, castration, and dehorning.
PERFORMANCE
OBJECTIVE: Given a specific animal species, generate a technical maintenance program with 80% accuracy.

TASK: 3. Determine the requirements for "good conformation" in farm livestock with the specific purpose for which the animal is being raised.

PERFORMANCE
OBJECTIVE: Given a specific animal species, assess their conformation based upon their intended purpose with 95% accuracy.

TASK: 4. Inspect and grade meat from various animals using the USDA standards

PERFORMANCE
OBJECTIVE: Given meat from a specific animal, classify the animal and meat based upon the USDA standards with 90% accuracy.

TASK: 5. Utilize the recommended procedures for proper animal sanitation.

PERFORMANCE
OBJECTIVE: Given a case study concerning animal sanitation, justify how you would handle the problem and the procedures you would follow to correct the situation with 80% accuracy.

TASK: 6. Plan and construct a model livestock facility.

PERFORMANCE
OBJECTIVE: Given a specific breed of livestock, design a model livestock facility which will handle a high capital investment with 95% accuracy.

DUTY I. Examining aquaculture and other new technological animal production systems.

TASK: 1. Describe the history of aquaculture and its potential impact on the economy of the United States and foreign markets.
PERFORMANCE
OBJECTIVE: Given a brief description of the economic outlook of a local community, justify the use of aquaculture to help improve its financial stability with 80% accuracy.

TASK: 2. Maintain the appropriate environment for the raising of fish.

PERFORMANCE
OBJECTIVE: Given a specific species of fish, describe its environmental needs for sustaining life with 80% accuracy.

TASK: 3. Utilize the different types of fish reproduction, egg collection, and fertilization processes.

PERFORMANCE
OBJECTIVE: Given two specific species of fish, compare and contrast their reproduction, egg collection, and fertilization processes with 90% accuracy.

TASK: 4. Minimize fish kill through the diagnosis, treatment and prevention of diseases.

PERFORMANCE
OBJECTIVE: Given a specific species of fish, select the prescribed treatments for its common diseases with 90% accuracy.

TASK: 5. Examine career options in aquaculture and identify the requirements for entry-level positions and career advancement.

PERFORMANCE
OBJECTIVE: Given a specific career option in aquaculture, evaluate the opportunities for advancement with 90% accuracy.

TASK: 6. Determine the impact of the National Aquaculture Act on the industry with 80% accuracy.

PERFORMANCE
OBJECTIVE: Given a specific aquaculture problem, appraise how the National Aquaculture Act protects the industry with 95% accuracy.

TASK: 7. Describe how technological advances might allow concentrated production of other species of animals for human consumption.
PERFORMANCE

OBJECTIVE: Using information covered in the raising of fish, assess the impact of the development of another animal species for human consumption with 80% accuracy.
Fundamentals of Agricultural Science and Business

DUTY A. Examining the scope of career opportunities in and the importance of agriculture to the economy.

TASK: 1. Analyze agriculture and agribusiness and their role in the economy.

PERFORMANCE
OBJECTIVE: Given information from class notes, analyze the role and effects that agriculture and agribusiness has in the economy with 90% accuracy.

TASK: 2. Evaluate the career opportunities in and the criteria to achieve in order to satisfy the requirements for an agriculture production occupation.

PERFORMANCE
OBJECTIVE: Given two agricultural production employment choices, determine the factors necessary to satisfy the requirements in order to achieve each of these causes with 90% accuracy.

TASK: 3. Evaluate the career opportunities in and the criteria to achieve in order to satisfy the requirements for an agricultural supplies and services occupation.

PERFORMANCE
OBJECTIVE: Given two agricultural supplies and services employment choices, determine the factors necessary to satisfy the requirements in order to achieve each career with 90% accuracy.

TASK: 4. Evaluate the career opportunities in and the criteria to achieve in order to satisfy the requirements for an agricultural mechanization occupation.

PERFORMANCE
OBJECTIVE: Given two agricultural mechanization employment choices, determine the factors necessary to satisfy the requirements in order to achieve each career with 90% accuracy.

TASK: 5. Evaluate the career opportunities in and the criteria to achieve in order to satisfy the requirements for an agricultural processing and marketing occupation.

PERFORMANCE
OBJECTIVE: Given two agricultural processing and marketing employment choices, determine the factors necessary to satisfy the requirements in order to achieve each career with 90% accuracy.

TASK: 6. Evaluate the career opportunities in and the criteria to achieve in order to satisfy the requirements for an ornamental horticulture occupation.
PERFORMANCE
OBJECTIVE: Given two ornamental horticulture employment choices, determine the factors necessary to satisfy the requirements in order to achieve each career with 90% accuracy.

TASK: 7. Evaluate the career opportunities in and the criteria to achieve in order to satisfy the requirements for a forestry and natural resources occupation.

PERFORMANCE
OBJECTIVE: Given two forestry and natural resources employment choices, determine the factors necessary to satisfy the requirements in order to achieve each career with 90% accuracy.

TASK: 8. Analyze the opportunities in agricultural production and non-traditional/non-production employment.

PERFORMANCE
OBJECTIVE: Given class references, differentiate the opportunities in agricultural production and non-traditional/non-production employment with 90% accuracy.

TASK: 9. Describe the role that agriculture plays in determining the overall economic situation of the American economy.

PERFORMANCE
OBJECTIVE: Given class references, assess the role that agriculture plays in determining the overall economic situation of the American economy with 90% accuracy.

TASK: 10. Describe the international impact of agriculture on the world economy.

PERFORMANCE
OBJECTIVE: Given information from class notes, describe the international impact of agriculture on the world economy with 90% accuracy.

DUTY B. Developing leadership skills.

TASK: 1. Describe the characteristics of a leader.

PERFORMANCE
OBJECTIVE: Given the role of club president and the role of fund raising committee member, appraise the role of each and their effect on each other and to a successful year with 90% accuracy.
TASK: 2. Evaluate the significance of effective leadership in agriculture.

PERFORMANCE
OBJECTIVE: Given a problem and an opportunity in agriculture and your local county, formulate a written plan for change and to capitalize on the opportunity and your leadership role(s) with each with 90% accuracy.

TASK: 3. Describe the diverse opportunities for developing leadership skills in the FF.

PERFORMANCE
OBJECTIVE: Given your local FF Chapter and your dreams, assess each possible opportunity that you could develop leadership skills (how and what skills) with 90% accuracy.

TASK: 4. Practice communication skills such as writing, public speaking, and listening.

PERFORMANCE
OBJECTIVE: Given the local FF club and vocational agriculture class(es), formulate a written plan with targeted completion dates to formally practice communication skills, i.e., written, public speaking and listening with 100% accuracy.

TASK: 5. Demonstrate expertise in the areas of leadership, employability, communications and human relations.

PERFORMANCE
OBJECTIVE: Given the role of supervisor or foreman for a class period or assignment, demonstrate your abilities to provide leadership, be an employee, communicate with others to complete tasks and your human relations skills for a positive environment; being rated by classmates and instructor with 100% accuracy.

TASK: 6. Analyze the role of the FF in the development of leadership, education, employability, communications and human relations skills.

PERFORMANCE
OBJECTIVE: Given your membership role in FF, assess in writing how FF will or can develop leaders, education employability and communications and human relation skills in you with 90% accuracy.

TASK: 7. Evaluate the process of setting goals.
OBJECTIVE: Given the remainder of the school year to achieve, develop a comprehensive set of attainable goals that meet goal setting criteria with 90% accuracy.

TASK: 8. Describe the role of the Indiana Young Farmers in the further development of leadership, education, employability, communications, and human relations skills.

PERFORMANCE
OBJECTIVE: Given the Indiana Young Farmers program, illustrate in an oral presentation a sales pitch on how a viable Chapter program can develop ones leadership, education, employability, communications and human relations skills with 90% accuracy.


PERFORMANCE
OBJECTIVE: Given a mock meeting or a FF chapter meeting, demonstrate proper usage of parliamentary procedure with 100% accuracy.

DUTY C. Identifying the procedures for developing a Supervised Agricultural Experience Program (SAEP).

TASK: 1. Describe the nature of and become familiar with those terms related to an SAE program.

PERFORMANCE
OBJECTIVE: Given a list of SAE program terms, evaluate each with definition and application with 100% accuracy.

TASK: 2. Evaluate the purposes for instituting an SAEP.

PERFORMANCE
OBJECTIVE: Given the SAE program, appraise the purposes for instituting a SAEP into the FF program with 90% accuracy.

TASK: 3. Identify the numerous possibilities for an SAE program which a student might develop.

PERFORMANCE
OBJECTIVE: Given information from class notes, assess all the SAE possibilities that you as a student could consider for a program with 90% accuracy.

TASK: 4. Identify the opportunities for an SAE within the local community.
PERFORMANCE
OBJECTIVE: Given a 25 mile radius of the school, formulate a list of all possible SAE opportunities for you with 90% accuracy.

TASK: 5. Initiate a plan for an SAE program.

PERFORMANCE
OBJECTIVE: Given the formulated list of possibilities and community opportunities for you the student, put in order your plan to begin implementation of your personal SAE program with 100% accuracy.

DUTY D. Investigating the necessity and pertinence of plant and soil science as a component of agriculture.

TASK: 1. Prepare a presentation to explain the basic principles in crop production.

PERFORMANCE
OBJECTIVE: Given information from class notes, prepare a presentation to explain the basic principles in crop production with 90% accuracy.

TASK: 2. Identify agronomic plants.

PERFORMANCE
OBJECTIVE: Given a group of different species of plants, categorize them by utilizing a taxonomic key with 90% accuracy.

TASK: 3. Identify the differences between sexual and asexual plant reproduction.

PERFORMANCE
OBJECTIVE: Given two plant diagrams, differentiate between sexual and asexual plant reproduction with 90% accuracy.

TASK: 4. Evaluate a list of agronomic plants for type of reproduction.
PERFORMANCE
OBJECTIVE: Given a list of plants, distinguish the differences between asexual and sexual reproduction with 90% accuracy.

TASK: 5. Describe the process of photosynthesis.

PERFORMANCE
OBJECTIVE: Given a plant on paper, illustrate the photosynthesis process giving any affects on the environment with 90% accuracy.

TASK: 6. Evaluate an experiment which will illustrate how soil type and pH affect plant growth.

PERFORMANCE
OBJECTIVE: Given an experiment on soil type and pH affect on plant growth, predict and verify the results with 90% accuracy.

TASK: 7. Prepare a presentation which will illustrate the role of plants in the basic food chain.

PERFORMANCE
OBJECTIVE: Given class references, illustrate in a presentation the role of plants in the basic food chain and their effects on the surrounding environment with 90% accuracy.

TASK: 8. Analyze the importance of the relationship between plant life and air quality.

PERFORMANCE
OBJECTIVE: Given class references, assess the relationship between plant life and air quality with 90% accuracy.


PERFORMANCE
OBJECTIVE: Given the life cycle of a plant, develop a scenario that explains the importance of each stage with 90% accuracy.

TASK: 10. Identify the basic parts of a plant and their functions.

PERFORMANCE
OBJECTIVE: Given a diagram of a plant, identify the basic parts of a plant and their functions with 90% accuracy.

TASK: 11. Evaluate the major agricultural uses for land and soil in Indiana.
PERFORMANCE
OBJECTIVE: Given knowledge gained through previous exercises, illustrate the major agricultural uses for land and soil in Indiana with 90% accuracy.

DUTY E. Recognizing the importance of preservation and replenishment of our natural resources through natural resource management.

TASK: 1. Identify the terms associated with natural resource management.

PERFORMANCE
OBJECTIVE: Given a list of natural resource management terms, define the terms with 100% accuracy.

TASK: 2. Analyze the characteristics of resources in agricultural development.

PERFORMANCE
OBJECTIVE: Given a list of resources, assess their characteristics and effects on agricultural development with 100% accuracy.

TASK: 3. Evaluate the various types of natural resources.

PERFORMANCE
OBJECTIVE: Given class references, evaluate the various types of natural resources with 90% accuracy.

TASK: 4. Evaluate the relationship between wildlife and humans.

PERFORMANCE
OBJECTIVE: Given the past and current relationship between wildlife and humans, predict the changes which are likely to occur with 90% accuracy.

TASK: 5. Analyze natural resource management effects on quality of life.

PERFORMANCE
OBJECTIVE: Given class references, explain the effect that natural resource management has on the quality of our environment with 90% accuracy.

TASK: 6. Describe the interrelationship between agriculture and the environment.

PERFORMANCE
OBJECTIVE: Given class references and posterboard, illustrate the interrelationships between agriculture and the environment with 90% accuracy.
TASK: 7. Determine a project to make improvement to the environment.

PERFORMANCE
OBJECTIVE: Given your local residence or community, implement a project plan that involves the improvement of our environment with 90% accuracy.

TASK: 8. Describe the necessity and importance of conserving natural resources.

PERFORMANCE
OBJECTIVE: Given yours or an environmental improvement project plan, evaluate its conservation techniques with 90% accuracy.

TASK: 9. Identify the major factors causing soil erosion in which no attempt is made to control these factors.

PERFORMANCE
OBJECTIVE: Given soil erosion case study, appraise factors causing and create a scenario in which no attempt is made to control these factors with 90% accuracy.

TASK: 10. Determine the effects of soil erosion.

PERFORMANCE
OBJECTIVE: Given class references, prepare a demonstration to illustrate the effects of soil erosion with 90% accuracy.

TASK: 11. Identify the methods for conserving water.

PERFORMANCE
OBJECTIVE: Given a water supply scenario, assess the methods for conserving while predicting the most effective method(s) with 90% accuracy.

DUTY F. Investigating the necessity and pertinence of horticulture and landscape management as a component of agriculture.

TASK: 1. Identify the terms associated with horticulture and landscape management.

PERFORMANCE
OBJECTIVE: Given a list of horticulture and landscape management terms, define the terms with 100% accuracy.
TASK: 2. Describe the various methods of plant propagation.

PERFORMANCE
OBJECTIVE: Given two different plants, prepare a demonstration illustrating two different methods of plant propagation with 90% accuracy.

TASK: 3. Determine a list of plants to be propagated.

PERFORMANCE
OBJECTIVE: Given class references, generate a list of plants which are propagated by each of the different methods of plant propagation with 100% accuracy.

TASK: 4. Describe indoor plants' effect on the indoor environment.

PERFORMANCE
OBJECTIVE: Given a list of plants, evaluate the use of indoor plants and how they affect the air quality and indoor environment with 100% accuracy.

TASK: 5. Propagate plants.

PERFORMANCE
OBJECTIVE: Given a specific group of plants, demonstrate each of the various methods of plant propagation with 100% accuracy.

TASK: 6. Restate the popular theories on the growth and development of turf grass.

PERFORMANCE
OBJECTIVE: Given information from class notes, paraphrase the popular theories on the growth and development of turf grass with 90% accuracy.

TASK: 7. Tell how trees and shrubs are used for outdoor landscaping, improved air quality and pollution control.

PERFORMANCE
OBJECTIVE: Given a list of trees and shrubs, assess how they are used for outdoor landscaping, improved air quality and pollution control with 90% accuracy.

TASK: 8. Draw a model landscape design.

PERFORMANCE
OBJECTIVE: Given your choice of model building set, draft paper or computer landscape program, construct a model landscape design for your residence or community property with 90% accuracy.

TASK: 9. Determine the basic requirements needed to plan a garden or orchard.

PERFORMANCE
OBJECTIVE: Given your choice of model building set, draft paper or computer landscape program, construct a plan for a garden (minimum 100 square feet) or orchard (minimum six fruits) with 90% accuracy.

TASK: 10. Identify the elements of a successful lawn care program in the local area.

PERFORMANCE
OBJECTIVE: Given a residential or public lawn, formulate a plan and schedule for a successful lawn care program with 90% accuracy.

DUTY G. Investigating the necessity for and importance of the modern animal science industry.

TASK: 1. Identify the terms associated with the animal science industry.

PERFORMANCE
OBJECTIVE: Given a list of animal science industry terms, identify with 100% accuracy.

TASK: 2. Identify common nutritional deficiencies in animals.

PERFORMANCE
OBJECTIVE: Given information about the essential elements needed for animal growth, identify common nutritional deficiencies with 90% accuracy.

TASK: 3. Plan a program that illustrates the basic skills necessary for proper animal care.

PERFORMANCE
OBJECTIVE: Given a case study of an animal(s), formulate a plan that illustrates the basic skills necessary for proper animal care with 90% accuracy.

TASK: 4. Prepare an experiment which utilizes the basic principles of genetics.

PERFORMANCE
OBJECTIVE: Given class references, make an experiment which utilizes the basic principles of genetics with 90% accuracy.
TASK: 5. Identify the different types of breeding systems and the reasons for their implementation in given situations.

PERFORMANCE
OBJECTIVE: Given three animal species, design a plan for each utilizing the different types of breeding systems and the reasons for their implementation in given situations with 90% accuracy.

TASK: 6. Prepare a presentation which illustrates the uses, care and management of small animals.

PERFORMANCE
OBJECTIVE: Given your choice of a small animal, demonstrate in an oral presentation proper animal care and management with 100% accuracy.

TASK: 7. Describe management strategies for various breeds of horses.

PERFORMANCE
OBJECTIVE: Given two breeds of horses, differentiate the use, care and management techniques for these horses with 90% accuracy.

TASK: 8. Describe the similarities and differences in the uses, care and management of dairy, beef, swine, sheep, and other types of livestock.

PERFORMANCE
OBJECTIVE: Given a list of animal species, compare the similarities and differences in the uses, care and management of dairy, beef, swine, sheep, and other types of livestock with 90% accuracy.

TASK: 9. Identify the process involved in marketing animals and animal by-products.

PERFORMANCE
OBJECTIVE: Given an animal and animal by-products, formulate a plan for marketing each with 100% accuracy.

TASK: 10. Describe the responsibilities of the animal industry regarding animal care and welfare.

PERFORMANCE
OBJECTIVE: Given class references, assess the responsibilities of the animal industry regarding animal care and welfare with 90% accuracy.
TASK: 11. Describe the life cycle stages of an animal.

PERFORMANCE
OBJECTIVE: Given the life cycle of a specific animal, develop a scenario that explains the importance of each stage with 90% accuracy.

TASK: 12. Describe the role and importance of animals to society.

PERFORMANCE
OBJECTIVE: Given class references, appraise the role and importance of animals to society with 90% accuracy.

DUTY H. Investigating the basic economic principles which are used in agribusiness and farm management.

TASK: 1. Identify the terms associated with agribusiness and farm management.

PERFORMANCE
OBJECTIVE: Given a list of agribusiness and farm management terms define with 100% accuracy.

TASK: 2. Identify the factors involved in proper management.

PERFORMANCE
OBJECTIVE: Given a list of factors, analyze their role and importance to proper management.

TASK: 3. Determine the eight steps involved in decision-making.

PERFORMANCE
OBJECTIVE: Given a decision to be made, make a decision utilizing the eight steps with 90% accuracy.

TASK: 4. Identify the different forms of agricultural record systems.

PERFORMANCE
OBJECTIVE: Given a list of forms of agricultural record systems, differentiate each for purpose and usage with 90% accuracy.

DUTY I. Investigating the necessity and pertinence of the various aspects of the food science industry.

TASK: 1. Identify the terms associated with the food science industry.

PERFORMANCE
OBJECTIVE: Given a list of food science industry terms, define with 100% accuracy.

TASK: 2. Identify the major food groups that are presently recognized.

PERFORMANCE
OBJECTIVE: Given a list of food, categorize into the major food groups and discuss any changes made as nutritional requirements have been altered with 100% accuracy.

TASK: 3. Describe the interrelationship between food quality and inspection standards.

PERFORMANCE
OBJECTIVE: Given food products, assess their quality and need for inspection standards with 90% accuracy.

TASK: 4. Evaluate biotechnology on the food industry.

PERFORMANCE
OBJECTIVE: Given class references and three foods, raw or consumer ready, assess any affect that biotechnology has had or will have in the future with 90% accuracy.

DUTY J. Developing a basic knowledge of agricultural mechanics and physical science.

TASK: 1. Identify the terms associated with agricultural mechanics.

PERFORMANCE
OBJECTIVE: Given a list of agricultural mechanics terms define with 100% accuracy.

TASK: 2. Complete a project which utilizes the basic principles of plumbing.

PERFORMANCE
OBJECTIVE: Given the plumbing assignment, demonstrate the installation of your plumbing project with 100% accuracy.

TASK: 3. Complete a project which utilizes the basic principles of electricity.

PERFORMANCE
OBJECTIVE: Given the electric assignment, demonstrate the wiring configuration and safety checks with 100% accuracy.
TASK: 4. Complete a project which utilizes the basic principles of structural design.

PERFORMANCE
OBJECTIVE: Given the structures assignment, draw to scale or demonstrate the structure with 100% accuracy.

TASK: 5. Design an irrigation and/or water supply structure.

PERFORMANCE
OBJECTIVE: Given the irrigation and water supply structure assignment, draw to scale either an irrigation or water supply structure system with 100% accuracy.

TASK: 6. Diagram the principles of small engine systems.

PERFORMANCE
OBJECTIVE: Given class references, diagram on paper the principles of small engine systems with 100% accuracy.

TASK: 7. Identify the uses for common power and hand tools.

PERFORMANCE
OBJECTIVE: Given a set of power and hand tools, demonstrate use and safety techniques for each with 100% accuracy.

TASK: 8. Describe the need for safety in agricultural mechanics and physical science.

PERFORMANCE
OBJECTIVE: Given class references, describe the need for safety in agricultural mechanics and physical science with 100% accuracy.

TASK: 9. Describe safety procedures to follow in the various areas associated with agricultural mechanics.

PERFORMANCE
OBJECTIVE: Given agricultural mechanic assignment, demonstrate proper safety procedures to follow in the various areas associated with agricultural mechanics with 100% accuracy.
Farm Management

DUTY A-1. Examining management in and the importance of decisions on the operation of a farm.

TASK: 1. Describe the management process.

PERFORMANCE
OBJECTIVE: Given five minutes, describe the major components of the management process to a 90% accuracy level.

TASK: 2. Identify the basic resources utilized in management.

PERFORMANCE
OBJECTIVE: Given a case study, determine the basic resources that are being utilized in this farm operation to a 90% accuracy level.

TASK: 3. Determine the factors of good management and the effect on farm profitability.

PERFORMANCE
OBJECTIVE: Given a list of management practices, evaluate each practice's effect on farm profits and its soundness with 90% accuracy.

TASK: 4. Analyze the differences in farm and non-farm management.

PERFORMANCE
OBJECTIVE: Given a farm and non-farm management case study, contrast their different management techniques with 90% accuracy.

DUTY A-2. Analyzing goal setting and the importance of setting both personal and farm goals.

TASK: 1. Describe the importance of goal setting in farm management.

PERFORMANCE
OBJECTIVE: Given five goals for a farm operation, classify as long term or short term and assess how you would accomplish these goals with 80% accuracy.

TASK: 2. Identify the characteristics of an achievable goal.
PERFORMANCE
OBJECTIVE: Given a case study of a farm and a listing of goals, analyze each goal characteristics and determine its achievability within the next five years with 90% accuracy.

TASK: 3. Determine the major areas or factors of goal attainment.

PERFORMANCE
OBJECTIVE: Using references from class, appraise each factor of goal attainment in relationship to a given farm case with 90% accuracy.


PERFORMANCE
OBJECTIVE: Given a list of farm and personal goals, distinguish how each is short term and/or long term goals and discuss their interrelationship with 90% accuracy.

TASK: 5. Analyze the process utilized in setting goals.

PERFORMANCE
OBJECTIVE: Given a farm case study, assess the farmers needs and the process he needs to utilize in setting goals to fulfill the identified needs with 90% accuracy.

TASK: 6. Evaluate personal and professional goals.

PERFORMANCE
OBJECTIVE: Given your personal status, identify and evaluate five personal and five professional goals you have established for yourself over the next 5-8 years, citing from references why they are attainable with 80% accuracy.

DUTY B. Analyzing basic economic principles and their relationship to farm management.

TASK: 1. Analyze basic economic principles to farm management.

PERFORMANCE
OBJECTIVE: Given a list of basic economic principles, analyze, explain and provide examples of the applications of these principles to farm management with 90% accuracy.

DUTY C-1. Describing the decision-making process and the steps involved, as they apply to farm management.
TASK: 1. Identify that a problem exists.

PERFORMANCE OBJECTIVE: Given a farm case study, identify any problem that exists with 90% accuracy.

TASK: 2. Examine the importance of setting priorities in management.

PERFORMANCE OBJECTIVE: Given a list of goals and a set of potential priorities, assess each priority's effect to the goals and then prioritize the set of priorities given with 80% accuracy.

TASK: 3. Evaluate the impact that decision making has on the day-to-day operations of a farm.

PERFORMANCE OBJECTIVE: Given a case study, classify the decisions made and their potential impact to the operation with 90% accuracy.

TASK: 4. Identify the steps in problem solving methods.

PERFORMANCE OBJECTIVE: Given a list of farm operation problems, formulate a plan for solving each utilizing problem solving methods discussed in class with 90% accuracy.

