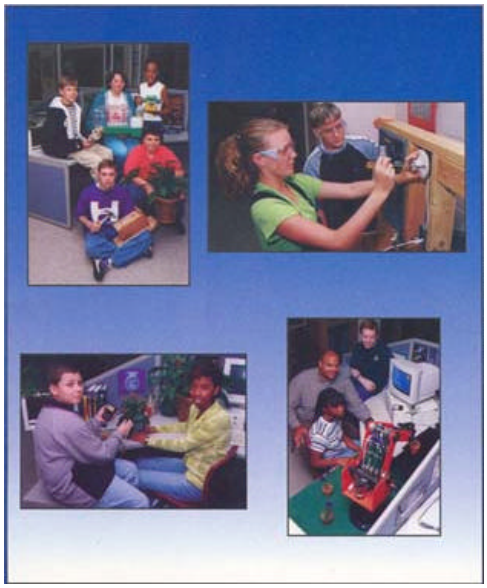
Middle School Programs
in Agriculture Education



A guide to establishing new middle school agriculture education programs and revitalizing existing programs

Developed by the Committee for Middle School Improvement Programs and the Georgia Department of Education

Middle School Biotechnology in Agriculture Education Program Development Guide

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PREFACE

An understanding of agriculture is important for every citizen. Every person has a vested interest in agriculture. The economic well being of our society is dependent on agriculture to supply an inexpensive, safe and abundant food supply. One of the purposes of agriculture education is to inform students about the industry which is so