DUTY C-2. Analyzing the role of budgets as a tool used for decision making.

TASK: 1. Analyze a farm operation budget.

PERFORMANCE OBJECTIVE: Given a farm operation budget, diagnose the strengths and weaknesses to a 90% accuracy level.

TASK: 2. Identify the best sources of information to use when formulating a budget.
PERFORMANCE

OBJECTIVE: Given a farm operation budget, classify the sources of information in formulating a budget with 90% accuracy.

TASK: 3. Differentiate between the following kinds of budgets and analyze the value of each:
   a. Partial
   b. Enterprise
   c. Cash Flow
   d. Total Farm
   e. Linear Programs

PERFORMANCE

OBJECTIVE: Given the list of terms, differentiate the kinds of budgets and analyze the value of each with 90% accuracy.

DUTY D-1. Analyzing the available methods to organize and plan a farm business.

TASK: 1. Evaluate the factors that affect farm profit.

PERFORMANCE

OBJECTIVE: Given a farm operation case study, put into priority order the factors that affect farm profit with 90% accuracy.

TASK: 2. Diagnose the effects that enterprise choice can have on a farm.

PERFORMANCE

OBJECTIVE: Given three specific enterprise choices, explain the effects each would have to a given farm with 90% accuracy.

TASK: 3. Evaluate crop, livestock, labor, and power efficiency.

PERFORMANCE

OBJECTIVE: Given a specific farm, evaluate how crop, livestock, labor and power effect the efficiency of the farm operation with 90% accuracy.

TASK: 4. Evaluate the methods utilized in measuring and increasing farm size.

PERFORMANCE

OBJECTIVE: Given a farm with perspective, formulate a plan to measure and increase utilizing each method discussed in class with 90% accuracy.

TASK: 5. Analyze why larger volume operations are more efficient.
PERFORMANCE

OBJECTIVE: Given two farms, analyze each for its efficiency with 90% accuracy.


PERFORMANCE

OBJECTIVE: Given two farm case studies and a list of alternative agricultural enterprises, assess which alternative production and/or value-adding enterprises would improve profitability of each farm and why with 90% accuracy.

DUTY D-2. Analyzing the different cropping systems utilized by farm managers.

TASK: 1. Analyze each crop that could be used in the farming program.

PERFORMANCE

OBJECTIVE: Given a list of possible crops, compose a farm cropping program stating advantages and disadvantages for each crop with 90% accuracy.

TASK: 2. Describe the advantages and disadvantages of crop rotations.

PERFORMANCE

OBJECTIVE: Given a set of crops, construct a crop rotation plan stating the advantages and disadvantages for each with 90% accuracy.

TASK: 3. Describe the use of soil maps in establishing a cropping program.

PERFORMANCE

OBJECTIVE: Given a cropping program and utilizing the soil maps, evaluate the cropping program with 90% accuracy.

TASK: 4. Diagram the most efficient layout of fields and the farming practices which should be utilized.

PERFORMANCE

OBJECTIVE: Given a layout of a farm, evaluate for efficiency and farming practices with 90% accuracy.
TASK: 5. Examine the feasibility of double cropping for the local area.

PERFORMANCE
OBJECTIVE: Given a farm, construct a feasible double cropping program stating advantages and disadvantages for each with 90% accuracy.

TASK: 6. Identify the philosophy behind the current government program.

PERFORMANCE
OBJECTIVE: Using information from class notes, appraise the current farm government program with 90% accuracy.

TASK: 7. Identify the various resources that can be utilized in planning a cropping program - both government and non-government.

PERFORMANCE
OBJECTIVE: Given a farm case study, construct a cropping program utilizing both government and non-government resources with 90% accuracy.

TASK: 8. Describe the interrelationship between tillage systems and cropping systems.

PERFORMANCE
OBJECTIVE: From a farm case study, assess the interrelationship between tillage systems and cropping systems with 90% accuracy.

DUTY D-3. Examining the concepts involved in fertility planning and pest management.

TASK: 1. Evaluate the importance of proper fertilization and pesticide use.

PERFORMANCE
OBJECTIVE: Using information from class notes, appraise the importance of proper fertilization and pesticide use to a farm cropping program with 90% accuracy.

TASK: 2. Analyze the various processes by which soils lose nutrients.

PERFORMANCE
OBJECTIVE: Given a list of soil nutrients, describe the various processes in which soils lose nutrients with 90% accuracy.

TASK: 3. Evaluate the importance of soil testing in a fertility program.
OBJECTIVE: Given a soil analysis and a fertility program, evaluate the importance of each to a productive cropping system with 90% accuracy.

TASK: 4. Describe the factors which affect the amount of fertilizer applied to a field.

OBJECTIVE: Given a specific crop, describe the factors which affect the amount of fertilizer applied to a field with 90% accuracy.

TASK: 5. Evaluate the various management systems which relate to fertility planning and pest management.

OBJECTIVE: Using information from class notes, analyze how various management systems affect a fertility and pest management plan with 90% accuracy.

TASK: 6. Analyze the advantages and disadvantages of each management system.

OBJECTIVE: Given a list of management systems, analyze the advantages and disadvantages of each with 90% accuracy.

TASK: 7. Evaluate the various methods utilized in reduction of fertilizer costs.

OBJECTIVE: Given a fertilization plan, evaluate methods a farmer could use to reduce fertilizer costs with 90% accuracy.

TASK: 8. Identify the major factors that influence the use of pesticides.

OBJECTIVE: Given a list of pesticides, assess the major factors that influence the use of pesticides for each with 90% accuracy.

TASK: 9. Describe the steps involved in selecting a chemical pesticide.
PERFORMANCE
OBJECTIVE: Using information from class notes, describe the steps involved in selecting a chemical pesticide with 90% accuracy.

DUTY D-4. Determining the factors involved in developing a livestock program.

TASK: 1. Evaluate the advantages and disadvantages of integrating livestock production into a farming program.

PERFORMANCE
OBJECTIVE: Given a farm case study, evaluate the advantages and disadvantages of integrating livestock production into a farm operation with 90% accuracy.

TASK: 2. Identify the factors that determine the type of livestock to produce on a specific farm.

PERFORMANCE
OBJECTIVE: Given a specific farm operation, identify the factors that determine the type of livestock to produce with 90% accuracy.

TASK: 3. Evaluate the economic characteristics of raising the various types of livestock.

PERFORMANCE
OBJECTIVE: Given a list of livestock enterprises, evaluate the economic characteristics of raising each type with 90% accuracy.

TASK: 4. Determine the factors involved in deciding upon the number of livestock to raise on a farm.

PERFORMANCE
OBJECTIVE: Given a specific farm operation, evaluate the factors in deciding upon the number of livestock to raise with 90% accuracy.

TASK: 5. Analyze the advantages and disadvantages of specialization.

PERFORMANCE
OBJECTIVE: Given three specialized farm operations, appraise the advantages and disadvantages of each with 90% accuracy.

TASK: 6. Identify the factors utilized in selecting the type and amount of livestock for a specific farm.

PERFORMANCE
OBJECTIVE: Given a farm and five livestock types, assess the factors in selecting each type stating proposed amounts with 90% accuracy.
DUTY D-5. Categorizing the process used to select and design the buildings necessary for a farming operation.

TASK: 1. Evaluate the factors that make investment in buildings unique.

PERFORMANCE
OBJECTIVE: Using information from class notes, explain the factors that make investments in buildings unique with 90% accuracy.

TASK: 2. Evaluate high investment, low labor buildings and low investment, high labor buildings.

PERFORMANCE
OBJECTIVE: Using reference materials from class, compare and contrast high investment, low labor buildings and low investment, high labor buildings with 90% accuracy.

TASK: 3. Analyze the factors which should be considered when deciding to add new buildings.

PERFORMANCE
OBJECTIVE: Given a specific farm operation, analyze the factors one should consider when deciding to add new buildings with 90% accuracy.

TASK: 4. Evaluate alternatives to new building construction.

PERFORMANCE
OBJECTIVE: Assess the advantages and disadvantages of the following alternatives to new building construction with 90% accuracy:

- a. Remodeling old buildings
- b. Providing your own labor versus hiring the construction done
- c. Renting buildings

TASK: 5. Identify the cash flow needs in building construction.

PERFORMANCE
OBJECTIVE: Given a specific building plan for a farm, analyze the cash flow needs with 90% accuracy.

TASK: 6. Calculate the ownership costs of buildings.

PERFORMANCE
OBJECTIVE: Using references from class, explain and demonstrate how to calculate the ownership costs of buildings with 90% accuracy.
DUTY D-6. Determining the factors in the decisions utilized in the management of agricultural machinery and equipment.

TASK: 1. Evaluate the factors to consider when selecting the amount and size of equipment to purchase.

PERFORMANCE OBJECTIVE: Given a farm case study with a list of equipment, evaluate the factors a farmer should consider when selecting the amount and size of equipment to purchase for this farm with 90% accuracy.

TASK: 2. Identify the costs involved in owning and using machinery.

PERFORMANCE OBJECTIVE: Given a farm budget, appraise the costs involved in owning and using machinery with 90% accuracy.

TASK: 3. Analyze management problems as they relate to machinery.

PERFORMANCE OBJECTIVE: Given a list of management problems as they relate to machinery evaluate with 90% accuracy:

a. Deciding when to trade
b. New versus used machinery
c. Custom work
d. Joint ownership of machinery
e. Leasing machinery

TASK: 4. Identify the factors that farm managers can utilize in reducing costs and improving the efficiency when using machinery.

PERFORMANCE OBJECTIVE: Using information from class notes, identify the factors that farm managers can utilize in reducing costs and improving the efficiency when using machinery with 90% accuracy.

DUTY D-7. Examining the methods utilized and their importance in managing farm labor.

TASK: 1. Evaluate labor management to labor efficiency.

PERFORMANCE OBJECTIVE: Using information from class notes, explain the importance of labor management and labor efficiency to the farm with 90% accuracy.
TASK: 2. Identify the factors to consider when deciding to add more labor to the farm business.

PERFORMANCE
OBJECTIVE: Given a farm operation case study, determine the factors to consider when deciding to add more labor to the farm with 90% accuracy.

TASK: 3. Identify the methods used in finding and retaining good farm labor.

PERFORMANCE
OBJECTIVE: Using information from class notes, appraise the methods used in finding and retaining good farm labor with 90% accuracy.

TASK: 4. Evaluate the various types of incentive plans.

PERFORMANCE
OBJECTIVE: Given a farm labor case study, compare and contrast the various types of incentive plans to this farm with 90% accuracy.

TASK: 5. Identify the methods which can be used in order to comply with the various farm labor laws.

PERFORMANCE
OBJECTIVE: Using information from class notes, identify the methods which can be used in order to comply with the various farm labor laws with 90% accuracy.

DUTY E-1. Differentiating the factors to consider when making the decision to join the family farm.

TASK 1. Analyze the family farm business to determine whether or not it is capable of providing sufficient income for two or more families.

PERFORMANCE
OBJECTIVE: Given a specific family farm business, analyze whether or not it is capable of providing sufficient income for two or more families with 90% accuracy.

TASK: 2. Evaluate methods of sharing income.

PERFORMANCE
OBJECTIVE: Using information from class notes, explain the following methods of sharing income with 90% accuracy:

a. Wages
b. Wages plus sharing of profits
c. Partnership
d. Corporation

**TASK:** 3. Describe the importance of written contracts.

**PERFORMANCE OBJECTIVE:** Using information from class notes, analyze the importance of written contracts with 90% accuracy.

**TASK:** 4. Evaluate the factors that may affect a person's entry into the family farm business.

**PERFORMANCE OBJECTIVE:** Given a specific family farm business, assess the factors that may affect a person's entry into the business with 90% accuracy.

**TASK:** 5. Evaluate the role of record keeping in any farm agreement.

**PERFORMANCE OBJECTIVE:** Using information from class notes, analyze the role of record keeping in any farm agreement with 90% accuracy.

**TASK:** 6. Identify the necessity for estate planning.

**PERFORMANCE OBJECTIVE:** Given a farm operation, analyze the need for estate planning with 90% accuracy.
DUTY E-2. Evaluating the factors which need to be considered when renting land.

TASK: 1. Evaluate renting land compared to land ownership.

PERFORMANCE
OBJECTIVE: Given a farm operation, analyze the pros and cons of renting land to land ownership with 90% accuracy.

TASK: 2. Identify and explain the factors involved in a good landlord-tenant relationship.

PERFORMANCE
OBJECTIVE: Given a landlord-tenant farm operation agreement, evaluate the agreement based on factors identified in class discussion with 90% accuracy.

TASK: 3. Analyze the different types of lease agreements.

PERFORMANCE
OBJECTIVE: Given three lease agreements, appraise each and rank as best choice to least choice with 90% accuracy.

TASK: 4. Describe the importance of providing a fair lease agreement.

PERFORMANCE
OBJECTIVE: Using information from class notes, construct a fair lease agreement with 90% accuracy.

DUTY E-3. Evaluating the factors to consider when buying a farm.

TASK: 1. Identify the various methods of land appraisal.

PERFORMANCE
OBJECTIVE: Given a tract of land, appraise using each land appraisal method with 90% accuracy.

TASK: 2. Evaluate the economic feasibility of buying land.

PERFORMANCE
OBJECTIVE: Given a tract of land, analyze the factors and economic feasibility of purchasing the land with 90% accuracy.

TASK: 3. Evaluate the factors which should be considered before purchasing a farm.
PERFORMANCE
OBJECTIVE: Given a specific farm to acquire, evaluate each factor which a farmer should consider before purchasing with 90% accuracy.

TASK: 4. Describe the steps involved in buying land.

PERFORMANCE
OBJECTIVE: Given a tract of land to purchase, describe the steps involved to purchase the land with 90% accuracy.

TASK: 5. Determine the necessary steps to take when closing the sale.

PERFORMANCE
OBJECTIVE: Given a tract of land to purchase, formulate the necessary steps for closing the sale with 90% accuracy.

TASK: 6. Describe the different types of deeds.

PERFORMANCE
OBJECTIVE: Given three farm property deeds, analyze each type with 90% accuracy.

TASK: 7. Evaluate the two methods of financing land purchases.

PERFORMANCE
OBJECTIVE: Given two tracts of land, evaluate each method of financing for each tract of land with 90% accuracy.

DUTY F-1. Distinguishing the kinds of records which should be kept for farm management decision making.

TASK: 1. Analyze the various reasons for farmers to keep records.

PERFORMANCE
OBJECTIVE: Using information from class notes, appraise each reason for farmers to keep records with 90% accuracy.

TASK: 2. Describe the various kinds of farm records.

PERFORMANCE
OBJECTIVE: Given the following list of records, assess their importance to a farm operation with 90% accuracy:

- Balance sheet
- Profit/loss statement
c. Cash flow statements
d. Enterprise accounts
e. Production records
f. Personal records
g. Hired labor records
h. Inventory

DUTY F-2. Recognizing the importance of and becoming adept in the manipulation of data bases and filing systems.

TASK: 1. Analyze the differences between data bases and filing systems.

PERFORMANCE
OBJECTIVE: Given a scenario of a farm data base and a filing system, analyze the differences with 90% accuracy.

TASK: 2. Examine the necessity for data management.

PERFORMANCE
OBJECTIVE: Given a need for a computer data management system, justify, in writing, the necessity to your banker with 90% accuracy.

DUTY F-3. Evaluating the uses for computer hardware and software.

TASK: 1. Analyze the differences between computer hardware and software.

PERFORMANCE
OBJECTIVE: Given a list of computer hardware and software, contrast the differences for a farm operation with 90% accuracy.

TASK: 2. Identify hardware and software.

PERFORMANCE
OBJECTIVE: Given a list of computer hardware and software, appraise how each will be utilized in a farm operation with 90% accuracy.

DUTY F-4. Recognizing the importance of and becoming adept in the utilization of a word processing system.

TASK: 1. Analyze the need for word processing.

PERFORMANCE
OBJECTIVE: Given a computer system for the farm, evaluate two word processing software and their importance with 90% accuracy.

TASK: 2. Describe the basic word processing functions.
PERFORMANCE
OBJECTIVE: Given a list of word processing functions, define each with 90% accuracy.

TASK: 3. Determine the need for spell check.

PERFORMANCE
OBJECTIVE: Given a word processing software package and computer, construct your letter to the banker for funding utilizing the spell check option with 100% accuracy.

TASK: 4. Evaluate word processors to other modes of written communication.

PERFORMANCE
OBJECTIVE: Using information from class notes, assess word processors to other modes of written communications stating pros and cons of each with 90% accuracy.

DUTY F-5. Recognizing the importance of and becoming adept in the use of spreadsheets.

TASK: 1. Identify the objectives of spreadsheets.

PERFORMANCE
OBJECTIVE: Using information from class notes, evaluate the objectives of spreadsheets with 100% accuracy.

TASK: 2. Describe the basic elements of a spreadsheet.
PERFORMANCE
OBJECTIVE: Given a completed spreadsheet, classify the elements in a spreadsheet with 100% accuracy.

TASK: 3. Identify the functional commands used to construct a computer spreadsheet.

PERFORMANCE
OBJECTIVE: Given a computer and spreadsheet software training, generate a complete spreadsheet utilizing each of the functional commands with 90% accuracy.

DUTY G-1. Analyzing the impact of the various kinds of risks.

TASK: 1. Evaluate various kinds of risks involved in farm management.

PERFORMANCE
OBJECTIVE: Given a farm management case study, evaluate the various kinds of risks involved in farm management with 90% accuracy.

DUTY G-2. Assessing the importance of insurance as it is used to reduce risks.

TASK: 1. Evaluate risk and loss and their relationship to insurance.

PERFORMANCE
OBJECTIVE: Using class references, identify and provide examples of risk and loss and their relationship to insurance with 90% accuracy.

TASK: 2. Analyze liability and property insurance.

PERFORMANCE
OBJECTIVE: Given liability and property insurance, analyze its importance to a farm operation with 90% accuracy.

TASK: 3. Analyze the importance of life and health insurance to a farm operation.

PERFORMANCE
OBJECTIVE: Given a farm operation, assess the importance of life and health insurance with 90% accuracy.

TASK: 4. Evaluate the reasons for having crop insurance.

PERFORMANCE
OBJECTIVE: Using class references, evaluate the reasons for having crop insurance with 90% accuracy.
TASK: 5. Calculate the amount of insurance that a farm operation would need.

PERFORMANCE
OBJECTIVE: Given a cash flow projection, compute the amount of insurance that a farm operation would need with 90% accuracy.

TASK: 6. Describe the Government Commodity Program.

PERFORMANCE
OBJECTIVE: Using class references, evaluate the government commodity program with 90% accuracy.

DUTY G-3. Determining the factors in a market plan to reduce risks.

TASK: 1. Evaluate the importance of planning a market strategy.

PERFORMANCE
OBJECTIVE: Given a market plan, explain the importance of planning a market strategy to reducing risk with 90% accuracy.

TASK: 2. Evaluate the affect that a small change in price would have upon net farm profits.

PERFORMANCE
OBJECTIVE: Given a farm income statement and two price changes, appraise the effect with 90% accuracy.

TASK: 3. Evaluate the factors which affect the supply and demand of farm products.

PERFORMANCE
OBJECTIVE: Given three farm products, evaluate the factors which affect the supply and demand of farm products with 90% accuracy.

TASK: 4. Determine how price is discovered.
PERFORMANCE
OBJECTIVE: Using information from class notes, assess how price is determined with 90% accuracy.

TASK: 5. Evaluate various marketing options.

PERFORMANCE
OBJECTIVE: Given three marketing options, evaluate and explain how to utilize in reducing price risks in farming with 90% accuracy:

a. Forward cash contracts
b. Hedging
c. Options

DUTY G-4. Formulating the use of credit to reduce risks.

TASK: 1. Evaluate the importance of good credit to farming.

PERFORMANCE
OBJECTIVE: Given a credit rating on a farmer, assess the effects to his farming operation with 90% accuracy.

TASK: 2. Determine the principles of good credit use.

PERFORMANCE
OBJECTIVE: Using class references, appraise the principles of good credit use with 90% accuracy.

TASK: 3. Evaluate the various types of credit.

PERFORMANCE
OBJECTIVE: Given a list of various types of credit, analyze their effects to each other and to a farm operation with 90% accuracy.

TASK: 4. Evaluate the various methods of interest calculations.

PERFORMANCE
OBJECTIVE: Given a list of methods of interest calculations, evaluate each to its effect on the farm budget with 90% accuracy.

TASK: 5. Identify the characteristics that creditors look for in borrowers.
PERFORMANCE
OBJECTIVE: Given to farmer's credit history, analyze why each farmer would or would not receive credit with 90% accuracy.

TASK: 6. Evaluate the various sources of farm credit.

PERFORMANCE
OBJECTIVE: Given a list of sources of farm credit, evaluate each in relationship to its effect on the farm operation with 90% accuracy.

DUTY H. Evaluating a complete farming operation.

TASK: 1. Assess a complete farm operation.

PERFORMANCE
OBJECTIVE: Given a case study of an actual farm operation, evaluate strengths and weaknesses, and make recommendations for improvements to a 90% accuracy level.
Food Science

DUTY A-1. Consumer Education - Food Labeling

TASK: 1. Identify the major components of a food label.

PERFORMANCE
OBJECTIVE:

TASK: 2. Identify and classify functions of chemicals, additives, and ingredients which are found on food labels.

PERFORMANCE
OBJECTIVE:

TASK: 3. Explain the functions of specific elements of a food label.

PERFORMANCE
OBJECTIVE:

TASK: 4. Identify and explain the responsibility of food processors and the role that food labels have in the production of a food product.

PERFORMANCE
OBJECTIVE:

TASK: 5. Read a label and compare nutrition information of various food ingredients.
PERFORMANCE
OBJECTIVE:

DUTY A-2. Consumer Education - Food Economics

TASK: 1. Indicate the size and scope of the food industry in the U.S.

PERFORMANCE
OBJECTIVE:

TASK: 2. Explain how the Consumer Price Index (CPI) is calculated.

PERFORMANCE
OBJECTIVE:

TASK: 3. Explain how money is spent within the food industry.

PERFORMANCE
OBJECTIVE:

TASK: 4. Explain the food industry system, farm to retail.

PERFORMANCE
OBJECTIVE:

DUTY B. Careers in Food Science

TASK: 1. Identify various food science careers and their educational requirements.

PERFORMANCE
OBJECTIVE:
TASK: 2. Discuss the different food science occupations involved in the production of a food product.

PERFORMANCE OBJECTIVE:

TASK: 3. Identify post secondary institutions that have a food science program.

PERFORMANCE OBJECTIVE:

TASK: 4. Identify local food science/processing companies.

PERFORMANCE OBJECTIVE:

DUTY C-1. Food Processing/Engineering - Food Processing

TASK: 1. Identify and explain the food processing procedures used in the U.S. to maintain and preserve foods.

PERFORMANCE OBJECTIVE:

TASK: 2. Explain the conditions necessary for microbial growth and the role processing plays in retarding this growth.

PERFORMANCE OBJECTIVE:

TASK: 3. Define the important terms for processing foods.
PERFORMANCE OBJECTIVE:

TASK: 4. Explain the process for making a cultured dairy product. Explain the difference between "good" and "harmful" bacteria and how these bacteria are controlled in the production of dairy products.

PERFORMANCE OBJECTIVE:

DUTY C-2. Food Processing/Engineering - Heat Processing and Food Irradiation

TASK: 1. Identify and explain the various types of processes used to preserve and protect foods through the use of thermal procedures.

PERFORMANCE OBJECTIVE:

TASK: 2. Explain how to safely can foods using heat processing.

PERFORMANCE OBJECTIVE:

TASK: 3. Explain food irradiation and how it is being used in the food industry and the controversy that surrounds this issue.

PERFORMANCE OBJECTIVE:

TASK: 4. Explain how food dehydration works.
OBJECTIVE:

TASK:  5. Identify and explain the terminology associated with heat processing.

PERFORMANCE
OBJECTIVE:

DUTY C-3. Food Processing/Engineering - Frozen Foods

TASK:  1. Identify and explain terminology relating to freezing of foods.

PERFORMANCE
OBJECTIVE:

TASK:  2. Determine the procedures to use when purchasing and storing foods in the home freezer and the problems (microorganisms which can grow at or near freezing temperature).

PERFORMANCE
OBJECTIVE:

TASK:  3. Identify and explain what happens to food when it is stored in a freezer with improper wrapping.

PERFORMANCE
OBJECTIVE:

TASK:  4. Explain refrigerator load and calculate BTUs needed given the parameters of specific foods.

PERFORMANCE
OBJECTIVE:
TASK: 5. Explain the relationship between temperature and chemical reactions within foods.

PERFORMANCE OBJECTIVE:

DUTY C-4. Food Processing/Engineering - Packaging

TASK: 1. Identify and explain the requirements and functions of food containers.

PERFORMANCE OBJECTIVE:

TASK: 2. Explain the importance packaging has on protecting the quality and safety of foods we consume.

PERFORMANCE OBJECTIVE:

TASK: 3. Explain the effect packaging materials have on environmental concerns.

PERFORMANCE OBJECTIVE:

TASK: 4. Explain the value of packaging in the marketing of food products.

PERFORMANCE OBJECTIVE:
TASK: 5. Design a laminated popcorn package that will improve and explain popping rate.

PERFORMANCE OBJECTIVE:

DUTY D-1. Food Microbiology - Undesirable Microbial Growth in Foods - Spoilage

TASK: 1. Explain the concept of available water and its relation to food spoilage/preservation.

PERFORMANCE OBJECTIVE:

TASK: 2. Describe the morphology and cellular arrangement of microorganisms.

PERFORMANCE OBJECTIVE:

TASK: 3. Write the chemical equation for the action of catalase.

PERFORMANCE OBJECTIVE:

TASK: 4. Name three distinguishing characteristics of spoilage bacteria.

PERFORMANCE OBJECTIVE:

TASK: 5. Define the characteristics of thermophilic, psychrotropic, and mesophilic bacteria.
PERFORMANCE
OBJECTIVE:

TASK: 6. List three basic conditions that promote bacterial growth.

PERFORMANCE
OBJECTIVE:

DUTY D-2. Food Microbiology - Undesirable Microbial Growth in Foods - Subsurface Mold Growth in Foods

TASK: 1. Identify the structural parts of common molds.

PERFORMANCE
OBJECTIVE:

TASK: 2. Discuss the difference between aerial and submerged mold growth.

PERFORMANCE
OBJECTIVE:

TASK: 3. Name several methods of food processing used to control mold growth.

PERFORMANCE
OBJECTIVE:

DUTY D-3. Food Microbiology - Methods of Preventing Microbial Growth in Foods - Control of Molds in Foods

TASK: 1. Determine conditions that contribute to mold growth in foods.

PERFORMANCE
OBJECTIVE:

TASK: 2. Identify organic and non-organic preservatives used in the processing/preparation of food.

PERFORMANCE

OBJECTIVE:

TASK: 3. Identify common food preservatives which are best for preventing mold growth in common food products (bread).

PERFORMANCE

OBJECTIVE:

TASK: 4. Differentiate between Penicillium or Aspergillus mold.

PERFORMANCE

OBJECTIVE:

DUTY D-4. Food Microbiology - Desirable Microbial Growth in Foods - Experimental Modification of Pickle Fermentation

TASK: 1. Discuss ways of controlling unwanted microorganisms in food.

PERFORMANCE

OBJECTIVE:

TASK: 2. Discuss salting as a preservative method.
TASK: 3. Name three pickled vegetable products.

PERFORMANCE
OBJECTIVE:

TASK: 4. Modify factors that impact on pickle fermentation and quality of finished product.

PERFORMANCE
OBJECTIVE:
DUTY D-5. Food Microbiology - Desirable Microbial Growth in Foods - Yeast Fermentation

TASK: 1. Describe the role of bacteria, mold(s) and yeast(s) in food processing and/or production.

PERFORMANCE OBJECTIVE:

TASK: 2. Evaluate baked products through selected criteria that reflect variations in ingredients and preparation techniques.

PERFORMANCE OBJECTIVE:

TASK: 3. Describe the morphology and chemical aspect of the fermentation process.

PERFORMANCE OBJECTIVE:

TASK: 4. Name five foods which are processed via yeast fermentation.

PERFORMANCE OBJECTIVE:

TASK: 5. List the three basic conditions which bacteria need to grow.

PERFORMANCE OBJECTIVE:
Food Safety

DUTY E-1. Consumer Education - Quality/Abundance/Choice

TASK: 1. Identify the types of food eaten in the past.

PERFORMANCE
OBJECTIVE:

TASK: 2. Compare and contrast the eating habits of Americans in the 1990's versus Americans in the Pre World War II era.

PERFORMANCE
OBJECTIVE:

TASK: 3. Estimate the total amount of money spent on food during a typical week.

PERFORMANCE
OBJECTIVE:

TASK: 4. Describe the importance of chemicals and technology to food production.

PERFORMANCE
OBJECTIVE:

DUTY E-2. Consumer Education - Storage/Transportation/Packaging

TASK: 1. Explain how people work together to ensure a safe food supply.

PERFORMANCE
OBJECTIVE:
TASK: 2. Describe the proper procedures for food storage and increase the storage time of certain food products.

PERFORMANCE OBJECTIVE:

TASK: 3. Describe how to safely pack a cooler for a trip or vacation.

PERFORMANCE OBJECTIVE:

TASK: 4. Explain the importance of proper food packaging.

PERFORMANCE OBJECTIVE:

DUTY F. Biotechnology in Food Safety

TASK: 1. Define biotechnology and provide examples of where biotechnology is utilized in production of food processing, production and the development of food and fiber.

PERFORMANCE OBJECTIVE:

TASK: 2. Explain the impact of biotechnology on food safety, human health and wellness.

PERFORMANCE OBJECTIVE:
TASK: 3. Define three examples of microbial biotechnology related to food safety.

PERFORMANCE OBJECTIVE:

TASK: 4. Identify the economic and ethical advantages and disadvantages of using biotechnology to produce, process and preserve food products.

PERFORMANCE OBJECTIVE:

DUTY G-1. Risk Assessment - What is Risk?

TASK: 1. Explain what risk is and compare it to known events.

PERFORMANCE OBJECTIVE:

TASK: 2. Identify and explain the real risks associated with life experiences.

PERFORMANCE OBJECTIVE:

TASK: 3. Explain the risks associated with potential carcinogenic hazards.
PERFORMANCE OBJECTIVE:

TASK: 4. Explain risk and benefits of using pesticides to produce foods.

PERFORMANCE OBJECTIVE:

DUTY G-2. Risk Assessment - Food Safety Decisions

TASK: 1. Identify and explain the differences between the public's ranking of food safety concerns and the FDA's ranking of food safety concerns.

PERFORMANCE OBJECTIVE:

TASK: 2. Explain how pesticides can be effectively reduced in the diet.

PERFORMANCE OBJECTIVE:

TASK: 3. Evaluate, analyze, and compare messages which are sent to the consumer concerning food safety issues.

PERFORMANCE OBJECTIVE:

TASK: 4. Identify what signals to be aware of in food safety messages which might be "loaded."

PERFORMANCE OBJECTIVE:
TASK: 5. Determine the amount of iron supplement which is added to the diet, as well as the input this product can have on human health safety.

PERFORMANCE OBJECTIVE:

TASK: 6. Explain the "zero risk" concept, identify and evaluate the threats to our food supply, causes for these threats and possible remedies.

PERFORMANCE OBJECTIVE:

DUTY H-1. Toxicology

TASK: 1. Explain the level of chemical residues found on foods.

PERFORMANCE OBJECTIVE:

TASK: 2. Explain the legal use and restrictions of pesticides on food crops.

PERFORMANCE OBJECTIVE:

TASK: 3. Explain how plants and animals are used to evaluate the amount of chemical residues present in foods.

PERFORMANCE OBJECTIVE:

TASK: 4. Explain how animals are used to test for carcinogenic substances.
DUTY H-2. Toxicology - Natural Toxins

TASK: 1. Identify common substances which are toxic to humans.

TASK: 2. Define toxicity and explain the role moderation has in our lives.

TASK: 3. Identify common food allergies that are hazardous to certain individuals.

TASK: 4. Explain conditions under which natural toxins can cause negative consequences.
DUTY I. Regulations that Protect Our Food Supply

TASK: 1. Identify the agencies that determine food safety regulations.

TASK: 2. Identify regulations that food processing companies follow to produce a safe food product.

TASK: 3. Describe the process of inspecting a food facility for safe sanitation practices.

TASK: 4. Collect and analyze data on a food facility's sanitation process and compare with that of peers and ideal standard.
DUTY J-1. Production's Effect on Food Safety - Organic Farming

TASK: 1. Identify what constitutes an organic food and how they are regulated.

PERFORMANCE OBJECTIVE:

TASK: 2. Differentiate the cost of organic and conventionally grown foods.

PERFORMANCE OBJECTIVE:

TASK: 3. Determine if organic foods are more nutritious than conventional counterparts.

PERFORMANCE OBJECTIVE:

TASK: 4. Determine whether organic foods are safer than foods grown with the help of agrichemicals.

PERFORMANCE OBJECTIVE:

DUTY J-2. Production's Effect on Food Safety - Processing and Field Packaging

TASK: 1. Understand that proper food processing improves food quality.

PERFORMANCE OBJECTIVE:
TASK:  2.  Realize that nutrient retention is enhanced through food processing.

PERFORMANCE
OBJECTIVE:

TASK:  3.  Learn the importance and methods of food processing.

PERFORMANCE
OBJECTIVE:

TASK:  4.  Determine how fruits and vegetables are packaged and stored.

PERFORMANCE
OBJECTIVE:

TASK:  5.  Develop an understanding of how potatoes are harvested and stored.

PERFORMANCE
OBJECTIVE:
DUTY K. Safe Handling of Food Beyond the Retail and Wholesale Shelf

TASK: 1. Identify food handling conditions that are potential antecedents to a food borne illness(es).

PERFORMANCE OBJECTIVE:

TASK: 2. List five food handling practices that will reduce the incidence or potential of food borne illness(es).

PERFORMANCE OBJECTIVE:

TASK: 3. Conduct bacteriological examination of food equipment and eating utensils.

PERFORMANCE OBJECTIVE:

TASK: 4. Conduct chemical analysis of milk samples stored/handled several different ways.

PERFORMANCE OBJECTIVE:

TASK: 5. Identify five food purchasing safety practices.

PERFORMANCE OBJECTIVE:

TASK: 6. Identify five food storage safety practices.
PERFORMANCE
OBJECTIVE:

DUTY L. Consumer Education - Nutrition

TASK: 1. Identify and list the information provided by a label on a retail food product.

PERFORMANCE
OBJECTIVE:

TASK: 2. Evaluate the influence of the media in communicating nutritional facts and myths.

PERFORMANCE
OBJECTIVE:

TASK: 3. Identify the scientific basis for refuting the claims of food companies in promoting specific foods or additives to foods to improve one's health.

PERFORMANCE
OBJECTIVE:

TASK: 4. Collect and analyze the nutritional components of daily dietary intake and compare with that of peers and ideal standard.

PERFORMANCE
OBJECTIVE:

DUTY M. Basic Components of Food

TASK: 1. Identify food components and describe their nutritional contribution to diet.
TASK: 2. Quantify the amount of water and fat in various food products.

TASK: 3. Describe the nutritional value of selected food products.

TASK: 4. Describe how food scientists have altered food's basic components to develop innovative products in meeting consumer demands.

DUTY N-1. Effects of Food on Health

TASK: 1. Describe the effects of current diet in relation to daily activities.

TASK: 2. Describe the effects of diets on long term health.
TASK: 3. Describe the cause and effect relationship between food intake and wellness.

PERFORMANCE OBJECTIVE:

TASK: 4. Explain the specific effects of nutritional deficiencies in human diets.

PERFORMANCE OBJECTIVE:

DUTY N-2. Effects of Food on Health - Enhancing the Nutritional Value of Our Foods

TASK: 1. Identify examples of what the food industry has done to enhance the nutritional value of our diets.

PERFORMANCE OBJECTIVE:

TASK: 2. Describe the scientific methods used by the food industry to enhance the nutritional value of processed foods.

PERFORMANCE OBJECTIVE:

TASK: 3. Describe the sequence of events that occur during the development of a low fat food product.

PERFORMANCE OBJECTIVE:
Horticultural Science

DUTY A. Examining the methods of plant propagation.

TASK: 1. Examine sexual reproduction in plants.

PERFORMANCE
OBJECTIVE: Using various reference materials, explain sexual reproduction and discuss the long term benefits and problems associated with this type of reproduction with 80% accuracy.

TASK: 2. Describe the environmental conditions needed for germination of various seeds.

PERFORMANCE
OBJECTIVE: Given the appropriate materials, conduct an experiment comparing the environment needs for germination of various seeds and develop appropriate criteria for three types of seeds with 90% accuracy.

TASK: 3. Determine the steps in germination of a monocot and a dicot.

PERFORMANCE
OBJECTIVE: Using germination seeds and reference materials, contrast the steps in germination of a monocot and a dicot with 90% accuracy.

TASK: 4. Describe the methods used to overcome seed dormancy.

PERFORMANCE
OBJECTIVE: Using reference materials, describe the methods used to overcome seed dormancy and relate this problem to attempts to improve crop production in developing countries.

TASK: 5. Examine the damage done to a root system by transplanting techniques.

PERFORMANCE
OBJECTIVE: Using live plants, examine the damage done to a root system by transplanting and describe techniques to minimize damage when transplanting with 90% accuracy.

TASK: 6. Describe the primary differences between monocots and dicots.
PERFORMANCE
OBJECTIVE: Using available materials, describe the primary differences between monocots and dicots and explain how these differences affect commercial propagation of these plants with 90% accuracy.


PERFORMANCE
OBJECTIVE: Using available reference materials, describe the different methods of asexual reproduction and evaluate which methods are best for 10 kinds of plants with 90% accuracy.

TASK: 8. Determine the roles of vermiculite and perlite in the establishment of a good rooting medium.

PERFORMANCE
OBJECTIVE: Using available rooting medium, evaluate the roles of vermiculite and perlite in rooting media by contrasting the qualities of rooting media to soil with 90% accuracy.

TASK: 9. Describe the uses of synthetic rooting hormones.

PERFORMANCE
OBJECTIVE: Using appropriate materials, design an experiment to determine if rooting hormones have an effect on root establishment for 10 different plants reporting the results with 90% accuracy.

TASK: 10. Make a schedule for plant propagation.

PERFORMANCE
OBJECTIVE: Using available reference materials and a selected crop, generate a plan to propagate seasonal plants discussing all aspects of their production and associated costs with 90% accuracy.

DUTY B. Investigating factors in the environment affecting plant growth.

TASK: 1. Describe factors to be considered in selecting a greenhouse heating system.

PERFORMANCE
OBJECTIVE: Given a specific scenario, describe the factors to be considered in selecting an appropriate greenhouse heating system with 90% accuracy.

TASK: 2. Determine how heat effects greenhouse crops and photosynthesis.
PERFORMANCE
OBJECTIVE: Using reference materials and examples in the greenhouse, evaluate how heat affects greenhouse crops and photosynthesis with 90% accuracy.

TASK: 3. Evaluate the importance of a proper ventilation system to greenhouse crops.

PERFORMANCE
OBJECTIVE: Using reference materials and the school greenhouse, evaluate the effectiveness of the greenhouse ventilation system making suggestions for improvement with 80% accuracy.

TASK: 4. Determine how the gaseous components of air in the greenhouse effect plant growth.

PERFORMANCE
OBJECTIVE: Using class notes and reference materials, determine how the gaseous components of air in the greenhouse affect plant growth with 90% accuracy.

TASK: 5. Examine the effects of agricultural chemicals on air and water pollution.

PERFORMANCE
OBJECTIVE: Using class notes and reference materials, examine the effects of agricultural chemicals on air and water pollution and relate these to the environmental concerns of the public with 90% accuracy.


PERFORMANCE
OBJECTIVE: Using the greenhouse and available materials, devise an experiment to compare the relationship between greenhouse humidity and plant health reporting the results with 90% accuracy.

TASK: 7. Identify multiple systems for controlling humidity and relate each to specific plant needs.

PERFORMANCE
OBJECTIVE: Using examples in the greenhouse, choose the best system for controlling humidity for each major crop grown and justify your conclusions with 90% accuracy.

TASK: 8. Select an irrigation system.
PERFORMANCE OBJECTIVE: Given three specific greenhouse crops, decide which type of irrigation system is best for each crop and justify your decisions with 90% accuracy.

TASK: 9. Determine the importance of light intensity and duration to plant growth.

PERFORMANCE OBJECTIVE: Given greenhouse plants, devise an experiment to compare the effects of light intensity and duration to plant growth and determine the optimum light conditions for maximum growth with 80% accuracy.

TASK: 10. Examine the methods of light control and the effects that each has on plant growth.

PERFORMANCE OBJECTIVE: Using examples in the greenhouse and a specific greenhouse crop, evaluate the methods of light control selecting the method that will optimize growth with 80% accuracy.

TASK: 11. Describe the effect of light intensity on photosynthesis in greenhouse plants.

PERFORMANCE OBJECTIVE: Using class notes, reference materials, and examples from the greenhouse, analyze the effect of light intensity on photosynthesis and determine the optimum light intensity for each plant with 90% accuracy.

TASK: 12. Describe an open and a closed environmental system.

PERFORMANCE OBJECTIVE: Using class notes, the greenhouse, and other reference materials, contrast an open and a closed environmental system and list advantages and disadvantages to each system with 90% accuracy.

DUTY C. Analyzing growth media.

TASK: 1. Describe the desired characteristics of an ideal growing medium.
PERFORMANCE
OBJECTIVE: Given a specific horticultural crop, determine the desired characteristics of an ideal growing medium for the crop with 90% accuracy.

TASK: 2. Describe amended soil.

PERFORMANCE
OBJECTIVE: Using examples of various soils, contrast the differences between amended and unamended soil citing examples where each should be used with 90% accuracy.

TASK: 3. Identify the methods of sterilizing soil media.

PERFORMANCE
OBJECTIVE: Using examples of greenhouse environments, determine the options available to sterilize soil and choose the best method listing its advantages and disadvantages with 90% accuracy.

TASK: 4. Describe the effects of proper versus improper watering of plants.

PERFORMANCE
OBJECTIVE: Using the school greenhouse, cite examples of proper versus improper watering of plants and determine ways to improve watering methods with 90% accuracy.

TASK: 5. Describe porosity of the growing medium.

PERFORMANCE
OBJECTIVE: Using available soil, determine what is meant by porosity with respect to the growing medium and evaluate its importance to plant health with 90% accuracy.


PERFORMANCE
OBJECTIVE: Using equipment and plants in the greenhouse, devise an experiment to show how container size affects root growth and select which pot size relative to plant size maximizes root growth with 90% accuracy.

TASK: 7. Evaluate different methods of watering greenhouse plants.
OBJECTIVE: Given three specific greenhouse plants, evaluate different methods of watering these plants and select the best method for each plant with 90% accuracy.

TASK: 8. Examine the advantages and disadvantages of including fertilizer and pesticides in the water supply.

OBJECTIVE: Working in small groups, discuss the advantages and disadvantages of including fertilizer and pesticides in the water supply and determine how they enter the water supply with 80% accuracy.

TASK: 9. Explain how humans must balance environmental concerns with the need and desire for improved plants.

OBJECTIVE: Working in small groups, determine several ways to balance environmental concerns and growth quality in plants with 90% accuracy.

TASK: 10. Explain the aspect of growth influenced by each of the essential elements needed for plant growth.

OBJECTIVE: Using class notes and other reference materials, determine the aspect of growth influenced by each of the essential elements with 90% accuracy.

TASK: 11. Describe the deficiency symptoms of three major plant nutrients.

OBJECTIVE: Using three flats of seedlings purposely grown with none of the essential elements, describe what visible effects the deficiency has on the growing plant with 90% accuracy.

TASK: 12. Apply the techniques of soil sampling.

OBJECTIVE: Using available supplies, explain the techniques of soil sampling by taking actual soil samples and interpreting the results to recommend fertilizer applications and pH treatment with 95% accuracy.

TASK: 13. Describe the uses of chemicals to regulate plant growth.
OBJECTIVE: Using class notes and examples from the greenhouse, describe the uses of chemicals to regulate plant growth and cite examples of crops that benefit from growth regulators with 90% accuracy.

TASK: 14. Describe the decision-making process related to the use of stimulants, retardants, and rooting hormones.

PERFORMANCE

OBJECTIVE: Given three specific horticultural crops, determine which crops require the use of stimulants, retardants, and rooting hormones, justify your answers with 90% accuracy.

TASK: 15. Describe the factors required by micro-organisms in the decomposition of organic matter.

PERFORMANCE

OBJECTIVE: Using class notes and other reference materials, assess the factors required by micro-organisms in order to decompose organic matter with 90% accuracy.


PERFORMANCE

OBJECTIVE: Using available references, evaluate your yard or school yard and choose the best site and design a compost pile completely outlining all factors that will influence the breakdown of organic matter with 90% accuracy.

TASK: 17. Describe the advantages and disadvantages of using mulch.

PERFORMANCE

OBJECTIVE: Given the scenario that you are a nursery employee, prepare a persuasive argument to convince a customer to use mulch on newly transplanted trees outlining all advantages and disadvantages with 90% accuracy.

DUTY D. Examining the management practices of field and greenhouse production.

TASK: 1. Examine the differences between field production and greenhouse production.

PERFORMANCE

OBJECTIVE: Using class notes, determine the differences between field production and greenhouse production citing examples of plants produced by each with 90% accuracy.

TASK: 2. Describe the use and application of harvest-aid chemicals.
PERFORMANCE
OBJECTIVE: Given a specific horticultural crop, examine the use and application of harvest-aid chemicals addressing the environmental issues as well as profitability concerns with 90% accuracy.

TASK: 3. Evaluate the use of chemicals to control rodents and predators.

PERFORMANCE
OBJECTIVE: Given a case study, evaluate the use of chemicals to control rodents and predators taking into account environmental safety and potential reactions from animal rights activists with 90% accuracy.

TASK: 4. Design a plan to water greenhouse and field plants according to selected scheduled times and requirements.

PERFORMANCE
OBJECTIVE: Given a specific greenhouse or field crop, design a schedule to water plants according to their requirements with 90% accuracy.

TASK: 5. Plan a project for growing poinsettias for a money raising event.

PERFORMANCE
OBJECTIVE: Using the school greenhouse and available reference materials, plan an entire project for growing poinsettias from start to finish including the expected profit and a plan to market these poinsettias with 95% accuracy.

TASK: 6. Identify parts of a greenhouse.

PERFORMANCE
OBJECTIVE: Using the existing school greenhouse, identify the parts of the greenhouse and determine their function within the greenhouse with 95% accuracy.

TASK: 7. Describe interior layouts best suited for different plants.

PERFORMANCE
OBJECTIVE: Using the school greenhouse, design the best interior layout for three horticultural crops with 90% accuracy.

TASK: 8. Interpret blueprints of a greenhouse or other growing structure and match the proper design to desired use.

PERFORMANCE
OBJECTIVE: Using the blueprints of a greenhouse or other growing structure, decide which design best fits a specific crop with 90% accuracy.
TASK: 9. Interpret safety information found on pesticide labels.

PERFORMANCE
OBJECTIVE: Using examples of pesticide labels and safety equipment, prepare a speech for middle school students about pesticide safety with 100% accuracy.

DUTY E. Analyzing marketing and market management.

TASK: 1. Describe the differences in the levels of marketing and the marketing options available to horticulture producers.

PERFORMANCE
OBJECTIVE: Using six specific horticultural crops, evaluate the advantages and disadvantages of the marketing options and levels of marketing available to horticultural producers with 80% accuracy.

TASK: 2. Evaluate the problems of packaging and shipping fruits, vegetables, and other horticultural products.

PERFORMANCE
OBJECTIVE: Given specific examples of horticultural products, determine the problems associated with packaging and shipping these products and describe the methods used to reduce damage with 90% accuracy.

TASK: 3. Describe three methods of packaging ornamental plants.

PERFORMANCE
OBJECTIVE: Given examples of packaging for ornamental plants, compare three common methods and determine when each type is appropriate with 90% accuracy.

TASK: 4. Describe a specific plan for marketing ornamental plants in the community.
PERFORMANCE
OBJECTIVE: Using class notes and/or an interview with a local garden center, describe a specific plan for marketing ornamental plants in the community with 90% accuracy.

TASK: 5. Describe problems associated with warehousing fruits and vegetables.

PERFORMANCE
OBJECTIVE: Using appropriate reference materials, assess the problems associated with warehousing fruits and vegetables and evaluate the advantages and disadvantages with 80% accuracy.

TASK: 6. Examine the benefits of wholesale and retail marketing for a particular product.

PERFORMANCE
OBJECTIVE: Given a specific horticultural product, examine the benefits of wholesale and retail marketing for the product and determine which levels of marketing are available to your business with 80% accuracy.

TASK: 7. Describe how wholesale and retail marketing could be used in republics of the former Soviet Union to develop a better consumer food supply.

PERFORMANCE
OBJECTIVE: Using available references, assess how wholesale and retail marketing could be used in the former Soviet Union to improve the consumer food supply and the barrier present that impedes progress with 90% accuracy.

TASK: 8. Describe packaging units commonly used in direct-to-consumer and wholesale markets.

PERFORMANCE
OBJECTIVE: Using available references, compare packaging units commonly used in direct-to-consumer and wholesale markets with 90% accuracy.

TASK: 9. Describe the processes used to maintain plant quality during the marketing process.

PERFORMANCE
OBJECTIVE: Using examples of horticultural products, describe the processes used to maintain plant quality during the marketing process for each product with 80% accuracy.

TASK: 10. Examine the basic and secondary considerations of market analysis.
OBJECTIVE: Using available reference materials, differentiate between basic and secondary considerations of market analysis and decide when each should be employed with 80% accuracy.

TASK: 11. Design a market analysis plan specific to a horticultural product.

PERFORMANCE
OBJECTIVE: Given a specific horticultural product, create a market analysis and determine how to best market the product with 90% accuracy.

DUTY F. Investigating practices used to produce herbaceous and woody nursery stock.

TASK: 1. Examine the Indiana definition of plants known as nursery stock.

PERFORMANCE
OBJECTIVE: Using a copy of the Indiana definition of nursery stock, determine which commonly sold items are not classified as nursery stock and develop a rationale for this differentiation with 90% accuracy.

TASK: 2. Determine the methods and procedures used to propagate nursery stock.

PERFORMANCE
OBJECTIVE: Using ten specific nursery plants, determine the methods that can be used to propagate each and describe the advantages and disadvantages to each method and select the best method for each plant with 80% accuracy.

TASK: 3. Describe the structures, equipment, and material used in the production of nursery stock.

PERFORMANCE
OBJECTIVE: Given an example of a specific nursery, select the structures, equipment, and materials used in the production of nursery stock with 80% accuracy.

TASK: 4. Evaluate the use of chemicals and other products used in the production of nursery stock.
PERFORMANCE OBJECTIVE: Given ten specific scenarios, evaluate what chemicals and other products are used in the production of nursery stock and examine alternative methods before choosing the appropriate products with 90% accuracy.

TASK: 5. Analyze the maintenance and overwintering storage of nursery stock for various climates.

PERFORMANCE OBJECTIVE: Given three USDA hardiness zones, compare the maintenance and overwintering storage of nursery stock for the three different climates with 90% accuracy.

TASK: 6. Explain the procedures used to harvest and handle field grown nursery stock.

PERFORMANCE OBJECTIVE: Given three specific nursery crops, assess the procedures used to harvest and handle field grown crops citing examples of how damage can be minimized with 90% accuracy.

DUTY G. Analyzing fruit, nut, and vegetable production practices.

TASK: 1. Plan an orchard.

PERFORMANCE OBJECTIVE: Given a specific scenario, plan an orchard including the steps involved in site selection, soil preparation, plant propagation, and planting with 90% accuracy.

TASK: 2. Design a plan to address common preparation, planting, cultivating, pest, and environmental control problems.

PERFORMANCE OBJECTIVE: Using your orchard plan, devise a year-long plan to address common preparation, planting, cultivating, pest, and environmental factors that affect your business with 90% accuracy.

TASK: 3. Describe unique characteristics of various cultivars that have been recommended for Indiana.
PERFORMANCE
OBJECTIVE: Using your orchard plan and a list of recommended varieties, describe the requirements needed by various cultivars in order to be successful in your area and justify your selections with 90% accuracy.

TASK: 4. Determine proper harvesting techniques needed for specific crops.

PERFORMANCE
OBJECTIVE: Given a list of specific crops, determine proper harvesting techniques for each crop with 90% accuracy.

TASK: 5. Design a strategy for implementing fruit and/or vegetable production on the family farm or school land laboratory.

PERFORMANCE
OBJECTIVE: Given a specific scenario, develop a plan for implementing fruit and/or vegetable production complete with a marketing plan for the crops with 90% accuracy.

TASK: 6. Examine the timing of planting, planting systems, distance, environmental problems and diseases for specific crops.

PERFORMANCE
OBJECTIVE: Given a list of specific crops, decide on the time of planting, planting systems, planting distance, and anticipated environmental and disease problems for each crop with 90% accuracy.

TASK: 7. Describe the important factors involved with plant selection of fruit and edible nut varieties commonly grown in Indiana.

PERFORMANCE
OBJECTIVE: Given a list of fruit and nut varieties, determine what characteristics make these varieties desirable to grow in Indiana, then rank these characteristics in order of importance for your area of Indiana.

TASK: 8. Compare accepted and new practices used in growing fruit, vegetable, and nut varieties.

PERFORMANCE
OBJECTIVE: Given a list of accepted cultural practices, use available references to compare accepted cultural practices to new cultural practices being used to grow fruit, nut, and vegetable varieties and decide which practices are the best with 90% accuracy.

PERFORMANCE
OBJECTIVE: Given a list of specific crops, plan a schedule of planting dates for each crop detailing how to keep planting stock in good shape if weather does not allow planting with 80% accuracy.

TASK: 10. Describe methods used to protect plants from freeze and frost damage.

PERFORMANCE
OBJECTIVE: Given specific examples, describe methods used to protect plants from freeze and frost damage and how each method works to protect the crop with 80% accuracy.

TASK: 11. Explain the importance of selecting cultivars which are adapted to growing in Indiana.

PERFORMANCE
OBJECTIVE: Using available reference materials, write a paper explaining the importance of selecting approved cultivars when buying nursery stock with 90% accuracy.

TASK: 12. Describe hydroponics.

PERFORMANCE
OBJECTIVE: Using available reference materials, determine what makes hydroponics different from other methods of producing horticultural crops with 90% accuracy.

TASK: 13. Describe the specific difficulties that must be overcome for successful yields in hydroponics.

PERFORMANCE
OBJECTIVE: Using available reference materials, analyze specific difficulties that must be overcome for successful yields in hydroponics and ways to overcome each problem with 90% accuracy.

TASK: 14. Prepare a plan for a science fair project on hydroponics.

PERFORMANCE
OBJECTIVE: Using available materials, plan a science fair project on hydroponics and complete the project with 100% accuracy.

TASK: 15. Explain proper pruning techniques.
OBJECTIVE: Given three different fruiting plants, formulate a plan to properly prune each tree for productive fruiting wood, good annual yield, and quality fruit with 80% accuracy.

TASK: 16. Identify tools used in pruning.

PERFORMANCE
OBJECTIVE: Given six different pruning situations, identify the tools used for each pruning job and determine the proper use of each tool with 90% accuracy.

TASK: 17. Plan for effective pest management using the IPM system and philosophy.

PERFORMANCE
OBJECTIVE: Using available reference materials and your orchard plan, design an effective integrated pest management system citing all tools used and how the IPM philosophy changes traditional management practices with 90% accuracy.

TASK: 18. Describe management practices within the orchard.

PERFORMANCE
OBJECTIVE: Using your orchard plan, decide which management practices need to be used to maintain the orchard and when they need to be implemented with 80% accuracy.

TASK: 19. Describe the five quality components of fresh produce.

PERFORMANCE
OBJECTIVE: Using class notes and examples of fresh produce, determining the five quality components of fresh produce with 100% accuracy.


PERFORMANCE
OBJECTIVE: Using your orchard plan, describe procedures for picking and storing orchard products with 80% accuracy.

TASK: 21. Examine insurance requirements for the various types of horticultural businesses.

PERFORMANCE
OBJECTIVE: Using examples of specific horticultural businesses, assess the insurance requirements necessary for each business with 90% accuracy.
TASK: 22. Design a budget to establish price and profit in fruit and vegetable production.

PERFORMANCE
OBJECTIVE: Using a specific crop, create a budget to establish price and profit for the crop with 90% accuracy.

DUTY H. Exploring an environmentally sound pest management system.

TASK: 1. Describe the common pests of horticultural plants.

PERFORMANCE
OBJECTIVE: Using available reference materials, determine what pests commonly affect plants in your area and choose appropriate methods for controlling these pests with 80% accuracy.

TASK: 2. Explain the different categories of plant diseases.

PERFORMANCE
OBJECTIVE: Using available reference materials, differentiate between the different categories of plant disease determining mode of transmission and type of damage for each category of disease with 90% accuracy.

TASK: 3. Examine the methods used to control plant pests.

PERFORMANCE
OBJECTIVE: Using a list of common plant diseases for your area of Indiana, examine methods used to control these pests and rank them according to their effectiveness and level of toxicity with 80% accuracy.

TASK: 4. Examine safety procedures for handling pesticide.

PERFORMANCE
OBJECTIVE: Using examples of labels from pesticides, determine what safety procedures and clothing must be used in order to apply chemicals safely with 100% accuracy.

TASK: 5. Determine how humans become poisoned by pesticides.

PERFORMANCE
OBJECTIVE: Using labels from the different classes of pesticides, evaluate the most common mode of entry for each pesticide and which method of exposure is the most hazardous with 90% accuracy.
TASK: 6. Describe what systems are affected and the proper first aid procedures for pesticide poisoning.

PERFORMANCE
OBJECTIVE: Using labels from the different classes of pesticides and other reference materials, determine what systems of the body are affected by each class of pesticide and the proper first aid procedures to combat each type of pesticide poisoning with 100% accuracy.

TASK: 7. Calibrate chemical application equipment.

PERFORMANCE
OBJECTIVE: Using non-toxic solutions, calibrate chemical application equipment for six formulations of chemicals with 95% accuracy.

TASK: 8. Describe the insects known to harm crops in Indiana.

PERFORMANCE
OBJECTIVE: Using available reference materials and six specific crops, determine what pests cause the greatest damage to each crop and how the crop is damaged with 90% accuracy.

TASK: 9. Determine how to control insect problems on major farm crops.

PERFORMANCE
OBJECTIVE: Given a specific farm crop, defend a plan to control potential insect problems that may occur citing all possible control options with 80% accuracy.

TASK: 10. Discuss the physiological principles of herbicides.

PERFORMANCE
OBJECTIVE: Using available reference materials, evaluate how different herbicides affect plant growth with 90% accuracy.

TASK: 11. Describe how insects cause damage to crops.

PERFORMANCE
OBJECTIVE: Using examples of insect pests, describe how each pest causes damage to crops and determine what life-stage causes the most damage with 90% accuracy.

TASK: 12. Examine the classification of herbicides.
PERFORMANCE
OBJECTIVE: Using examples of herbicide labels, evaluate how herbicides are classified and discuss the appropriate uses for each type, citing specific examples, with 90% accuracy.

TASK: 13. Interpret the impact of current state and federal regulations on pest control measures.

PERFORMANCE
OBJECTIVE: Using available references, decide which pesticides are restricted from general use, how a person becomes licensed to handle these pesticides, and what role federal and state regulations have on pest control measures with 80% accuracy.

TASK: 14. Describe how governmental regulations have influenced the quality of fruit and vegetable products in the U.S.

PERFORMANCE
OBJECTIVE: Using available reference materials and class discussion, decide how governmental regulations influence the quality of fruit and vegetable products with 90% accuracy.

TASK: 15. Examine the role of the Environmental Protection Agency.

PERFORMANCE
OBJECTIVE: Using reference materials, assess why the EPA was started and how the EPA protects us from ourselves with 80% accuracy.

DUTY I. Examining career opportunities in horticultural science.

TASK: 1. Examine the career opportunities in horticultural science.
PERFORMANCE
OBJECTIVE: Using class discussion and reference materials, examine the variety of career opportunities available in horticultural science with 95% accuracy.

TASK: 2. Describe the economic importance of the horticultural science industry.

PERFORMANCE
OBJECTIVE: Using available reference materials and class discussion, determine how much of the GNP is from horticultural science related industries and assess opportunities for future growth in this industry with 90% accuracy.

TASK: 3. Determine the future need for horticultural workers.

PERFORMANCE
OBJECTIVE: Using your projections for the future growth in the horticultural science related industries, determine the needs for both skilled and unskilled workers with 80% accuracy.

TASK: 4. Determine the education needed to gain employment in specific horticultural science industries.

PERFORMANCE
OBJECTIVE: Given a specific area of horticultural science, determine the education needed to gain employment and advancement within the industry as well as the opportunities for skilled and unskilled workers in the industry with 90% accuracy.
**Landscape Management**

DUTY A1. Identifying the life cycles and treatments of various insect pests of the landscape.

TASK: 1. Identify common insect pests found in the landscape.

PERFORMANCE
OBJECTIVE: Given pictures or live or preserved specimens, categorize various insect pests by their damage to trees, shrubs, vines, turf, or flowers to a 100% accuracy level.

TASK: 2. Identify the signs and symptoms of insect feeding on trees and shrubs.

PERFORMANCE
OBJECTIVE: Given specimens of infected plant parts, classify insect damage (signs or symptoms) to a 95% accuracy level.

TASK: 3. Determine the feeding method of various insect pests.

PERFORMANCE
OBJECTIVE: Given specimens of infected plant parts, diagnose the feeding method of various insect pests to a 95% accuracy level.

TASK: 4. Determine the treatment for each insect pest.

PERFORMANCE
OBJECTIVE: Given a situation, evaluate the treatment for that insect pest, according to the state pest control recommendations.

TASK: 5. Analyze the importance of beneficial insects.

PERFORMANCE
OBJECTIVE: Using state recommendations for pest control, design an integrated pest management plan including beneficial insects to reduce spraying by 10%.

TASK: 6. Diagram the basic parts of an insect.
PERFORMANCE
OBJECTIVE: Using pictures or models of insects, generate a diagram of the basic parts of an insect with 90% accuracy.

TASK: 7. Examine the various mouth parts of the insects.

PERFORMANCE
OBJECTIVE: With preserved specimens, models, or diagrams of a specific insect, evaluate the functions of the various mouth parts of the insect with 90% accuracy.

TASK: 8. Sketch the stages of metamorphoses of insects.

PERFORMANCE
OBJECTIVE: With pictures, diagrams, models, or preserved specimens, construct the life cycle and stages of metamorphoses of insects with 90% accuracy.

TASK: 9. Determine the various control methods for insect pests.

PERFORMANCE
OBJECTIVE: Using state recommendations for pest control or other references, design a simple integrated pest management (IPM) program for a specific insect pest in accordance with local and state guidelines for pest control.

DUTY A2. Examining various landscape diseases.

TASK: 1. Examine the biological causes of plant diseases.

PERFORMANCE
OBJECTIVE: Given a list of ten plant diseases, classify all the causes as environmental or biological causes of plant disease.

TASK: 2. Construct the life cycles of plant disease pathogens.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, diagram the entire life cycle of a plant disease.

TASK: 3. Determine the components of a disease triangle.
PERFORMANCE
OBJECTIVE: Given a plant disease, examine the factors necessary for disease survival according to the components of the disease triangle.

TASK: 4. Identify various methods of control for plant diseases in an integrated pest management program.

PERFORMANCE
OBJECTIVE: Using state recommendations for pest control, assess the various controls for plant diseases in a simple IPM program with 100% accuracy.

TASK: 5. Evaluate the diagnostics of plant disease.

PERFORMANCE
OBJECTIVE: Given an infected plant, prioritize the steps involved in diagnosing a disease with 95% accuracy.

TASK: 6. Examine the signs and symptoms of common plant diseases found in the landscape.

PERFORMANCE
OBJECTIVE: Given an infected plant part, diagnose the signs and symptoms of a disease with 95% accuracy.

TASK: 7. Evaluate recommended controls for landscape plant diseases.

PERFORMANCE
OBJECTIVE: Using state recommendations for pest control, design an IPM program with 90% accuracy.

TASK: 8. Analyze "people pressure diseases" found in the landscape.

PERFORMANCE
OBJECTIVE: Given a "people pressure disease," evaluate the impact humans can have on plant stress with 95% accuracy.

DUTY A3. Identifying various weeds in the landscape.

TASK: 1. Identify weeds and their problems in the landscape.
PERFORMANCE
OBJECTIVE: Given a situation, assess how weeds become a problem in the landscape.

TASK: 2. Identify the developmental stages of various weeds.

PERFORMANCE
OBJECTIVE: Using class notes or other references, diagram all the stages of a weed's life cycle with 90% accuracy.

TASK: 3. Examine the procedures of classifying weeds.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, classify various weeds with 100% accuracy.

TASK: 4. Describe the various methods of control for weeds.

PERFORMANCE
OBJECTIVE: Based on state turf recommendations, devise a weed control strategy for the school grounds with 95% accuracy.

TASK: 5. Identify current herbicides and describe their modes of action.

PERFORMANCE
OBJECTIVE: Given miscellaneous pesticide labels, assess the herbicides by labels and their modes of action with 95% accuracy.


PERFORMANCE
OBJECTIVE: Given a weed, evaluate the points of selectivity on the weed with 95% accuracy.

TASK: 7. Identify the common weeds in turf.

PERFORMANCE
OBJECTIVE: With pictures, slides, or live plants, determine which plants are weeds with 95% accuracy.

TASK: 8. Examine the life cycles of various weeds.
OBJECTIVE: Using class notes or other references, construct a model of the various stages of a weed's life cycle with 95% accuracy.

TASK: 9. Develop an IPM program for controlling weeds in the landscape.

PERFORMANCE

OBJECTIVE: Based on state turf recommendations, create a simple IPM program for the school garden with 95% accuracy.

DUTY A4. Developing scouting techniques for an integrated pest management (IPM) program for a landscape.

TASK: 1. Determine proper scouting techniques for a site analysis.

PERFORMANCE

OBJECTIVE: Using class notes or other references, select the appropriate methods to scout a landscape site with 95% accuracy.

TASK: 2. Examine the process of making a correct diagnosis.

PERFORMANCE

OBJECTIVE: Using the "Diagnostic List for Plant Problems," evaluate each step in diagnosing a plant problem with 95% accuracy.

TASK: 3. Determine the biological and environmental causes of plant problems.

PERFORMANCE

OBJECTIVE: Given a situation, generate a list of possible biological and environmental factors in plant diseases with 95% accuracy.

TASK: 4. Examine the importance of reference sources in diagnosing plant problems.

PERFORMANCE

OBJECTIVE: Given a situation, justify the reference sources that may be consulted in making a correct diagnosis of a plant problem.

TASK: 5. Conduct an IPM scouting program for a landscape site.
PERFORMANCE
OBJECTIVE: Based on the "Diagnostic List for Plant Problems," assess a landscape site for potential pest problems using proper diagnostic procedures.

TASK: 6. Prepare a plant sample for a diagnostic lab.

PERFORMANCE
OBJECTIVE: Given an infected plant, produce a sample acceptable for a diagnostic lab.

DUTY A5. Examining safety in handling and applying horticultural chemicals.

TASK: 1. Describe the methods of entry which pesticides can contact the human body.

PERFORMANCE
OBJECTIVE: Based on the pesticide application manual, evaluate the methods by which pesticides can enter the human body with 100% accuracy.

TASK: 2. Determine the methods of accidental poisoning by exposure to pesticides.

PERFORMANCE
OBJECTIVE: Using the pesticide application manual, class notes, or other references, devise a plan to avoid accidental poisoning by exposure to pesticides with 95% accuracy.

TASK: 3. Determine the situations in which humans can be exposed to pesticides.

PERFORMANCE
OBJECTIVE: Given a case of pesticide poisoning, assess the level of pesticide exposure with 95% accuracy.

TASK: 4. Identify the protective clothing that should be worn during application.

PERFORMANCE
OBJECTIVE: Given the pesticide application manual or other references, suggest what protective clothing should be worn during various kinds of pesticide applications with 100% accuracy.

TASK: 5. Examine the importance of protective equipment worn during pesticide application.
TASK: 6. Evaluate the precautions in applying pesticides.

TASK: 7. Describe the procedures for handling, storing, transporting, mixing, and loading pesticides.

TASK: 8. Determine the safety guidelines for various application equipment.

TASK: 9. Determine the guidelines for cleaning up pesticide spills.

TASK: 10. Describe the proper procedures for pesticide disposal.

TASK: 11. Identify first-aid procedures for pesticide poisoning.

TASK: 12. Interpret the parts of a pesticide label.
PERFORMANCE
OBJECTIVE: Given copies of various pesticides labels, examine the various parts of the label with 100% accuracy.

DUTY A6. Analyzing environmental quality relative to landscape maintenance.

TASK: 1. Analyze the impact pesticides have on the environment.

PERFORMANCE
OBJECTIVE: Given the name of a pesticide, predict the effects of that pesticide on a landscape site with 100% accuracy.

TASK: 2. Compare benefits and hazards of pesticide use.

PERFORMANCE
OBJECTIVE: Given the name of a pesticide, justify the application of that pesticide to treat a plant problem with 95% accuracy.

TASK: 3. Determine how pesticides can contaminate groundwater.

PERFORMANCE
OBJECTIVE: Given a list of pesticides, analyze how pesticide contamination affects groundwater in the food chain with 100% accuracy.

TASK: 4. Examine the methods of avoiding groundwater contamination with pesticides.

PERFORMANCE
OBJECTIVE: Given a spray control program, suggests ways of reducing pesticide use to avoid groundwater contamination with 100% accuracy.

TASK: 5. Describe the procedure for reporting pesticide spills to environmental agencies.

PERFORMANCE
OBJECTIVE: Using class notes or other references, determine the factors involved in reporting pesticides spills with 95% accuracy.

DUTY B1. Investigating the different styles of landscape design.

TASK: 1. Identify the types of design schemes used in landscape design.

PERFORMANCE
OBJECTIVE: Given various landscape drawings, compare the types of design schemes used with 100% accuracy.
TASK: 2. Analyze the differences in design themes.

PERFORMANCE
OBJECTIVE: Given various landscape designs, examine the differences in design themes with 90% accuracy.

TASK: 3. Determine the various styles and themes used in landscape design.

PERFORMANCE
OBJECTIVE: Based on notes or other references, justify the style and theme for a landscape design with 95% accuracy.

TASK: 4. Analyze the concepts of symmetrical and asymmetrical balance.

PERFORMANCE
OBJECTIVE: Given pictures or diagrams, evaluate the symmetry in a landscape design with 90% accuracy.

DUTY B2. Examining the landscape principles used in the process of design.

TASK: 1. Describe the characteristics of a good landscape design.

PERFORMANCE
OBJECTIVE: Given pictures or slides of various landscapes, compare the design characteristics of each landscape with 95% accuracy.

TASK: 2. Identify the principles of landscape design.

PERFORMANCE
OBJECTIVE: Given pictures or slides of landscapes, visualize the design principles of the landscape with 95% accuracy.

TASK: 3. Determine the steps involved in the design process.

PERFORMANCE
OBJECTIVE: Given pictures or slides of landscapes, reproduce the steps of the design process with 95% accuracy.

TASK: 4. Identify the concepts of symmetrical and asymmetrical balance.

PERFORMANCE
OBJECTIVE: Given pictures or slides of landscapes, evaluate the symmetry of each landscape with 95% accuracy.

TASK: 5. Determine how each design principle influences one another.
PERFORMANCE
OBJECTIVE: Given pictures, slides, or landscape designs, evaluate each design principle in the landscape with 90% accuracy.

DUTY B3. Analyzing the client's needs in the landscape design.

TASK: 1. Analyzing the client's needs prior to developing a site analysis.

PERFORMANCE
OBJECTIVE: Given information on a potential client and landscape, generate a list of topics to address the client in the initial site visit with 95% accuracy.

TASK: 2. Determine client's needs during initial visit at client's site.

PERFORMANCE
OBJECTIVE: Using the "Client Needs Sketchlist," assess the client's needs during the initial visit to the client's site to the meet the satisfaction of the client and designer.

TASK: 3. Determine how the client's needs will impact the landscape design.

PERFORMANCE
OBJECTIVE: Given the "Client Needs Sketchlist," prioritize those needs with 95% accuracy.

DUTY B4. Drawing a site plan of the client's property, using standard symbols and terms.

TASK: 1. Determine the dimensions on a design.

PERFORMANCE
OBJECTIVE: Given a landscape design and its drawing scale, calculate the distances and measurements on the design with 100% accuracy.

TASK: 2. Organize collected data and sketch a design to the appropriate scale.

PERFORMANCE
OBJECTIVE: Given collected data from a landscape, sketch a landscape design which applies the proper scale to the drawing.

TASK: 3. Examine the symbols for utilities, easements, and plant materials used in landscape drawings.
PERFORMANCE
OBJECTIVE: Based on class notes or other references, reconstruct the design symbols for utilities, easements, and plant materials using standard symbols.

TASK: 4. Locate all existing plant material and fixed elements on the site plan.

PERFORMANCE
OBJECTIVE: Given the locations of existing plants and fixed elements, draw the locations of existing plants and fixed elements using standard symbols.

TASK: 5. Determine the procedures for measuring and locating all existing features on a residential site.

PERFORMANCE
OBJECTIVE: Given the necessary measuring equipment, measure the existing site and locate all of the fixed elements on the site.

DUTY B5. Developing a complete site analysis using standard symbols and features.

TASK: 1. Examine the functions of a site analysis in developing a landscape design.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a landscape design, compare the functions of a site analysis with 90% accuracy.

TASK: 2. Determine the site features to consider when conducting a site analysis.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a landscape design, visualize the environmental and site features with 95% accuracy.

TASK: 3. Conduct a site analysis of a client's property.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, conduct a site analysis with 95% accuracy.

TASK: 4. Record the conditions of the landscape site to prepare an analysis.

PERFORMANCE
OBJECTIVE: Based on the list of considerations for a site analysis, prepare a site analysis with 95% accuracy.
TASK: 5. Identify the standard symbols used in developing a site analysis.

PERFORMANCE OBJECTIVE: Given information on a site analysis, reproduce the standard symbols in a site analysis using the correct symbols.

TASK: 6. Diagram a site analysis.

PERFORMANCE OBJECTIVE: Given a site analysis, sketch a site plan of a landscape with 95% accuracy.

DUTY B6. Drawing a functional diagram of the client's site.

TASK: 1. Locate the public, service and living areas on a residential site.

PERFORMANCE OBJECTIVE: Given pictures, slides, or a landscape design, diagram the public, service, and living areas of a site with 100% accuracy.

TASK: 2. Determine the design fundamentals of landscaping the public area.

PERFORMANCE OBJECTIVE: Given pictures, slides, or a landscape design, classify the landscaping fundamentals of the public area with 95% accuracy.

TASK: 3. Analyze the four landscape units considered in public area.

PERFORMANCE OBJECTIVE: Given a landscape, judge the four main components of the public area with 95% accuracy.

TASK: 4. Identify the design fundamentals for landscaping the living area.

PERFORMANCE OBJECTIVE: Given pictures, slides, or a landscape design, compare the fundamentals of landscaping the living area with 95% accuracy.

TASK: 5. Determine the important considerations in developing the living areas.

PERFORMANCE OBJECTIVE: Based on class notes or other references, prioritize the considerations in developing the living areas with 90% accuracy.
TASK: 6. Examine how the different units of the living area affect design.

PERFORMANCE
OBJECTIVE: Given a landscape, evaluate the different units of the living area with 95% accuracy.

TASK: 7. Evaluate the importance of on-site and off-site views in the public and living areas.

PERFORMANCE
OBJECTIVE: Given slides, pictures, or a landscape design, evaluate the on-site and off-site views in the landscape to satisfy client needs.

TASK: 8. Determine the relationship between the living area and the functional landscape.

PERFORMANCE
OBJECTIVE: Given a landscape, justify how the living area relates to the functional landscape with 95% accuracy.

TASK: 9. Describe the purpose of the living area.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a landscape design, support the purpose of the service area in the landscape with 95% accuracy.

TASK: 10. Determine the specific design considerations of each area of the landscape.
PERFORMANCE
OBJECTIVE: Given information on a client and landscape, evaluate the design considerations for each area of the landscape with 95% accuracy.

TASK: 11. Apply all of the design information of the activity areas to a specific design problem.

PERFORMANCE
OBJECTIVE: Given a specific design problem, evaluate the problem using all of the design and site information.

DUTY B7. Drafting a landscape plan of the client’s site.

TASK: 1. Apply all design techniques and site analysis information to a master site plan.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a landscape design, compare design techniques and site analyses with 90% accuracy.

TASK: 2. Examine the basic equipment a landscape designer uses in drafting a landscape plan.

PERFORMANCE
OBJECTIVE: Given basic design equipment, evaluate the functions of basic design implements with 90% accuracy.

TASK: 3. Describe the components of a line drawing.

PERFORMANCE
OBJECTIVE: Given slides, pictures, or a landscape design, analyze the components of a line drawing with 90% accuracy.

TASK: 4. Sketch a line drawing.

PERFORMANCE
OBJECTIVE: Given a site analysis, construct a line drawing using proper line weights and contrasts.

TASK: 5. Examine the various surfaces used for producing line drawings.
PERFORMANCE
OBJECTIVE: Given various kinds of drafting paper, select the appropriate drafting paper for drawing the respective plan with 95% accuracy.

TASK: 6. Describe how a landscape designer uses a scale.

PERFORMANCE
OBJECTIVE: Given an engineer's scale and an architect's scale, draw a site plan using the proper scale.

TASK: 7. Determine the proper uses of a lettering guide.

PERFORMANCE
OBJECTIVE: Given a letter guide, write the features of the landscape site using the proper lettering techniques.

TASK: 8. Analyze the steps involved in the drawing sequence.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a landscape design, rank the steps involved in the drawing sequence with 95% accuracy.

TASK: 9. Examine the blueprint process.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a landscape design, evaluate the blueprinting of a landscape plan with 100% accuracy.

TASK: 10. Describe a plan drawing and its purpose.

PERFORMANCE
OBJECTIVE: Given slides, pictures, or a plan drawing, examine the components of a landscape plan with 95% accuracy.

TASK: 11. Identify the steps involved in constructing a landscape plan drawing.

PERFORMANCE
OBJECTIVE: Given a landscape plan, evaluate each step in constructing a plan with 95% accuracy.

DUTY B8. Developing a planting schedule for the landscape design.
TASK: 1. Determine how budget and maintenance affect a proposed landscape installation.

PERFORMANCE
OBJECTIVE: Given budget and maintenance requirements, assess the impact of the budget and maintenance on a proposed landscape installation with 95% accuracy.

TASK: 2. Describe how "phasing" influences landscape design.

PERFORMANCE
OBJECTIVE: Given a budget and landscape plan, evaluate how phasing affects a landscape design with 95% accuracy.

TASK: 3. Determine the sequence of installing plants and other materials from the landscape design.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a landscape design, defend the sequence of installing plants and other materials for a specific landscape with 95% accuracy.

TASK: 4. Examine the appropriate order of implementing proposed elements of a landscape design.

PERFORMANCE
OBJECTIVE: Given information on a landscape installation, select the appropriate order of implementing the proposed design with 95% accuracy.

TASK: 5. Compose a plant list.

PERFORMANCE
OBJECTIVE: Given a landscape plan, generate a list of plant materials with 100% accuracy.

TASK: 6. Prepare a planting schedule from the list of plant materials.

PERFORMANCE
OBJECTIVE: Given the planting list, construct a planting schedule with 95% accuracy.

TASK: 7. Determine how budget affects design implementation.
OBJECTIVE: Given a budget and a landscape, design an implementation plan to accommodate a budget.

DUTY C1. Identifying woody plants of importance in Indiana.

TASK: 1. Identify 50 landscape plants of importance in Indiana.

PERFORMANCE

OBJECTIVE: Given pictures, slides, or plants, correctly identify the woody plants.

TASK: 2. Spell and pronounce the common and botanical names of woody plants.

PERFORMANCE

OBJECTIVE: Given pictures, slides, or various woody plants, correctly spell and pronounce the common and botanical names of the woody plants.

TASK: 3. Describe outstanding landscape characteristics of woody plants.

PERFORMANCE

OBJECTIVE: Based on class notes or other references, assess the outstanding characteristics of woody plants with 95% accuracy.

TASK: 4. Determine the growth requirements of woody plants.

PERFORMANCE

OBJECTIVE: Based on class notes or other references, specify the growth requirements for various woody plants with 100% accuracy.

TASK: 5. Describe the mature size of woody plants.

PERFORMANCE

OBJECTIVE: Given pictures, slides, or woody plants, judge the mature sizes of woody plants with 95% accuracy.
DUTY C2. Identifying herbaceous plants of importance in Indiana.

TASK: 1. Identify herbaceous annual, perennial, and biennial landscape plants of importance in Indiana.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or herbaceous plants, correctly identify the herbaceous plants.

TASK: 2. Spell and pronounce the common and botanical names of plants.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or herbaceous plants, correctly spell and pronounce the common and botanical names of the plants.

TASK: 3. Describe outstanding landscape characteristics of herbaceous plants.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, assess the outstanding characteristics of herbaceous plants with 95% accuracy.

TASK: 4. Determine the growth requirements of herbaceous plants.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, specify the growth requirements for various herbaceous plants, with 100% accuracy.

TASK: 5. Describe the mature size of plants.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or herbaceous plants, judge the mature sizes of plants with 100% accuracy.

TASK: 6. Determine the life cycles of various herbaceous plants.

PERFORMANCE
OBJECTIVE: Given pictures, diagrams, or plants, construct the life cycle of various herbaceous plants with 95% accuracy.

TASK: 7. Examine the planting procedures for various herbaceous plants.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or plants, evaluate the planting techniques of various herbaceous plants with 95% accuracy.
DUTY C3. Selecting plants and landscape materials to satisfy site requirements and the client's needs.

TASK: 1. Examine the basic considerations in selecting landscape plants for the site.

PERFORMANCE
OBJECTIVE: Given a landscape plan and planting schedule, evaluate the criteria selecting the plants appropriate to the landscape site.

TASK: 2. Analyze environmental aspects of the site when selecting plants.

PERFORMANCE
OBJECTIVE: Given information on a proposed landscape installation, specify the environmental aspects of the site in plant selection with 95% accuracy.

TASK: 3. Determine the environmental influences on-site that can affect plant selection.

PERFORMANCE
OBJECTIVE: Given information on a proposed landscape installation, evaluate the environmental influences on-site that can affect plant selection with 95% accuracy.

TASK: 4. Identify microclimates in the landscape site.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a landscape plan, examine the microclimates in the landscape site with 95% accuracy.

TASK: 5. Examine how human influence can affect the site.

PERFORMANCE
OBJECTIVE: Given information on a proposed landscape installation, assess the impact of human influence on the site with 95% accuracy.

TASK: 6. Identify the criteria for plant selection.
PERFORMANCE OBJECTIVE: Given a planting schedule and a landscape plan, evaluate the criteria for plant selection with 95% accuracy.

TASK: 7. Describe methods to avoid overplanting in landscape installation.

PERFORMANCE OBJECTIVE: Given pictures, slides, or a landscape plan, compare methods of avoiding overplanting in landscape installation with 90% accuracy.

TASK: 8. Describe the functional and aesthetic uses of plants in the landscape.

PERFORMANCE OBJECTIVE: Based on class notes or other references, evaluate the functional and aesthetic uses of plants with 95% accuracy.


PERFORMANCE OBJECTIVE: Based on class notes or other references, support the idea that plants form outdoor rooms in the landscape with 90% accuracy.

TASK: 10. Identify references and sources of plant materials.

PERFORMANCE OBJECTIVE: Based on class notes or other references, examine some references and sources of plant materials with 95% accuracy.

DUTY C4. Identifying the procedures for site preparation.

TASK: 1. Determine the three classes of soil texture.

PERFORMANCE OBJECTIVE: Given samples of three different soil textures, identify the soil texture with 100% accuracy.

TASK: 2. Identify the major components of soil.

PERFORMANCE OBJECTIVE: Given a soil sample, create an experiment to examine the soil composition with 95% accuracy.

TASK: 3. Examine the functions of organic matter in the soil.
PERFORMANCE
OBJECTIVE: Given soil samples, evaluate the organic matter in each soil with 95% accuracy.

TASK: 4. Analyze the role of air and water in the soil.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, diagram the functions of air and water in soil composition with 95% accuracy.

TASK: 5. Describe the techniques involved in "conditioning" the soil.

PERFORMANCE
OBJECTIVE: Given soil samples, devise an experiment to improve soils condition with 95% accuracy.

TASK: 6. Determine the steps involved in taking a soil sample.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or diagrams, prioritize the steps of taking a soil sample with 90% accuracy.

TASK: 7. Examine the importance of fertilizing landscape plants.

PERFORMANCE
OBJECTIVE: Given three different landscape plants, devise an experiment to test the effects of fertilizer on plants with 95% accuracy.

TASK: 8. Examine how soil pH affects plants.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a plant, assess the effects of pH on plant growth with 95% accuracy.

TASK: 9. Analyze the importance of proper soil drainage in the landscape.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a plant, evaluate the effects of poor soil drainage in the landscape with 95% accuracy.

TASK: 10. Determine the measures to correct poor soil drainage.
OBJECTIVE: Given a landscape situation with poor drainage, suggest methods to correct poor soil drainage according to the methods prescribed by the Soil Conservation Service.

TASK: 11. Describe the role of the soil probe in soil testing.

PERFORMANCE

OBJECTIVE: Given a soil sample, specify the role of the soil probe in soil testing with 90% accuracy.

DUTY C5. Identifying the procedures of landscape installation.

TASK: 1. Examine the various types of nursery stock.

PERFORMANCE

OBJECTIVE: Given various types of nursery stock, judge the plants true to type and form with 100% accuracy.

TASK: 2. Analyze the importance of proper planting times.

PERFORMANCE

OBJECTIVE: Based on class notes or other references, put in priority order the best times for planting landscape plants with 95% accuracy.

TASK: 3. Determine the pre-plant operations involved in installing plants.

PERFORMANCE

OBJECTIVE: Given a type of nursery stock and specific plant, diagram the pre-plant methods with 100% accuracy.

TASK: 4. Evaluate pre-plant care for appropriate types of plants.

PERFORMANCE

OBJECTIVE: Given a kind of nursery stock and specific plant, devise a pre-plant care plan for that plant with 95% accuracy.

TASK: 5. Describe how to prepare soil for plant installation.

PERFORMANCE

OBJECTIVE: Given pictures, slides of diagrams, recommend a method of preparing soil for the appropriate plants.

TASK: 6. Determine the planting procedures for appropriate types of plants.
OBJECTIVE: Given a landscape plant, show how to plant that plant for the appropriate landscape setting with 100% accuracy.

TASK: 7. Identify the guidelines for planting in specific soils.

OBJECTIVE: Given a plant and specific soil, evaluate the guidelines for planting in specific soils with 95% accuracy.

TASK: 8. Examine the procedures for planting in poorly drained soils.

OBJECTIVE: Given pictures, slides, or a landscape plant, diagram the method for planting in poorly drained soils with 100% accuracy.

TASK: 9. Describe the post-planting procedures for plant installation.

OBJECTIVE: Given a landscape plant, examine the post-planting procedures for plant installation with 95% accuracy.

TASK: 10. Determine the proper pruning techniques when planting new stock.

OBJECTIVE: Given pictures, slides, or a landscape plant, evaluate the pruning techniques for planting new stock with 100% accuracy.

TASK: 11. Describe the staking and guying process for newly-planted trees.

OBJECTIVE: Given pictures, slides or a landscape plant, reconstruct the staking and guying process for a newly-planted tree with 100% accuracy.

TASK: 12. Examine the importance of wrapping newly-planted trees.

OBJECTIVE: Given a landscape plant, reproduce the process of wrapping a newly-planted tree with 100% accuracy.


OBJECTIVE: Based on class notes or other references, evaluate the importance of watering newly-installed plants with 95% accuracy.
TASK: 14. Describe the process of transplanting established plants.

PERFORMANCE
OBJECTIVE: Given pictures, slides or a landscape plant, diagram the process of transplanting established plants with 100% accuracy.

TASK: 15. Identify the two year process for transplanting established plants.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a landscape plant, devise a two year plan to transplant an established plant with 95% accuracy.

TASK: 16. Determine the methods for transplanting a tree or shrub.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a landscape plant, reconstruct the transplanting process for a tree or shrub with 100% accuracy.

DUTY C6. Identifying hard materials in the landscape.

TASK: 1. Describe common hard materials or structures used in the landscape.

PERFORMANCE
OBJECTIVE: Given examples of hard materials or structures, evaluate the functions of hard materials in the landscape with 95% accuracy.

TASK: 2. Identify the uses and types of grass pavers.

PERFORMANCE
OBJECTIVE: Given slides, pictures, or grass pavers, justify incorporating grass pavers into a landscape plan with 95% accuracy.

TASK: 3. Examine the uses of railroad ties in the landscape.

PERFORMANCE
OBJECTIVE: Given railroad ties or pressure-treated timbers, create a landscape plan to include railroad ties in the landscape plan with 95% accuracy.

TASK: 4. Determine the basic techniques for installing railroad ties.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or railroad ties, put in priority order the steps involved in installing railroad ties with 95% accuracy.
TASK: 5. Describe the functions of patios and decks in the landscape.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a landscape plan, justify the functions of patios and decks in the landscape with 95% accuracy.

TASK: 6. Analyze the functions of walkways in the landscape.

PERFORMANCE
OBJECTIVE: Given a landscape plan, assess the importance of walkways in the landscape with 95% accuracy.

TASK: 7. Examine the role of fences in the landscape.

PERFORMANCE
OBJECTIVE: Given a landscape plan, revise the plan to include a fence in the design with 95% accuracy.

TASK: 8. Analyze the uses of landscape edgings in the landscape.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a landscape plan, compare the uses of various landscape edgings in the landscape with 95% accuracy.

DUTY D1. Examining the methods of maintaining a landscape.

TASK: 1. Determine the proper procedures for watering landscape plants.

PERFORMANCE
OBJECTIVE: Given a landscape plant, recommend the proper procedures for watering the plant with 100% accuracy.

TASK: 2. Determine the techniques for staking, guying, and wrapping trees.

PERFORMANCE
OBJECTIVE: Given a newly-planted tree, reconstruct the procedure for staking, guying, and wrapping the tree with 100% accuracy.

TASK: 3. Apply the uses of mulches to landscaping.

PERFORMANCE
OBJECTIVE: Given pictures, slides, or a landscape plan, assess the uses of mulches in the landscape with 95% accuracy.
TASK: 4. Describe functions and characteristics of fertilizing woody trees and shrubs in the landscape.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, devise a schedule to fertilize trees and shrubs in the landscape with 95% accuracy.

TASK: 5. Examine the appropriate procedures for pruning woody plants.

PERFORMANCE
OBJECTIVE: Given a landscape plant, evaluate the pruning techniques true to type and form of the plant.

DUTY D2. Determining the environmental influences on plants.

TASK: 1. Determine the various climatic factors that influence plant growth.

PERFORMANCE
OBJECTIVE: Given a specific landscape, examine the impact of climate on plant growth with 95% accuracy.

TASK: 2. Describe how microclimates affect the landscape.
PERFORMANCE

OBJECTIVE: Given pictures, slides, or a landscape plan, analyze the effects of microclimates in the landscape with 95% accuracy.

TASK: 3. Analyze how "hardiness" affects plants.

PERFORMANCE

OBJECTIVE: Given a plant, devise an experiment to test the hardiness of various plants with 95% accuracy.

TASK: 4. Examine the environmental factors that affect plant growth.

PERFORMANCE

OBJECTIVE: Given a landscape plant, diagnose the environmental effects on plant growth with 95% accuracy.

TASK: 5. Determine how mature plant size affects plant spacing.

PERFORMANCE

OBJECTIVE: Given pictures, slides, or a landscape plan, revise a landscape plan to allow for proper plant spacing.

TASK: 6. Analyze the effects of the root zone environment on plants.

PERFORMANCE

OBJECTIVE: Given a plant, create an experiment to increase root zone hardiness in a plant with 90% accuracy.


PERFORMANCE

OBJECTIVE: Given a landscape, justify the inclusion of hard materials/structures in the landscape with 95% accuracy.

TASK: 8. Evaluate the design techniques for achieving a low maintenance landscape.

PERFORMANCE

OBJECTIVE: Based on class notes or other references, generate a landscape plan to achieve a minimum of maintenance.

DUTY D3. Developing a landscape maintenance schedule.
TASK: 1. Determine the criteria in developing a landscape maintenance schedule for a property.

PERFORMANCE
OBJECTIVE: Given a landscape, evaluate the tasks in maintaining a specific landscape with 95% accuracy.

TASK: 2. Analyze the tools needed for appropriate maintenance.

PERFORMANCE
OBJECTIVE: Given tools used in landscape maintenance, organize the tools by maintenance tasks with 100% accuracy.

TASK: 3. Examine the role of plants and materials in the development of a maintenance schedule.

PERFORMANCE
OBJECTIVE: Given a landscape, evaluate the functions of plants and materials in the landscape with 95% accuracy.

TASK: 4. Determine the maintenance levels for residential landscapes.

PERFORMANCE
OBJECTIVE: Given a landscape, assess the maintenance levels of plants and materials in the landscape to achieve a desired maintenance level.

DUTY D4. Developing a year-round maintenance schedule for a landscape.

TASK: 1. Organize collected data from a landscape to develop a year-round maintenance schedule.

PERFORMANCE
OBJECTIVE: Given collected maintenance data from a landscape site, classify the data by maintenance tasks with 95% accuracy.

TASK: 2. Determine the approximate time lengths for maintenance tasks.
PERFORMANCE
OBJECTIVE: Given maintenance tasks for a specific landscape, calculate the approximate time lengths for maintenance tasks with 100% accuracy.

TASK: 3. Organize landscape plants by their maintenance requirements.

PERFORMANCE
OBJECTIVE: Given a plant list and maintenance tasks, devise a year-round maintenance schedule for a landscape.

DUTY D5. Examining safety in the operation of power equipment used in landscape maintenance.

TASK: 1. Determine the uses of basic power equipment used in small maintenance operations.

PERFORMANCE
OBJECTIVE: Given examples of small power equipment, defend the uses of small power equipment with 90% accuracy.

TASK: 2. Examine the various types of small engines.

PERFORMANCE
OBJECTIVE: Given small power equipment, compare the various types of small engines with 90% accuracy.

TASK: 3. Determine the proper techniques for maintaining basic power equipment.

PERFORMANCE
OBJECTIVE: Given some small power equipment, assess the maintenance needs for that equipment with 95% accuracy.

TASK: 4. Describe the proper safety practices in operating small power equipment.

PERFORMANCE
OBJECTIVE: Given some small power equipment, evaluate the operating procedures for that equipment according to the manufacturer's directions.

DUTY E1. Examining career opportunities in ornamental horticulture.

TASK: 1. Examine the various occupations in landscape management.

PERFORMANCE
OBJECTIVE: Given a list of position descriptions in the landscape industry, assess the qualifications necessary for a specific job in ornamental horticulture with 95% accuracy.

TASK: 2. Examine the need for professionals in the landscape industry.

PERFORMANCE
OBJECTIVE: Based on class notes, justify the need for professionals in the landscape industry with 90% accuracy.

TASK: 3. Determine the educational requirements for a job in the landscape industry.

PERFORMANCE
OBJECTIVE: Given the educational requirements for jobs in the landscape industry, generate a resume to apply for a job in the landscape industry with 100% accuracy.

TASK: 4. Describe the tools used by professionals in the landscape design.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, evaluate the tools used by professionals in landscape design with 100% accuracy.

DUTY E2. Examining business start-up of a landscape maintenance firm.

TASK: 1. Examine the various duties of maintaining a landscape.

PERFORMANCE
OBJECTIVE: Using class notes or other references, compose a list of duties maintaining a landscape with 95% accuracy.

TASK: 2. Evaluate the personal requirements for starting a landscape maintenance business.

PERFORMANCE
OBJECTIVE: Given the business plans of a landscape maintenance firm, prioritize the personal requirements for working in the landscape maintenance business with 95% accuracy.

TASK: 3. Identify common "tools of the trade" used in maintaining landscapes.

PERFORMANCE
OBJECTIVE: Given a set of landscape tools, determine the "common tools of the trade" used in landscape maintenance with 95% accuracy.
TASK: 4. Analyze the relationship between landscape design and landscape maintenance.

DUTY E3. Applying personal communication skills in employee and customer relations.

TASK: 1. Analyze the need for effective communication skills in horticulture.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, justify the methods for maintaining customer satisfaction according to business policy.

TASK: 2. Determine the standards for handling customers in a retail business.

PERFORMANCE
OBJECTIVE: Given a business policy, evaluate the standards for handling customers in a retail business with 95% accuracy.

TASK: 3. Evaluate the standards for handling customer complaints.

PERFORMANCE
OBJECTIVE: Given a business policy, justify the process of handling customer complaints to achieve maximum customer satisfaction.

TASK: 4. Describe the methods for maintaining customer satisfaction.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, justify the methods for maintaining customer satisfaction according to business policy.

DUTY E4. Applying courtesy procedures in answering the telephone.

TASK: 1. Determine the basic considerations in addressing customers on phone.

PERFORMANCE
OBJECTIVE: Based on a list of customer considerations, examine the basic considerations essential to telephone and customer satisfaction.

TASK: 2. Evaluate the influence of speech habits on telephone voice tones.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, evaluate the responses to speech habits on the telephone with 95% accuracy.
TASK: 3. Evaluate professional phrasing used on the telephone.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, devise a professional phrase when answering the telephone to insure effectiveness and efficiency.

TASK: 4. Examine the importance of good telephone etiquette.

PERFORMANCE
OBJECTIVE: Given several inquiries and answers, appraise customer satisfaction relative to proper telephone etiquette.

DUTY E5. Selling landscape plans to potential clients.

TASK: 1. Determine the appropriate procedures for presenting a landscape design to a potential client.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, put in priority order the sales steps of presenting a landscape plan to a client to make a successful sale.

TASK: 2. Analyze the strategies for a successful sale.

PERFORMANCE
OBJECTIVE: Given a landscape plan, justify a sales strategy in making a successful sale.

TASK: 3. Summarize the methods for presenting a landscape design to a potential client.

PERFORMANCE
OBJECTIVE: Using a sales strategy, summarize the methods for presenting a landscape plan to a potential client and making a successful sale.
DUTY E6. Calculating costs for the installation of a landscape project.

**TASK:** 1. Organize the costs needed to estimate a proposed landscape design and maintenance schedule.

**PERFORMANCE**

**OBJECTIVE:** Given a cost estimate for a landscape design, specify the costs needed to estimate a maintenance schedule with 95% accuracy.

**TASK:** 2. Examine the procedures in calculating a cost estimate.

**PERFORMANCE**

**OBJECTIVE:** Given installation costs of a landscape, correctly calculate a cost estimate.

**TASK:** 3. Prepare a cost estimate for a proposed landscape design and maintenance project.

**PERFORMANCE**

**OBJECTIVE:** Using class notes or other references, construct a cost estimate for a proposed landscape design and maintenance project with 100% accuracy.

DUTY E7. Composing a landscape bid and estimate.

**TASK:** 1. Determine the procedures for preparing a landscape estimate and bid.

**PERFORMANCE**

**OBJECTIVE:** Based on class notes or other references, evaluate the criteria for constructing a landscape estimate and bid with 100% accuracy.

**TASK:** 2. Analyze the items to be included in a landscape bid.

**PERFORMANCE**

**OBJECTIVE:** Given a landscape bid, justify the order of items in the estimate with 95% accuracy.

**TASK:** 3. Organize the estimate into a written landscape bid.
PERFORMANCE
OBJECTIVE: Given the installation costs, compose a landscape bid with 100% accuracy.

TASK: 4. Prepare a complete proposal for a landscape installation or maintenance project for a client.

PERFORMANCE
OBJECTIVE: Based on a landscape design and site information, complete a proposal for installing a landscape according to specifications stated in the landscape plan.
Natural Resources Management

DUTY A. Investigating career opportunities and requirements in natural resources management.

TASK: 1. Examine career opportunities.

PERFORMANCE
OBJECTIVE: Given a list of job titles in natural resource management, analyze them for their responsibilities and duties with 80% accuracy.

TASK: 2. Identify post-high school educational institutions offering natural resource courses.

PERFORMANCE
OBJECTIVE: Given a list of post-high school educational institutions, find out the ones that provide courses in natural resources with 90% accuracy.

DUTY B. Analyzing the historical and regional perspective of the forest industry and forest policy in Indiana and the United States.

TASK: 1. Identify major forest areas in the United States.

PERFORMANCE
OBJECTIVE: Given a map of the United States, draw the major forest areas with 85% accuracy.

TASK: 2. Indicate the major marketable species of each of the major forest areas.

PERFORMANCE
OBJECTIVE: Given a list of forest species, distinguish the major marketable species of each forest area with 85% accuracy.

TASK: 3. Identify major marketable timber species in Indiana.

PERFORMANCE
OBJECTIVE: Given a list of marketable timber species, find out which ones are major marketable timber species in Indiana and identify the primary and secondary wood products with 85% accuracy.

TASK: 4. Organize historic trends of land use and forest changes in Indiana leading to current forested acreage.
PERFORMANCE
OBJECTIVE: Given the history of land use in Indiana, categorize the trends of land use and forest changes leading to the current forest acreage with 90% accuracy.

TASK: 5. Evaluate the economic impact and cultural practices used in the production of Christmas trees.

PERFORMANCE
OBJECTIVE: Given information about the production of Christmas trees, evaluate the economic impact and cultural practices used with 80% accuracy.

TASK: 6. Evaluate the economic impact and cultural practices used in the production of maple syrup.

PERFORMANCE
OBJECTIVE: Given information about the production of maple syrup, assess the economic impact and cultural practices used with 80% accuracy.

TASK: 7. Evaluate the economic impact and cultural practices used in the production of orchards.

PERFORMANCE
OBJECTIVE: Given the information on orchards, evaluate them on the economic impact and cultural practices used with 80% accuracy.

TASK: 8. Evaluate landscape nurseries on the economic impact and cultural practices used.

PERFORMANCE
OBJECTIVE: Given information on landscape nurseries, assess them on the economic impact and cultural practices used with 80% accuracy.

TASK: 9. Identify Indiana hardwoods that are highly valued firewood.

PERFORMANCE
OBJECTIVE: Given a list of hardwoods that are grown in Indiana, determine the ones that are highly valued firewood with 90% accuracy.

DUTY C. Evaluating how forest plants provide watershed protection, recreational opportunities, domestic needs, and food and cover for wildlife.

TASK: 1. Indicate the forest components that relate to the needs of wildlife.

PERFORMANCE
OBJECTIVE: Given a list of the forest components, determine the ones that relate to the needs of wildlife with 85% accuracy.
TASK: 2. List recreational uses of the forest and forest plants.

PERFORMANCE
OBJECTIVE: Using information from class discussion, identify the recreational uses of the forest and forest plants with 80% accuracy.

TASK: 3. Analyze the relationship between forest conditions and water quality.

PERFORMANCE
OBJECTIVE: Given the information, write a paragraph stating the relationship between forest conditions and water quality with 85% accuracy.

TASK: 4. Examine products that originate from Indiana forests.

PERFORMANCE
OBJECTIVE: Given a list of forest products, examine the ones that originate from Indiana forests with 90% accuracy.

TASK: 5. Describe urban forestry and the significance of urban trees to human communities.

PERFORMANCE
OBJECTIVE: Given the information, examine urban forestry and the significance of urban trees to human communities with 90% accuracy.

DUTY D. Determining the factors which influence the growth, vigor, and occurrence of forest species and the methods of classifying trees.

TASK: 1. Determine the difference between biotic and abiotic site factors.
OBJECTIVE: Given a dictionary, differentiate between biotic and abiotic site factors with 90% accuracy.

TASK: 2. Evaluate how annual precipitation, seasonal temperature fluctuation, and soil site index influence plant growth.

OBJECTIVE: Given an experiment, assess how annual precipitation, seasonal temperature fluctuation, and soil site index influence plant growth with 90% accuracy.

TASK: 3. Identify dominant and suppressed trees.

OBJECTIVE: Given a forest situation, evaluate the dominant and suppressed trees and choose the ones that have release potential with 90% accuracy.

TASK: 4. Analyze a site for simple successional changes.

OBJECTIVE: Given a site in the community, analyze it for simple successional changes with 90% accuracy.

TASK: 5. List the major forest types in Indiana.

OBJECTIVE: Given the major forest types in Indiana, explain the different types with 80% accuracy.

TASK: 6. Find the definitions for silviculture and dendrology.

OBJECTIVE: Given a dictionary, determine the definitions for silviculture and dendrology with 80% accuracy.

TASK: 7. Diagram correct tree planting techniques.

OBJECTIVE: Given a tree and other materials, demonstrate the correct tree planting techniques with 90% accuracy.

TASK: 8. Describe the functions of external and internal tree parts.
PERFORMANCE
OBJECTIVE: Given a picture or a living tree, evaluate the parts by identification and functions of each part with 90% accuracy.

TASK: 9. Use a key to identify trees and shrubs.

PERFORMANCE
OBJECTIVE: Given trees or shrubs to identify, demonstrate your ability to use a key with 90% accuracy.

TASK: 10. Determine the difference between angiosperm and gymnosperm.

PERFORMANCE
OBJECTIVE: Given the information, compare angiosperm and gymnosperm with 80% accuracy.

TASK: 11. Identify common trees native to Indiana.

PERFORMANCE
OBJECTIVE: Given leaves, seeds, or wood, determine the common trees native to Indiana with 90% accuracy.

TASK: 12. Identify common forest insects and diseases.

PERFORMANCE
OBJECTIVE: Given pictures of forest insects and diseases, identify them with 90% accuracy.

TASK: 13. Evaluate the damage that insects and diseases can cause and the methods of prevention and treatment.

PERFORMANCE
OBJECTIVE: Given trees with insect or disease damage, evaluate this damage and suggest methods of prevention or treatment for this damage with 90% accuracy.

TASK: 14. Examine the historical impact of major insect or disease occurrences in Indiana and the Eastern U.S.

PERFORMANCE
OBJECTIVE: Given the history of forests in Indiana and Eastern U.S., evaluate the impact of major insect or disease occurrences with 80% accuracy.

TASK: 15. Describe current genetic research done with trees.
OBJECTIVE: Given the information, analyze the genetic research currently being done with trees with 80% accuracy.

DUTY E. Evaluating the methods used in timberstand improvement, timber harvesting, and forest management for multiple use.

TASK: 1. Indicate the definition for timberstand improvement, sustained yield, and multiple use forest management.

OBJECTIVE: Given the information, define the terms timberstand improvement, sustained yield, and multiple use forest management with 90% accuracy.

TASK: 2. List the components considered in multiple use land management.

OBJECTIVE: Given a site considered to be using multiple use land management, determine the components of that site with 90% accuracy.

TASK: 3. Determine proper selection, marking, and measurement for harvest of trees.

OBJECTIVE: Given a woodlot area, evaluate it for the harvest of trees with 90% accuracy.

TASK: 4. Determine the volume of a log.

OBJECTIVE: Given a log and the materials, find out the volume of that log with 90% accuracy.

TASK: 5. Evaluate features that are important in the identification of lumber.
OBJECTIVE: Given a piece of wood, assess the features that are important in the identification of lumber including defects that affect lumber quality.

DUTY F. Identify forest tools, proper use, and maintenance.

TASK: 1. Examine the use of major forestry tools.

OBJECTIVE: Given the major forestry tools, describe the use of these tools including safety precautions with 85% accuracy.

TASK: 2. Perform maintenance operations of the major forestry tools.

OBJECTIVE: Given major forestry tools, demonstrate maintenance operations on these tools with 85% accuracy.

TASK: 3. Calculate proper oil/fuel mixture for a chain saw.

OBJECTIVE: Given a chain saw, compute the proper oil/fuel mixture with 100% accuracy.

TASK: 4. Operate a chain saw.

OBJECTIVE: Given a chain saw, demonstrate the proper use with 90% accuracy.

DUTY G. Exhibiting communication skills which are important for natural resource managers.

TASK: 1. Examine the need for communication skills in the natural resources professions.

OBJECTIVE: Given the information, analyze the need for communication skills by professionals in the natural resources employment with 80% accuracy.

TASK: 2. Describe the important features of a descriptive, interpretive and persuasive presentation.
OBJECTIVE: After seeing a descriptive, interpretive and persuasive presentation, compare the important features of the presentation with 85% accuracy.

TASK: 3. Present an introduction.

PERFORMANCE OBJECTIVE: Given the information on the proper introduction techniques, create an introduction for a given situation with 90% accuracy.


PERFORMANCE OBJECTIVE: Given a situation, compare an oral presentation with 90% accuracy.

TASK: 5. Write a presentation.

PERFORMANCE OBJECTIVE: Given a natural resource topic, write a presentation with 90% accuracy.

DUTY H. Analyzing interrelated aspects of the environment in proposing resource management practices.

TASK: 1. Determine the meaning of ecology.

PERFORMANCE OBJECTIVE: Given the information from the class, write the definition of ecology in your own words with 90% accuracy.

TASK: 2. Give examples of environmental conservation, preservation, exploitation, and stewardship.

PERFORMANCE OBJECTIVE: Given the definition of environmental conservation, preservation, exploitation and stewardship, create a list of examples for each of them with 80% accuracy.

TASK: 3. Design an example of biotic succession.
PERFORMANCE
OBJECTIVE: Given information on biotic succession, produce an example of biotic succession with 85% accuracy.

TASK: 4. Analyze a basic food chain.

PERFORMANCE
OBJECTIVE: Given a list of plants and animals in an ecosystem, construct the food chain with 90% accuracy.

TASK: 5. Evaluate an instance where people have altered the local and/or global balance of nature.

PERFORMANCE
OBJECTIVE: Given an example of local and/or global balance of nature, assess how people have altered the balance of nature with 85% accuracy.

TASK: 6. Give an example of how ecological succession can be altered so it will remain at a secondary stage rather than advancing to the climax stage.

PERFORMANCE
OBJECTIVE: Given a situation, evaluate how ecological succession can be altered so it will remain at a secondary stage and how this action will affect production with 80% accuracy.

TASK: 7. Identify agencies with environmental management responsibilities.

PERFORMANCE
OBJECTIVE: Given a list of county, state, and federal agencies, describe their environmental management responsibilities with 80% accuracy.

DUTY I. Evaluating problems confronting human life as the amounts of non-renewable natural resources are depleted and the area for production of renewable natural resources becomes limited.

TASK: 1. Give examples of renewable and non-renewable resources.

PERFORMANCE
OBJECTIVE: Using the definition of renewable and non-renewable resources, give examples of renewable and non-renewable resources with 90% accuracy.

TASK: 2. Evaluate the effects of population growth on the environment.

PERFORMANCE
OBJECTIVE: Given a list of effects of population growth on the environment, choose one and support both sides of the issue with 90% accuracy.
TASK: 3. Examine problems relating to resource management.

PERFORMANCE
OBJECTIVE: Given local population shifts, analyze problems relating to resource management with 80% accuracy.

TASK: 4. Indicate future needs and uses of energy.

PERFORMANCE
OBJECTIVE: Given the past trends of energy use, predict the future needs and uses of energy with 85% accuracy.

TASK: 5. Describe how energy conservation practices could be implemented.

PERFORMANCE
OBJECTIVE: Given the information, determine how conservation practices could be implemented with 85% accuracy.

TASK: 6. Determine positive and negative features of different types of energy.

PERFORMANCE
OBJECTIVE: Given a list of different types of energy, compare the types of energy with 85% accuracy.

TASK: 7. Identify how the features of different types of energy affect policy making of natural resources.

PERFORMANCE
OBJECTIVE: Given different sources of energy, assess how they affect policy making of natural resources with 85% accuracy.

DUTY J. Analyzing soil conservation practices.

TASK: 1. Give the definition of soil conservation.

PERFORMANCE
OBJECTIVE: Given class discussion, explain soil erosion with 90% accuracy.

TASK: 2. Describe major factors causing soil erosion.

PERFORMANCE
OBJECTIVE: Given the materials, design an experiment showing the major factors causing soil erosion with 85% accuracy.
TASK: 3. Identify consequences of uncontrolled erosion.

PERFORMANCE
OBJECTIVE: Given class discussion and library materials, write a paper evaluating the consequences of uncontrolled erosion with 90% accuracy.

DUTY K. Evaluating the effects of air pollutants and methods of control.

TASK: 1. Identify the characteristics of air pollutants.

PERFORMANCE
OBJECTIVE: Given a list of air pollutants, examine the characteristics of them with 80% accuracy.

TASK: 2. Determine local sources of air pollutants.

PERFORMANCE
OBJECTIVE: Using information that was obtained from the community, determine the sources of air pollutants in the community with 90% accuracy.

TASK: 3. Perform air monitoring techniques.

PERFORMANCE
OBJECTIVE: Given the materials, create a way to perform air monitoring technique with 90% accuracy.

TASK: 4. Identify the laws and regulations enacted to control air pollution.

PERFORMANCE
OBJECTIVE: Given a book on laws and regulations, explain the ones enacted to control air pollution with 90% accuracy.

TASK: 5. Analyze air pollution control methods.

PERFORMANCE
OBJECTIVE: Given a list of pollution control methods, evaluate them with 90% accuracy.

DUTY L. Evaluating the importance of water and management practices related to water resources.

TASK: 1. Describe the following terms: aquifer, evaporation, surface water, ground water, flood plain, water table, and watershed.
OBJECTIVE: Given class notes, examine the following terms related to water and its resources: aquifer, evaporation, surface water, ground water, flood plain, water table, and watershed.

TASK: 2. Evaluate the hydrologic cycle.

OBJECTIVE: Given an experiment showing the hydrologic cycle, evaluate the hydrologic cycle with 90% accuracy.

TASK: 3. Identify the distribution of the world's water supply and what percentage is usable.

OBJECTIVE: Given a map and information, examine the distribution of water in the world and where the usable water is located with 80% accuracy.

TASK: 4. Indicate the major uses of water in Indiana and other parts of the country.

OBJECTIVE: Given class notes, examine the major uses of water in Indiana and other parts of the country with 80% accuracy.

TASK: 5. Determine the major watersheds in Indiana.

OBJECTIVE: Given a map of Indiana, diagram the major watersheds with 80% accuracy.

TASK: 6. Analyze the properties of surface water and ground water and how contaminates move and react in them.

OBJECTIVE: Given a demonstration model, evaluate the properties of surface water and ground water and how contaminates react in them with 85% accuracy.

TASK: 7. Determine the differences of point and non-point source pollution.

OBJECTIVE: Given the definition of point and non-point source pollution, compare them with 90% accuracy.
TASK: 8. Set up a demonstration model to show techniques used to determine water quality.

PERFORMANCE
OBJECTIVE: Given the materials, choose a demonstration model to set up and explain the technique used to determine water quality with 90% accuracy.

TASK: 9. Describe techniques used to reclaim waste water.

PERFORMANCE
OBJECTIVE: Given a type of waste water, evaluate techniques used to reclaim that type of waste water with 85% accuracy.

TASK: 10. Diagram how a septic system works.

PERFORMANCE
OBJECTIVE: Given a model or drawing of a septic system, analyze how it works with 80% accuracy.

TASK: 11. Examine the management of waste water.

PERFORMANCE
OBJECTIVE: Given class notes and discussion, evaluate the management of waste water with 90% accuracy.

DUTY M. Examining hazardous materials.

TASK: 1. Analyze handling, storage, and disposal procedures for different types of hazardous materials.

PERFORMANCE
OBJECTIVE: Given a hazardous material, examine the handling, storage and disposal procedure for that hazardous material with 90% accuracy.

TASK: 2. Evaluate government regulations concerning hazardous materials.

PERFORMANCE
OBJECTIVE: Given the governmental regulations on hazardous materials, assess these regulations with 90% accuracy.

DUTY N. Identifying common species of fur-bearing wildlife of Indiana and recommending wildlife management practices.
TASK: 1. Describe the life cycles of fur-bearing animals indigenous to Indiana.

PERFORMANCE
OBJECTIVE: Given an example of a fur-bearing animal in Indiana, evaluate the life cycle of that animal with 90% accuracy.

TASK: 2. Give the definition of wildlife management, habitat, native wildlife, exotic species, and migration.

PERFORMANCE
OBJECTIVE: Given a piece of paper, write the definition of the following words with 85% accuracy: wildlife management, habitat, native wildlife, exotic species, and migration.

TASK: 3. Indicate the concepts of edge, biodiversity, habitat, food chain, and niche.

PERFORMANCE
OBJECTIVE: Given an ecosystem, give an example of the following concepts: edge, biodiversity, habitat, food chain, and niche with 85% accuracy.

TASK: 4. Examine the impact of agriculture on populations and identify methods to improve wildlife habitat.

PERFORMANCE
OBJECTIVE: Using your knowledge of agriculture and wildlife, evaluate the impact of agriculture on populations and methods to improve wildlife habitat with 90% accuracy.

TASK: 5. Describe how reproduction and mortality affect the population curve.

PERFORMANCE
OBJECTIVE: Given a specific species in an ecosystem, decide how reproduction and mortality of that animal affect the population curve with 90% accuracy.


PERFORMANCE
OBJECTIVE: Given the hunting and fishing regulations, evaluate them and include the scientific basis for the restrictions with 85% accuracy.

DUTY O. Assessing the importance of predators and endangered species, and the roles each plays in the natural community.
TASK: 1. Give examples of endangered species, predators, and threatened species.

PERFORMANCE
OBJECTIVE: Using information from class discussion, create a list of endangered species, predators, and threatened species with 90% accuracy.

TASK: 2. Examine possible causes of extinction.

PERFORMANCE
OBJECTIVE: Given an example of extinction, justify a possible cause of that extinction with 80% accuracy.

TASK: 3. Analyze management strategies that have repopulated endangered and threatened species.

PERFORMANCE
OBJECTIVE: Given a management strategy that has repopulated endangered and threatened species, evaluate that strategy with 90% accuracy.

DUTY P. Analyzing the characteristics and management of waterfowl.

TASK: 1. Identify the definition of drake, duck, hen, gander, goose, gosling, dabbing (puddle) duck, and diving duck.

PERFORMANCE
OBJECTIVE: Given a dictionary, explain drake, duck, hen, gander, goose, gosling, dabbing (puddle) duck and diving duck with 90% accuracy.

TASK: 2. Describe the characteristics of waterfowl.

PERFORMANCE
OBJECTIVE: By using information obtained from the observation of waterfowl, write a paper evaluating the characteristics of waterfowl with 85% accuracy.

TASK: 3. Evaluate waterfowl management and the purpose of it.

PERFORMANCE
OBJECTIVE: Given a situation, choose the best waterfowl management technique and defend your answer including the purpose of this type of management with 90% accuracy.

TASK: 4. Identify the major flyways in North America and reasons for waterfowl migration.
OBJECTIVE: Given a book on waterfowl migration, analyze the major flyways with 85% accuracy.

TASK: 5. Examine the characteristics of species of waterfowl that migrate and the species that winter in Indiana.

OBJECTIVE: Given live waterfowl or models, distinguish the differences in the species of waterfowl that migrate and the species that winter in Indiana with 80% accuracy.

DUTY Q. Analyzing the characteristics and management of Indiana fish.

TASK: 1. Determine the place of fish in the food chain.

OBJECTIVE: Given a list of animals, create a food chain including the fish with 85% accuracy.

TASK: 2. Draw the physical characteristics used to identify fish species.

OBJECTIVE: Given information on the physical characteristics used to identify fish species and the materials, construct a model for a species of fish with 90% accuracy.

TASK: 3. Identify fish species propagated in Indiana hatcheries.

OBJECTIVE: Given a list of fish species, select the ones propagated in Indiana hatcheries with 90% accuracy.

TASK: 4. Explain the proper role of stocking and managing fishery resources.

OBJECTIVE: Given a sample of a fishery, evaluate the role of stocking and management practices with 80% accuracy.

TASK: 5. Identify the habitat requirements and life cycles of representative warm water and cold water fishes.

OBJECTIVE: Given a species of warm water and cold water fishes, evaluate the habitat and life cycles of each with 85% accuracy.
TASK: 6. Evaluate the economic and recreational values of Indiana's fishery resources.

PERFORMANCE
OBJECTIVE: Given the information, evaluate the economic and recreational values of Indiana's fishery resources with 80% accuracy.

TASK: 7. Indicate the management practices used to raise fish in ponds or hatcheries.

PERFORMANCE
OBJECTIVE: Given a pond or hatchery, evaluate it for the management practices with 85% accuracy.

DUTY R. Demonstrating the ability to use and care for surveying equipment, and the ability to use maps.

TASK: 1. List applications of surveying in natural resource management.

PERFORMANCE
OBJECTIVE: Given the information, describe the applications of surveying in natural resource management with 80% accuracy.

TASK: 2. Set up and maintain a complete field notebook.

PERFORMANCE
OBJECTIVE: Given a notebook and information, construct and maintain a complete field notebook with 90% accuracy.

TASK: 3. Set up and adjust a level.

PERFORMANCE
OBJECTIVE: Given a level, demonstrate how to set up and adjust it with 90% accuracy.

TASK: 4. Take a reading on a rod.

PERFORMANCE
OBJECTIVE: Given a rod, show how to take a reading with 90% accuracy.

TASK: 5. Use a theodolite to determine angles and distances.

PERFORMANCE
OBJECTIVE: Given a theodolite and other materials needed, determine angles and distances for an area with 90% accuracy.

TASK: 6. Determine within third order precision the difference in elevation between two points.

PERFORMANCE
OBJECTIVE: Using single wire leveling, examine the difference in elevation between two points with 90% accuracy.

TASK: 7. Find a field location and perform basic land measurements.

PERFORMANCE
OBJECTIVE: Given a specific field location and materials needed, find the location with a compass and map and determine basic land measurements with 95% accuracy.

TASK: 8. Determine the relationship between azimuth and bearings.

PERFORMANCE
OBJECTIVE: Given information from class discussion, compare azimuth and bearings with 90% accuracy.

TASK: 9. Locate a point on a map with azimuths and distances.

PERFORMANCE
OBJECTIVE: Given a map and a specific point, determine a specific point with azimuths and distances with 100% accuracy.

TASK: 10. Analyze the Federal System of Rectangular Surveys.

PERFORMANCE
OBJECTIVE: Given a location, evaluate it using the Federal System of Rectangular Surveys with 100% accuracy.

TASK: 11. Interpret a topographic map; convert map distance to ground distance.

PERFORMANCE
OBJECTIVE: Given a topographic map, demonstrate how to interpret the map and convert map distance to ground distance with 90% accuracy.

TASK: 12. Explain the difference between astronomic north and magnetic north.
PERFORMANCE
OBJECTIVE: Given the information, compare astronomic north and magnetic north with 90% accuracy.

TASK: 13. Explain how Indiana state boundaries and section boundaries were established.

PERFORMANCE
OBJECTIVE: Given a map and information, evaluate how Indiana state boundaries and section boundaries were established with 90% accuracy.

DUTY S. Examining general aspects of recreational area management and associated employment opportunities.

TASK: 1. Identify the positive features of a recreational area.

PERFORMANCE
OBJECTIVE: Given a recreational area, determine the positive features with 90% accuracy.

TASK: 2. Describe the differences between the four recreational area types and uses.

PERFORMANCE
OBJECTIVE: Given the four types of recreational areas, compare them and include the uses of each with 80% accuracy.

TASK: 3. Evaluate career opportunities in the national and state park system.

PERFORMANCE
OBJECTIVE: After discussion of the national and state park system, evaluate the career opportunities there with 90% accuracy.

TASK: 4. Analyze user controls and law enforcement in recreational areas.

PERFORMANCE
OBJECTIVE: Given a piece of paper, write a paper evaluating user controls and law enforcement in recreational areas with 80% accuracy.

TASK: 5. Identify environmental consequences which may result from inappropriate use of off-road recreational vehicles.

PERFORMANCE
OBJECTIVE: Given a situation, examine environmental consequences which may result from inappropriate use of off-road recreational vehicles with 90% accuracy.

TASK: 6. Identify navigational markers.

PERFORMANCE

OBJECTIVE: Given a navigational marker, specify the meaning of it with 90% accuracy.

TASK: 7. Describe the "Rules of the Waterway."

PERFORMANCE


TASK: 8. Determine the practical and educational prerequisites for occupations related to water recreation management.
PERFORMANCE
OBJECTIVE: Given a list of occupations related to water recreation management, examine the practical and educational prerequisites with 85% accuracy.

DUTY T. Exhibiting safety procedures and being prepared to handle minor emergency situations that may arise in an outdoor location.

TASK: 1. Explain general safety procedures to be followed when dealing with groups.

PERFORMANCE
OBJECTIVE: Given a scenario, examine general safety procedures to be followed when dealing with groups with 90% accuracy.

TASK: 2. Apply skills obtained to build a fire, extinguish a fire, and eliminate all traces of the fire.

PERFORMANCE
OBJECTIVE: Given the materials, demonstrate the ability to build a fire, extinguish a fire, and eliminate all traces of the fire with 80% accuracy.

TASK: 3. Describe the procedure to be taken when attempting a water rescue.

PERFORMANCE
OBJECTIVE: Given a situation requiring a water rescue, explain the procedure to be taken to attempt that rescue with 100% accuracy.

TASK: 4. Explain how to avoid and give emergency care for shock, venomous bites or stings, broken bones, hypothermia, and hyperthermia.

PERFORMANCE
OBJECTIVE: Given the information, demonstrate how to avoid and give emergency care for shock, venomous bites or stings, broken bones, hypothermia, and hyperthermia with 100% accuracy.

TASK: 5. Describe the proper clothing and appropriate behavior for protection from rain, snow, and extreme heat and cold.

PERFORMANCE
OBJECTIVE: Given a situation for outdoor travel, decide the proper clothing and appropriate behavior for protection from rain, snow, and extreme heat and cold with 100% accuracy.

TASK: 6. Select the safest camping site protected from the elements.
PERFORMANCE
OBJECTIVE: Given a camping situation, choose a safe camping site protected from the elements with 100% accuracy.

DUTY U. Examining the basic components of weather systems and their effects on resource management and rural recreation.

TASK: 1. Determine the difference between weather and climate.

PERFORMANCE
OBJECTIVE: Given a piece of paper, write the definitions of weather and climate with 90% accuracy.

TASK: 2. Describe how to read a barometer, anemometer, maximum/minimum thermometer, rain gage, and hygrometer.

PERFORMANCE
OBJECTIVE: Given a barometer, anemometer, maximum/minimum thermometer, rain gage, and hygrometer, demonstrate how to read the equipment given with 100% accuracy.

TASK: 3. Explain the importance of relative humidity in resource management.

PERFORMANCE
OBJECTIVE: Using information from class discussion, examine the importance of relative humidity in resource management with 90% accuracy.

TASK: 4. Analyze the role the jet stream plays in determining the weather pattern.

PERFORMANCE
OBJECTIVE: Given weather maps from the past week, evaluate the role the jet stream played in determining the weather with 80% accuracy.

TASK: 5. Examine the effect that low pressure, high pressure, warm fronts, and cold fronts have on weather conditions.

PERFORMANCE
OBJECTIVE: Given weather maps from the past week, assess the effect that low pressure, high pressure, warm fronts, and cold fronts have on weather conditions with 80% accuracy.
Plant and Soil Science

DUTY A. Examining career opportunities in and the importance of plant and soil science.

TASK: 1. Analyze the interrelationship of careers in plant and soil science and the environment as a whole.

PERFORMANCE
OBJECTIVE: Given a list of careers, analyze the interrelationships of the careers in plant and soil science and the environment as a whole with 80% accuracy.

TASK: 2. Examine the economic importance of plant and soil science.

PERFORMANCE
OBJECTIVE: Given the economic background of an area, evaluate the economic importance of plant and soil science with 90% accuracy.

TASK: 3. Correct previously developed mental models about career opportunities.

PERFORMANCE
OBJECTIVE: Based upon newly acquired information, examine previously developed mental models with 80% accuracy.

DUTY B-1. Using the basic principles of the taxonomic key.

TASK: 1. Analyze the "system of classification".

PERFORMANCE
OBJECTIVE: Using the "system of classification" developed by Carolus Linnaeus, assess it for clarity and specificity with 80% accuracy.

TASK: 2. Apply taxonomy to its use in the study of plants.

PERFORMANCE
OBJECTIVE: Given a taxonomy key, classify at least five plants with 100% accuracy.

TASK: 3. Order the following terms of plant classification: kingdom, division, class, order, family, genus, species and variety.
PERFORMANCE
OBJECTIVE: Given a list of terms of plant classification, put them in order with 100% accuracy.

TASK: 4. Construct a unique classification system for plants.

PERFORMANCE
OBJECTIVE: After constructing a classification system, justify the reasons for your classification system with 80% accuracy.

TASK: 5. Contrast botanical varieties with cultivars.

PERFORMANCE
OBJECTIVE: Given a certain number of plants, categorize them by botanical varieties and cultivars with 90% accuracy.

TASK: 6. Justify the current use of the modern system of plant classification.

PERFORMANCE
OBJECTIVE: Given the modern system of plant classification, justify its use with 80% accuracy.

TASK: 7. Determine the origin of a scientific plant name.

PERFORMANCE
OBJECTIVE: Given a scientific plant name, explain the origin with 80% accuracy.

TASK: 8. Evaluate the significance of the first and second word of the plant name.

PERFORMANCE
OBJECTIVE: Given a scientific plant name, analyze the first and second word of the plant name with 90% accuracy.

DUTY B-2. Examining characteristics in a taxonomic key.

TASK: 1. Describe criteria for distinguishing characteristics of the plant kingdom from the animal, fungi, protist and monera kingdoms.

PERFORMANCE
OBJECTIVE: Using examples from each kingdom and class notes, contrast the plant kingdom from other kingdoms with 90% accuracy.
TASK: 2. Classify agriculture plants by their category of morphology, physiology, or use.

PERFORMANCE
OBJECTIVE: Given five plants, choose the appropriate class for all of the given agriculture plants.

TASK: 3. Classify plants according to their five major parts.

PERFORMANCE
OBJECTIVE: Using unidentified plants and taxonomic key, classify three plants according to their five major parts with 95% accuracy.

TASK: 4. Analyze the four types of leaf arrangements on a stem.

PERFORMANCE
OBJECTIVE: Using live plant materials, diagram the four types of leaf arrangements including three plants that fit each example with 100% accuracy.

TASK: 5. Determine the implications for cultivating plants based upon their classification by growth habits.

PERFORMANCE
OBJECTIVE: Given an example of a plant representing each growth habit, design a "culture card" for each plant with 90% accuracy.

TASK: 6. Examine the germination process of monocotyledons and dicotyledons.

PERFORMANCE
OBJECTIVE: Given examples of monocots and dicots in different stages of the germination process, contrast the structures and germination process of monocotyledons and dicotyledons by diagraming the structures of each as they grow with 90% accuracy.

TASK: 7. Identify common crop and weed plants and their seeds.

PERFORMANCE
OBJECTIVE: Given live plant materials, seeds, and a taxonomic key, assign scientific names to ten common crop plants, weeds, and their seeds with 90% accuracy.

TASK: 8. Explain the difference between noxious and semi-noxious weeds.

PERFORMANCE
OBJECTIVE: Using live plant materials and other reference materials, classify each plant as noxious or semi-noxious and explain cultural controls for each.

TASK: 9. Develop a plan for improving plant species based on their characteristics (e.g. leaves, seeds, roots).

PERFORMANCE OBJECTIVE: Given an example of one plant species, evaluate the characteristics that are desirable and develop a plan based on these characteristics.

DUTY C-1. Exploring plant cell parts and functions.

TASK: 1. Identify the parts of a plant cell.

PERFORMANCE OBJECTIVE: Given reference materials, diagram a plant cell and explain the function of each component.

TASK: 2. Describe the process of mitosis in plants.

PERFORMANCE OBJECTIVE: Using reference materials, evaluate the purpose and products of mitosis and where it occurs in the plant.

TASK 3. Describe the process of meiosis in plants.

PERFORMANCE OBJECTIVE: Using reference materials, evaluate the purpose and products of meiosis and where it occurs in the plant.

TASK: 4. Determine what differentiates a plant cell from an animal cell.

PERFORMANCE OBJECTIVE: Given pictures of plant and animal cells, develop a rationale for the purpose of the three major differences with 90% accuracy.

TASK: 5. Identify the sequence of events in the mitosis of plant cells.
OBJECTIVE: Using prepared slides of mitosis in plants, classify all of the stages of mitosis.

TASK: 6. Relate meiosis to the prediction of variation of characteristics in offspring.

OBJECTIVE: Using the genetic chart of a specific plant, diagram the products of meiosis and predict the characteristics of the offspring with 90% accuracy.


OBJECTIVE: Using Wisconsin Fast Plants, design an experiment to illustrate Mendel's laws of segregation and independent assortment; predict and diagram the results with 90% accuracy.

DUTY C-2. Exploring plant parts and their functions.

TASK 1. Examine the functions of the four primary plant structures.

OBJECTIVE: Given two plants, categorize nine or ten plant structures.

TASK: 2. Explain the importance of meristematic tissue in growth and physiology relative to reproduction.

OBJECTIVE: Using prepared slides of meristematic tissue of a specific plant, justify the role of the meristem in reproduction to a 90% accuracy level.

TASK: 3. Compare specialized roots, stems, and leaves.

OBJECTIVE: Given preserved or live examples of various plant organs, categorize those nine of ten organs by specialized roots, stems, and leaves.

TASK: 4. Describe the adaptations that various plants may initiate in a changing environment.
OBJECTIVE: Given three examples of the same plant grown in different growing conditions, justify the adaptations plants make with 90% accuracy.

TASK: 5. Explain the importance of xylem and phloem in the plant.

PERFORMANCE
OBJECTIVE: Using examples of roots, stems, and leaves of various plants, evaluate the functions of the xylem and phloem in plant organs with 100% accuracy.

TASK: 6. Discuss how an individual could use knowledge of plant structures to grow a vegetable garden.

PERFORMANCE
OBJECTIVE: Based on class notes or other references, construct a plan for a vegetable garden with 95% accuracy.

DUTY D. Investigating transport of nutrients and water.

TASK: 1. Describe the functions of the xylem and phloem.

PERFORMANCE
OBJECTIVE: Given a prepared or live plant, examine the functions of the xylem and phloem with 90% accuracy.

TASK: 2. Explain the importance of the translocational system of plants.

PERFORMANCE
OBJECTIVE: Using a grafting technique on a specific plant, assess the importance of water and nutrient translocation relative to grafting with 90% accuracy.

TASK: 3. Compare stomatal transpiration to transpiration in human skin.

PERFORMANCE
OBJECTIVE: Given the materials, create an experiment and diagram the results with 90% accuracy.

TASK: 4. Examine how environmental factors affect transpiration.
OBJECTIVE: Using the same plant, devise four experiments to illustrate the effects of wind, humidity, temperature, and isolation on transpiration and predict the results with 80% accuracy.

TASK: 5. Evaluate the process of transportation to and the resulting change in target structures.

OBJECTIVE: Given two plant hormones, evaluate the process of transportation to the resulting change in target structures with 85% accuracy.

TASK: 6. Determine the relationship of translocation of water and plant nutrients to the process of photosynthesis.

OBJECTIVE: Given water and plant nutrients, analyze the relationship of them to the process of photosynthesis.

DUTY E. Exploring the environmental factors affecting plant growth.

TASK: 1. Analyze growth of a plant to harvestable size.

OBJECTIVE: Using a plant that the student has grown to a harvestable size, evaluate the effects of plant maintenance on the growth with 90% accuracy.

TASK: 2. Diagram the environmental factors affecting plant growth.

OBJECTIVE: Given a plant from a certain site, assess the environmental factors affecting the growth of that plant with 80% accuracy.

TASK: 3. Describe the effects of photoperiodism in plant growth.

OBJECTIVE: Given a plant, design an experiment and predict the results with 90% accuracy.

TASK: 4. Determine the possible economic uses of photoperiodism to benefit society.

OBJECTIVE: Given a situation, justify the possible economic uses of photoperiodism to benefit society with 80% accuracy.
TASK: 5. Determine the optimum temperature for the growth of a specific plant.

PERFORMANCE
OBJECTIVE: Given data from observations of plant growth at various temperatures, plot the data and determine the optimum temperature for growth of the plant with 90% accuracy.

TASK: 6. Conduct an experiment that will show how a plant may adapt to environmental changes.

PERFORMANCE
OBJECTIVE: Given appropriate materials, perform an experiment that will show how a plant may adapt to one change in its environment and predict the results.

DUTY F. Students shall analyze the germination of plants.

TASK: 1. Determine the requirements necessary for seed germination.

PERFORMANCE
OBJECTIVE: Given examples of ten different seeds, analyze factors that might decrease germination in the seeds and compare your answers to instructions given in reference texts.

TASK: 2. Compare the life-cycle of a dicotyledonous plant and a monocotyledonous plant.

PERFORMANCE
OBJECTIVE: Given the life cycle of a monocot and a dicot, address how their differences require different approaches to planting and cultivation practices.

TASK: 3. Discuss the impact of major seed by-products on society.

PERFORMANCE
OBJECTIVE: Given a major seed by-product, evaluate its importance to society.

TASK: 4. Examine the importance of germination in seed crops.

PERFORMANCE
OBJECTIVE: Based upon seed germination factors, develop a plan to increase production of a specific crop with 90% accuracy.
DUTY G-1. Investigating plant reproduction.

TASK: 1. Determine the various processes of asexual reproduction.

PERFORMANCE
OBJECTIVE: Given plants which reproduce asexually, compare the various methods of asexual reproduction with 90% accuracy.

TASK: 2. Determine the process of pollination.

PERFORMANCE
OBJECTIVE: Given a plant, predict how pollination might occur with 95% accuracy.

TASK: 3. Analyze the functions of pollination and fertilization.

PERFORMANCE
OBJECTIVE: Given a plant, generate the process of pollination and fertilization with 90% accuracy.


PERFORMANCE
OBJECTIVE: Given two different plants, one produced from sexual propagation and one produced from asexual propagation, differentiate between the two of them.

TASK: 5. Demonstrate knowledge of heredity in plants.

PERFORMANCE
OBJECTIVE: Given the materials, conduct an experiment similar to that of Gregor Mendel's with garden peas predicting and verifying the results with 90% accuracy.

TASK: 6. Identify environmental factors that affect the rooting of a cutting.
OBJECTIVE: Given a plant, perform various asexual propagation techniques using different environmental factors and evaluate the rooting of each with 90% accuracy.

TASK: 7. Give examples of plants that are propagated by asexual methods.

OBJECTIVE: Given the different types of asexual propagation methods, list plants that are propagated by each with 100% accuracy.

TASK: 8. Describe the agricultural impact of using asexual propagation methods.

OBJECTIVE: Given the information, describe the agricultural impact of using asexual propagation methods with 80% accuracy.

TASK: 9. Evaluate how heredity and environment affect offspring in plants.

OBJECTIVE: Given an experiment, evaluate how heredity and environment affect the offspring in plants.

DUTY G-2. Exploring the role of energy synthesis in plants.

TASK: 1. Analyze the functions of photosynthesis and respiration.

OBJECTIVE: Using class notes or other references, design an experiment with live plants comparing photosynthesis and respiration with 90% accuracy.

TASK: 2. Examine the role of energy in the photosynthetic process.

OBJECTIVE: Based on class notes, assess the functions of energy in the photosynthetic process with 90% accuracy.

TASK: 3. Determine the factors affecting photosynthesis.
OBJECTIVE: Given information on the photosynthetic process, diagram the carbon-oxygen-hydrogen cycle of photosynthesis as it occurs in the biosphere to a 90% accuracy level.

TASK: 4. Analyze the transformation of simple sugars into complex organic compounds.

OBJECTIVE: Given a plant, assess how plants convert simple sugars to complex compounds with 95% accuracy.

TASK: 5. Evaluate the importance of chlorophyll in photosynthesis.

OBJECTIVE: Given a live plant, devise an experiment to examine the effects of photosynthesis on living plants with 95% accuracy.

TASK: 6. Determine the environmental factors which influence photosynthesis.

OBJECTIVE: Given a healthy plant and a plant under environmental stress, justify how environmental stress reduces photosynthesis to a 95% accuracy level.


OBJECTIVE: Given two live plants, design an experiment to visualize the role of enzymes in photosynthesis with 90% accuracy.

DUTY H. Analyzing the impact of other life forms on crop plants.

TASK: 1. Describe how "pests" play a role in crop quality.

OBJECTIVE: Given a common agronomic crop, determine the "pests" that affect crop quality with 90% accuracy.

TASK: 2. Cite common plant diseases in your area and discuss possible ways they are transmitted and controlled.
PERFORMANCE OBJECTIVE: Given three commonly grown plants, determine what "pests" effect each plant and describe methods of control for each "pest" with 90% accuracy.

TASK: 3. Analyze the importance of proper plant nutrition to improve plant health.

PERFORMANCE OBJECTIVE: Given a plant and reference materials, design an experiment to show what happens when a plant is not properly nourished presenting your results with 80% accuracy.

TASK: 4. Evaluate the importance of integrated pest management programs.

PERFORMANCE OBJECTIVE: Given a sample integrated pest management program, debate the recommendations made in the program with respect to current environmental protection regulations.

TASK: 5. Construct an integrated pest management program.

PERFORMANCE OBJECTIVE: Using class notes or other references, design an integrated pest management program for a school garden in accordance with state pesticide regulations.

TASK: 6. Analyze the beneficial and detrimental effects insects have on the environment.

PERFORMANCE OBJECTIVE: With class notes or other references, justify the beneficial and detrimental impact insects have on the environment with 90% accuracy.

TASK: 7. Examine the life cycles of insects with respect to growth stage and metamorphosis.

PERFORMANCE OBJECTIVE: Given live or preserved specimens or pictures of insects, reconstruct an insect's life cycle stages with 95% accuracy.

TASK: 8. Examine nematodes and how they can damage plants.
PERFORMANCE

OBJECTIVE: Given a healthy plant and a plant infected with nematodes, evaluate the signs, symptoms, and mode of action of nematodes to a 90% accuracy level.

TASK: 9. Discuss the ways that weeds cause damage and production loss.

PERFORMANCE

OBJECTIVE: Using your class notes and other reference material, analyze the ways that weeds contribute to damage and product loss with 90% accuracy.

TASK 10. For the weeds common to your area, identify means of mechanical weed control.

PERFORMANCE

OBJECTIVE: Given a list and information concerning common weeds, determine a means of mechanical control for each weed and list advantages and disadvantages of the chosen method with 90% accuracy.

TASK: 11a. Analyze the uses for both a contact and systemic pesticide.

PERFORMANCE

OBJECTIVE: Given information concerning contact and systemic pesticides, determine the circumstances when each class should be applied listing all possible alternatives with 90% accuracy.

TASK: 11b. Predict the types and quality of foods available if a pesticide free society is declared.

PERFORMANCE

OBJECTIVE: Using class notes and other reference materials, research the feasibility of pesticide-free farming, justifying your conclusion.

TASK: 12. Compare the effects of selective and nonselective herbicide.

PERFORMANCE

OBJECTIVE: Given an appropriate scenario, analyze the type of herbicide needed when sterilization, clean-up, or weed control is desired with 90% accuracy.

TASK: 13. Discuss the three plant growth periods when herbicides can be applied.
OBJECTIVE: Given a list and information concerning common weeds, determine at what stage of growth each weed is best controlled, listing advantages and disadvantages of the chosen herbicide control with 90% accuracy.


OBJECTIVE: Given several pesticides, classify them in the categories they belong with 90% accuracy.

TASK: 15. Evaluate a proposal to ban highly toxic pesticides.

OBJECTIVE: Given the information on toxic pesticides, evaluate a proposal to ban highly toxic pesticides with 90% accuracy.

DUTY I. Exploring the processes involved in biotechnology in plant science.

TASK: 1. Identify how biotechnology will influence agriculture in the future.

OBJECTIVE: Given biotechnology knowledge, determine how it will influence agriculture in the future with 80% accuracy.

TASK: 2. Analyze the basic processes of biotechnology research and relate it to the scientific method.

OBJECTIVE: Given information on the basic process of biotechnology research, analyze it and relate it to the scientific method with 90% accuracy.

TASK: 3. Determine the knowledge and skills needed for career opportunities in biotechnology.

OBJECTIVE: Given a list of career opportunities in biotechnology, examine the knowledge and skills needed for them.

TASK: 4. Describe developments resulting from biotechnology research in plant and soil science.

OBJECTIVE: Using knowledge specifically related to disease resistance and product quality, debate certain foods that can be obtained from the local grocery that have benefitted from biotechnology with 100% accuracy.
TASK: 5. Explain future impacts of microorganism research.

PERFORMANCE
OBJECTIVE: Given a piece of bread, predict changes that may take place through microorganism research with 80% accuracy.

TASK: 6. Discuss how genetic engineering can affect one's future well-being.

PERFORMANCE
OBJECTIVE: Given a specific food item, justify how genetic engineering may affect one's future health with 90% accuracy.

TASK: 7. Discuss concerns over control of the research, and concerns over conflict of interest of biotechnical research.

PERFORMANCE
OBJECTIVE: Using information discussed in class, debate the positive and negative effects of one type of biotechnical research addressing environmental and ethical concerns with 100% accuracy.

DUTY J. Investigating the various methods of land location and measurement using all appropriate technologies.

TASK: 1. Analyze a source of land location such as a county plat book.

PERFORMANCE
OBJECTIVE: Using section numbers, map symbols and appropriate hand copy and computer technologies, generate an accurate sketch of all townships in your school district with 90% accuracy.

TASK: 2. Utilize the index to owners in order to find a specific farm or land parcel.

PERFORMANCE
OBJECTIVE: Using knowledge of computer technology, appraise how it could be used to streamline land record keeping with 95% accuracy.
DUTY K. Investigating the physical properties of the soil.

TASK: 1. Describe the probable past of the soil found on the school grounds.

PERFORMANCE
OBJECTIVE: Given a soil profile, monolith, and soil samples, justify the major factors in the formation of soil found on the school grounds with 95% accuracy.

TASK: 2. Explain why soil of different ages is exposed in Indiana and surrounding states.

PERFORMANCE
OBJECTIVE: Using information given in class, construct a model that illustrates soil of different ages with 95% accuracy.

TASK: 3. Determine why humans are dependent upon soil, directly or indirectly.

PERFORMANCE
OBJECTIVE: Given a piece of paper, write one page that describes why soil is important for food, clothing, and shelter with 100% accuracy.

TASK: 4. Evaluate the quality of a parcel of land.

PERFORMANCE
OBJECTIVE: Given a soil profile, appraise the composition of the land from which it was taken with 95% accuracy.

TASK: 5. Describe how the basic components of a soil influence its possible uses.

PERFORMANCE
OBJECTIVE: Given various soil samples, select appropriate uses for each with 90% accuracy.

TASK: 6. Describe how the soil provides for the growing of plants.

PERFORMANCE
OBJECTIVE: Using information about the soil textural classes, justify how soils support certain forms of plant life with 80% accuracy.

TASK: 7. Describe the perfect physical traits of soil for a garden.

PERFORMANCE
OBJECTIVE: Using knowledge of color and texture, suggest the optimum soil characteristics for a garden with 95% accuracy.

TASK: 8. Explain mechanisms by which minerals are changed in the formation of soil.

PERFORMANCE
OBJECTIVE: Using information from observations of simple experiments, determine the factors influencing mineral composition in soil formation with 85% accuracy.

TASK: 9. Explain the action of rivers, wind, and glaciers in the deposition of parent material in Indiana soils.

PERFORMANCE
OBJECTIVE: Given a specific area in the state of Indiana, generate examples of why certain characteristics exist with 90% accuracy.

DUTY L. Investigating the tillage practices necessary to keep soil productive.
TASK: 1. List several factors that contribute to soil compaction and the destruction of soil tilth.

PERFORMANCE
OBJECTIVE: Given a soil type, discuss in writing the advantages and disadvantages of cultivation to this soil at an 80% accuracy level.

TASK: 2. Evaluate the effects of soil compaction on plants and the effects it has on soil.

PERFORMANCE
OBJECTIVE: Given three soil types, describe the visible effects of soil compaction on plants and the effects it has on soil to a 90% accuracy level.

TASK: 3. Evaluate the various methods of land preparation and seeding based on soil and plant characteristics.

PERFORMANCE
OBJECTIVE: Given two soil types from the geographical area, contrast the methods of land preparation and seeding based on the soil and plant characteristics to a 90% accuracy level.

TASK: 4. Use the TESTOP computer program to determine the optimum tillage system for a specific 160 acre farm.

PERFORMANCE
OBJECTIVE: Given the TESTOP computer program, analyze the assigned farm's optimum tillage plan to a 80% accuracy level.

TASK: 5. Determine the factors that relate plant germination characteristics to soil properties.

PERFORMANCE
OBJECTIVE: Explain the effect of depth of planting on seed emergence and relate plant germination characteristics to soil properties.

TASK: 6. Present an argument for or against the incorporation of crop residues or green manure into the soil.
OBJECTIVE: Discuss in written form the advantages and disadvantages of incorporating crop residues or green manures into two soil types at 90% accuracy.

DUTY M. Exploring the management strategies required to keep soil productive.

TASK: 1. Diagram the nitrogen cycle.

OBJECTIVE: Given a specific fertilizer, assess the effects it has on the nitrogen cycle to a 90% accuracy level.

TASK: 2. Evaluate the benefits of earthworms and micro-organisms in the soil.

OBJECTIVE: Given a soil profile, determine the effects and location of earthworms and micro-organisms on the soil to a 80% accuracy level.

TASK: 3. Describe types of organic matter in the soil and analyze ways to benefit the soil.

OBJECTIVE: Given a list of organic matter types, evaluate the effects each has on the soil to a 90% accuracy level.

TASK: 4. Analyze the effect that an acid, an alkaline, and a saline soil condition has on plant growth.

OBJECTIVE: Given three soil pH levels, evaluate the effect each has on grains, forages and grasses to an 80% accuracy level.

TASK: 5. Analyze soil environmental factors affecting plant nutrient availability.

OBJECTIVE: Given five soil environmental factors, distinguish each factor's effect on plant nutrient availability and ways to improve the effect of each to a 90% accuracy level.

TASK: 6. Present examples of how humans have affected nature.
OBJECTIVE: Given a list of problems in nature, distinguish if human or natural cause and identify alternatives to the problem for a change in course of action to an 80% accuracy level.

TASK: 7. Analyze the effect of cation exchange capacity on soil pH and fertility.

OBJECTIVE: Given a soil analysis, assess the availability of cation exchange capacity to a 90% accuracy level.

TASK: 8. Calculate the content of N-P-K in a fertilizer container.

OBJECTIVE: Given a specific fertilizer information label, assess the N-P-K content to a 90% accuracy level.

TASK: 9. Calculate the amount of nitrogen needed for an acre of a crop.

OBJECTIVES: Given a selected nitrogen source, determine the amount of nitrogen needed for an acre of crop to a 90% accuracy.

TASK: 10. Identify plant nutrient deficiency symptoms.

OBJECTIVE: Given a group of unhealthy plants, identify symptom and plant nutrient deficiencies when the following minerals are inadequate: N, P, K, Fe, S, Mg to an 80% accuracy level.

TASK: 11. Evaluate organic and inorganic fertilizer effects on the environment.

OBJECTIVE: Compare the advantages and the disadvantages of organic and inorganic fertilizer in a world becoming more conscience of environmental pollution without the aid of references to an 80% accuracy level.

PERFORMANCE

OBJECTIVE: Given a complete soil analysis, analyze the deficiencies stating the method for testing the soil for the deficiency and a source for each of the three primary elements to a 90% accuracy level.

TASK: 13. Interpret a soil test report.

PERFORMANCE

OBJECTIVE: Perform a soil test and complete a report on the test. Compare this to a commercial soil test report and determine the proper amounts of N, P and K to put on a specific field at a 90% accuracy level.

TASK: 14. Analyze the effect of high and low soil PH on availability of plant nutrients.

PERFORMANCE

OBJECTIVE: Given a list of plant nutrients, assess how each is affected by high and low soil PH to an 80% accuracy level.

TASK: 15. Describe ways to increase or lower PH in the soil.

PERFORMANCE

OBJECTIVE: Given a list of soil amendments, assess ways each may increase or lower PH level in the soil to an 80% accuracy level.

DUTY N. Examining soil and water relationships.

TASK: 1. Determine how infiltration and percolation effects the availability of water to a plant.

PERFORMANCE

OBJECTIVE: Given a sample of a specific type of soil, differentiate between infiltration and percolation of water through it with 80% accuracy.

TASK: 2. Examine how water in different soils moves upward against gravitational pull.

PERFORMANCE

OBJECTIVE: Given a sample of a specific soil type, construct a device which will demonstrate how water moves upward against gravitational pull with 100% accuracy.

TASK: 3. Construct a small hydroponics system.

PERFORMANCE
OBJECTIVE: Given several pieces of plastic tubing and information from class discussions, design a small hydroponics system. Upon completion, the system will successfully grow plants.

TASK: 4. Develop a plan to improve soil moisture relationships.

PERFORMANCE
OBJECTIVE: Given a specific land description, formulate a plan to modify soil to improve moisture relationships taking into consideration cost, feasibility, and environmental impact with 80% accuracy.

TASK: 5. Determine how volcanic eruption, the ozone layer demise and other negative environmental effects have disrupted the normal hydrologic cycle.

PERFORMANCE
OBJECTIVE: Given various sources of information on volcanic eruption, the ozone layer demise and other negative environmental effects, assess their impact on the hydrologic cycle with 90% accuracy.

TASK: 6. Evaluate the different types of irrigation systems.

PERFORMANCE
OBJECTIVE: Given a specific crop and soil condition, select an appropriate irrigation system with 90% accuracy.

TASK: 7. Determine the economic value of water for a major local crop.

PERFORMANCE
OBJECTIVE: Given the appropriate information, calculate the approximate amount of water needed and the cost for that water for a single complete production cycle for a major local crop with 100% accuracy.

TASK: 8. Construct a demonstration showing possible methods that would help to control the runoff of a given watershed.

PERFORMANCE
OBJECTIVE: Given a specific type of soil and cover, design a procedure which will demonstrate how to help control water runoff. Upon completion, the demonstration will show how to successfully control the problem.

TASK: 9. Address the problem of chemical impurities in agricultural waste water run-off in the form of a speech.
OBJECTIVE: Given resources from the library, prepare a speech on the problem of chemical impurities in agricultural waste runoff. Upon completion, this speech will be used to inform others on the information gathered.

TASK: 10. Describe the effects of soil texture on depth of water penetration and water and nutrient holding capacity.

OBJECTIVE: Given a specific soil texture, analyze the soil's water and nutrient holding capacity with 90% accuracy.

DUTY O. Investigating soil conservation practices necessary to keep soil productive.

TASK: 1. Maximize appropriate management practices and cropping systems.

OBJECTIVE: When given soil features and land capabilities that would help improve the usefulness of land, propose management practices and specific cropping systems with 80% accuracy.

TASK: 2. Interpret a soil survey.

OBJECTIVE: Given a specific soil survey, recommend a soil conservation practice with 90% accuracy.

TASK: 3. Interpret a soil classification map using the USDA Land Use Capability Classification system.

OBJECTIVE: Given a specific parcel of land and the USDA Land Use Capability Classification system, classify the types of soil found on the land with 90% accuracy.


OBJECTIVE: Given different types of soil amendments, classify them as organic or inorganic with 100% accuracy.

TASK: 5. Utilize organic and inorganic soil amendments to improve soil.

PERFORMANCE
OBJECTIVE: Given a specific plant with roots attached, defend your assessment that nitrogen fixation has occurred between the plant and the soil with 100% accuracy.

TASK: 7. Identify the factors that influence soil water erosion.

PERFORMANCE
OBJECTIVE: Given a specific conservation practice, assess the different factors which influence soil water erosion that are being controlled.


PERFORMANCE
OBJECTIVE: Given various pictures of wind erosion, decide the best management procedure to correct the problem with 90% accuracy.

TASK: 9. Examine the programs and services provided by the soil conservation service in Indiana.

PERFORMANCE
OBJECTIVE: Given a case study on a conservation problem, defend the use of the soil conservation service to help solve the problem.

TASK: 10. Calculate soil loss using the universal soil loss equation.

PERFORMANCE
OBJECTIVE: Given a specific plot of land, determine the amount of soil lost using the universal soil loss equation with 100% accuracy.

TASK: 11. Measure slope and explain the relationship between steepness of slope and erosion.
PERFORMANCE
OBJECTIVE: Given a slope chart and a specific plot of land, measure the degree of slope and erosion with 100% accuracy.

DUTY P. Analyzing the impact of several factors on the selection of a cropping system and cultural practices.

TASK: 1. Determine why the most profitable crops aren't grown on all available land.

PERFORMANCE
OBJECTIVE: Given different examples of farm land, justify why certain profitable crops may or may not be grown on them with 100% accuracy.

TASK: 2. Select an appropriate crop for an agricultural production operation.

PERFORMANCE
OBJECTIVE: When given a specific agricultural production operation, select a crop to be grown which will bring a profit to the business with 100% accuracy.

TASK: 3. Utilize crop rotation.

PERFORMANCE
OBJECTIVE: Given a specific description of crop land, justify the use of crop rotation with 100% accuracy.

TASK: 4. Describe the relationship between cropping intensity and income.

PERFORMANCE
OBJECTIVE: Given information on cropping intensity, support its use to improve the income to an agricultural enterprise with 100% accuracy.

TASK: 5. Analyze how conservation is affected by cropping systems and cultural practices.

PERFORMANCE
OBJECTIVE: Given two specific cropping systems used in Indiana, formulate a position on how the cropping systems and their cultural practices are affected by conservation with 90% accuracy.
DUTY Q. Investigating the harvesting of crops in Indiana.

TASK: 1. Evaluate the historical development of three specialized types of harvesting equipment used in Indiana.

PERFORMANCE
OBJECTIVE: Given three specialized types of harvesting equipment, compare to the crop each is used to harvest with 95% accuracy.

TASK: 2. Discuss the relationship of planting technique with harvesting loss in corn.

PERFORMANCE
OBJECTIVE: Using information from class, formulate the optimum economic procedure with 100% accuracy.

TASK: 3. Explain the term "maturity" for corn and soybeans.

PERFORMANCE
OBJECTIVE: Given samples of mature corn and soybeans, distinguish the characteristics that determine harvest maturity with 90% accuracy.

TASK: 4. Discuss the impact of delayed harvesting of crops in the fall.

PERFORMANCE
OBJECTIVE: Using information given in class, predict the economic impact of delayed harvesting of crops in the fall with 95% accuracy.

TASK: 5. Describe problems involved with the storage and transportation of major Indiana crops.

PERFORMANCE
OBJECTIVE: Given a map of the state of Indiana, specify how problems with storage and transportation relate to the placement of towns, rivers, and railroads historically with 85% accuracy.
Supervised Agricultural Experience (SAE)

DUTY A. Determining the importance of a SAE program and the benefits that can be obtained.

TASK: 1. Describe SAE.

PERFORMANCE
OBJECTIVE: Given five minutes and a blank sheet of paper, describe SAE with 90% accuracy.

TASK: 2. Indicate the reasons for having a SAE program.

PERFORMANCE
OBJECTIVE: Given information from class notes, evaluate the reasons why you should begin a SAE program with 90% accuracy.

TASK: 3. Describe the benefits of a good SAE program.

PERFORMANCE
OBJECTIVE: Given a SAE program, evaluate the benefits the student gained from the program with 90% accuracy.

TASK: 4. Identify the criteria which must be met to qualify as an SAE program.

PERFORMANCE
OBJECTIVE: Given two SAE programs, evaluate each against a set of criteria with 90% accuracy.

TASK: 5. Evaluate the characteristics of a good SAE program.

PERFORMANCE
OBJECTIVE: Given two SAE programs, assess the strengths and weaknesses of each with 90% accuracy.

TASK: 6. Determine the relationship of SAE programs to the total agricultural program.

PERFORMANCE
OBJECTIVE: Using information from class discussion, examine the relationship of SAE programs to the total agricultural program with 80% accuracy.
DUTY B. Identifying the opportunities for SAE projects in the community.

TASK: 1. List the six major types of SAE programs.

PERFORMANCE

OBJECTIVE: Given a list of possible SAE programs, classify them into the six major types with 90% accuracy.

TASK: 2. Evaluate the characteristics of the SAE program areas.

PERFORMANCE

OBJECTIVE: Given the characteristics of the SAE program areas, assess them with 85% accuracy.

TASK: 3. Identify examples of projects in each program area.

PERFORMANCE

OBJECTIVE: Given examples of projects, construct a list of examples for each program area with 85% accuracy.

TASK: 4. Identify the resources/opportunities for SAE projects.

PERFORMANCE

OBJECTIVE: Given a situation, describe the resources/opportunities for SAE projects with 85% accuracy.

TASK: 5. Describe local guidelines for a SAE program.

PERFORMANCE

OBJECTIVE: Given the information, explain the local guidelines for a SAE program with 90% accuracy.

DUTY C. Selecting goals for a SAE program.

TASK: 1. Identify the importance of setting goals for a SAE program.

PERFORMANCE

OBJECTIVE: After class discussion, examine the importance of setting goals for a SAE program with 80% accuracy.

TASK: 2. List the types of goals which could be set for a SAE program.
PERFORMANCE
OBJECTIVE: Given a list of goals that could be set for a SAE program, describe the goals with 80% accuracy.

TASK: 3. Determine how goals should be set for the SAE program.

PERFORMANCE
OBJECTIVE: Given your own SAE program, determine how the goals should be set with 90% accuracy.

DUTY D. Explaining the steps that are needed to begin a SAE program.

TASK: 1. Evaluate personal interests for each SAE program area.

PERFORMANCE
OBJECTIVE: Given your own situation, evaluate your personal interest for each SAE program area with 90% accuracy.

TASK 2. Obtain help in determining what will be needed for the SAE program.

PERFORMANCE
OBJECTIVE: Given a SAE program, justify the use of obtaining help to determine what will be needed for the SAE program with 90% accuracy.

TASK: 3. Obtain possible ways of financing the SAE program.

PERFORMANCE
OBJECTIVE: Given a SAE program, evaluate possible ways of financing it with 85% accuracy.

TASK: 4. Describe the responsibilities involved in planning and conducting a SAE program.

PERFORMANCE
OBJECTIVE: Using information from class discussion, determine the responsibilities involved in planning and conducting a SAE program with 80% accuracy.

TASK: 5. Design an annual and long range SAE program plan.
PERFORMANCE
OBJECTIVE: Given your interests, write annual and long range SAE program plans with 80% accuracy.

TASK: 6. Identify the potential value of the selected SAE program for personal and career development.

PERFORMANCE
OBJECTIVE: Given your SAE program, explain the value of it for personal and career development with 85% accuracy.

TASK: 7. Use SAE program plans.

PERFORMANCE
OBJECTIVE: Given your SAE program plans, use the plans to carry out a SAE program with 100% accuracy.

DUTY E. Keeping accurate SAE records.

TASK: 1. Analyze the importance of keeping records.

PERFORMANCE
OBJECTIVE: Given several examples of businesses that have closed because of poor record keeping, justify the importance of keeping records with 100% accuracy.

TASK: 2. Identify the necessary forms to keep in the record book.

PERFORMANCE
OBJECTIVE: Given several different record entries, determine the forms needed to record the entries in a record book with 95% accuracy.

TASK: 3. Examine what information is included in Ownership Business Agreements and Placement Training Agreements.

PERFORMANCE
OBJECTIVE: Given copies of Ownership Business Agreement Forms and Placement Training Agreement Forms, assess the type of information needed to complete the forms with 100% accuracy.

TASK: 4. Describe a budget and its use.

PERFORMANCE
OBJECTIVE: Given information from a specific SAE project, justify the use of a budget to monitor the spending of money with 100% accuracy.
TASK: 5. Identify the information necessary to complete a budget.

PERFORMANCE
OBJECTIVE: Given information in class on record keeping, select the information needed to develop a budget with 100% accuracy.

TASK: 6. Complete a budget for a SAE program.

PERFORMANCE
OBJECTIVE: Given information/records from a specific SAE, create a usable budget with 100% accuracy.

TASK: 7. Indicate the differences between a budget and a cash flow summary.

PERFORMANCE
OBJECTIVE: Given a sample budget and a cash flow summary, compare and contrast the two with 95% accuracy.

TASK: 8. Examine the importance of keeping an accurate inventory.

PERFORMANCE
OBJECTIVE: Given a copy of an accurate inventory, justify its importance to the record keeping process with 100% accuracy.

TASK: 9. Complete a beginning inventory.

PERFORMANCE
OBJECTIVE: Given information on a specific SAE, construct a beginning inventory.

TASK: 10. Construct a beginning financial statement.

PERFORMANCE
OBJECTIVE: Given financial information needed to complete a beginning financial statement, generate a beginning financial statement with 100% accuracy.

TASK: 11. Examine the methods used to record receipts and expenditures.

PERFORMANCE
OBJECTIVE: Given a variety of record keeping systems, in your opinion, select the system that does the best job of reporting receipts and expenditures with 100% accuracy.
TASK: 12. Calculate the total receipt and expenditure pages at the end of the month.

PERFORMANCE
OBJECTIVE: Given an end of the month ledger, calculate the total receipt and expenditure pages for a SAE program with 90% accuracy.

TASK: 13. Identify any additional records which should be kept each month and explain their purpose.

PERFORMANCE
OBJECTIVE: Given a sample SAE program budget, evaluate for any additional records needed to complete the recording keeping system with 90% accuracy.

DUTY F. Completing the forms needed to summarize, analyze, and evaluate the SAE program.

TASK: 1. Identify the forms needed to summarize the year's records.

PERFORMANCE
OBJECTIVE: Given a SAE case study, identify the record keeping forms that need to be completed in order to summarize the year's records with 90% accuracy.

TASK: 2. Analyze how the cash flow summary is used.

PERFORMANCE
OBJECTIVE: Given a sample cash flow summary, analyze how it will be used in a record keeping system with 90% accuracy.

TASK: 3. Analyze depreciation and how it is recorded.

PERFORMANCE
OBJECTIVE: Given a sample set of equipment for a SAE program, calculate and record depreciation for each with 90% accuracy.

TASK: 4. Examine the importance of completing an ending inventory.
OBJECTIVE: Using financial records from a SAE project, complete an end-of-month inventory with 95% accuracy.

TASK: 5. Evaluate the purposes of a profit and loss statement.

OBJECTIVE: Based on a profit and loss statement from an agribusiness, justify its importance with 95% accuracy.

TASK: 6. Determine how enterprises are analyzed in a SAE program.

OBJECTIVE: Given a variety of enterprises to be utilized in a SAE program, evaluate which enterprises are the most appropriate to be included in the SAE with 95% accuracy.

TASK: 7. Identify sources of the information needed to complete a SAE program summary.

OBJECTIVE: Using class notes or other references, devise a list of sources for summarizing a SAE program with 90% accuracy.

TASK: 8. Examine the forms used to evaluate a SAE program.

OBJECTIVE: Given a group of miscellaneous SAE forms, select the evaluation forms for SAE programs with 100% accuracy.

TASK: 9. Describe how net worth reveals the progress of a SAE program.

OBJECTIVE: Given financial records from a SAE program, assess how net worth affects a SAE program's progress with 90% accuracy.

TASK: 10. Determine the critical parts of the financial statement.

OBJECTIVE: Given several financial statements from various agribusiness, choose the critical points of the financial statements with 90% accuracy.
TASK: 11. Analyze some ways of increasing returns from a SAE program.

PERFORMANCE
OBJECTIVE: Given two income statements, design a plan to increase returns by two percent.

TASK: 12. Examine the weaknesses of the SAE program.

PERFORMANCE
OBJECTIVE: Given evaluation forms from prior SAE programs, assess the drawbacks of continuing the SAE program for another year.

TASK: 13. Evaluate the value of the SAE program.

PERFORMANCE
OBJECTIVE: Given feedback from the teachers, parents/guardians, and agribusinesses, assess the monetary impact on the community with 90% accuracy.

TASK: 14. Change the long range plan for the SAE program as needed.

PERFORMANCE
OBJECTIVE: Using your own SAE program, design two long range plans as alternatives to the present plan.

TASK: 15. Describe how to expand or diversify the SAE program.

PERFORMANCE
OBJECTIVE: Given three sample SAE programs, defend options to expand or diversify those programs with 100% accuracy.

DUTY G. Identifying the awards awarded upon completion of a SAE program.

TASK: 1. Determine the awards which may be received from a SAE program.

PERFORMANCE
OBJECTIVE: Given information from the state and national FFA award application programs, put in priority order the awards for which your SAE can qualify with 100% accuracy.

TASK 2. Complete award applications.
PERFORMANCE
OBJECTIVE: Using SAE records, generate a completed proficiency or degree application with 100% accuracy.

TASK: 3. Determine the minimum SAE program requirements for FFA degrees.

PERFORMANCE
OBJECTIVE: Given a copy of the Official FFA Manual, decide how their SAE program will meet the requirements for a specific FFA Degree with 100% accuracy.

DUTY H. Examining job search techniques and resources available to the job seeker.

TASK: 1. Prepare a list of contacts for employment.

PERFORMANCE
OBJECTIVE: Given a list of perspective area employers, evaluate opportunities for employment based on personal aptitudes, traits, abilities, and interests in career choices.

TASK: 2. Identify the factors to consider when selecting resources to locate a job.

PERFORMANCE
OBJECTIVE: Given two job opportunities, identify the factors and resources one must consider in order to obtain the jobs with 90% accuracy.

TASK: 3. Interpret want ads and posted job vacancy announcements.

PERFORMANCE
OBJECTIVE: Using class references, interpret two given job vacancy announcements with 90% accuracy.

TASK: 4. Evaluate public and private employment agencies.

PERFORMANCE
OBJECTIVE: Using information from class notes, evaluate public and private employment agencies with 90% accuracy.

TASK: 5. Describe the services provided by employment agencies.
PERFORMANCE

OBJECTIVE: Given a blank sheet of paper, construct a services' profile that your employment agency will offer a client with 90% accuracy.

TASK: 6. Describe how to use placement services for a personal job search.

PERFORMANCE

OBJECTIVE: Given a blank sheet of paper, outline the steps necessary for you to use a placement service to secure your next job with 90% accuracy.

DUTY I. Evaluating the importance of the first contact in the job search.

TASK: 1. Identify six items to be included in a resume.

PERFORMANCE

OBJECTIVE: Given a blank resume form, formulate a resume for yourself and identify the six major components with 90% accuracy.

TASK: 2. List the important factors to consider when using the telephone for a job search.

PERFORMANCE

OBJECTIVE: Given a telephone and paper, outline on paper the important factors you need to use in searching for a job with 90% accuracy.

TASK: 3. Describe the important components of a resume.

PERFORMANCE

OBJECTIVE: Given a sample resume, generate a resume for yourself focusing on the main components as discussed in class with 90% accuracy.

TASK: 4. Describe the use of a resume in a job search.

PERFORMANCE

OBJECTIVE: Given a set of resumes and a job announcement, evaluate and select three candidates to interview with 90% accuracy.

TASK: 5. List the important components of a cover letter and be able to write one.
PERFORMANCE
OBJECTIVE: Given a cover letter and job announcement, identify the five important components and write a cover letter for the given job announcement with 90% accuracy.


PERFORMANCE
OBJECTIVE: Using actual applications and/or examples given in class, complete a job application for three agribusinesses with 100% accuracy.

DUTY J. Understanding the fundamental requirements for keeping a job.

TASK: 1. Describe the importance of interpersonal communication, appropriate dress, and self-evaluation procedures.

PERFORMANCE
OBJECTIVE: Given an agribusiness scenario, write a one-page memo to your employees outlining why interpersonal communication, appropriate dress, and self-evaluation procedures are vital requirements for keeping a job with 95% accuracy.

TASK: 2. Examine the concept of professional ethics.

PERFORMANCE
OBJECTIVE: Using group discussion techniques, determine the role of professional ethics in the workplace and their relative importance with 100% accuracy.

TASK: 3. Describe how being able to follow directions effectively relates to job survival.

PERFORMANCE
OBJECTIVE: Given an exercise on following directions, complete the exercise and discuss how the ability to follow directions relates to job survival with 100% accuracy.

TASK: 4. Analyze the major reasons why workers are fired from their jobs.

PERFORMANCE
OBJECTIVE: Using small group analysis techniques, analyze the major reasons why workers are fired from their jobs and rank them according to their importance with 100% accuracy.
DUTY K. Placing students who are juniors or seniors in Agricultural Science and Business in an Agricultural Cooperative Program related to their individual SAE's.

TASK: 1. Obtain employment in an agribusiness which is not owned by the student's parents or guardians.

PERFORMANCE OBJECTIVE: Using completed applications and resume, obtain employment in an agribusiness which is not owned by your parents or guardians with 100% accuracy.

TASK: 2. Set a minimum work schedule of 15 hours per week.

PERFORMANCE OBJECTIVE: Given an agricultural cooperative position, set a work schedule of at least 15 hours per week with 10 of the 15 required hours scheduled during the school week with 100% accuracy.

TASK: 3. Maintain accurate records.

PERFORMANCE OBJECTIVE: During your agricultural cooperative program, demonstrate your management skills by keeping records of your SAE with 100% accuracy.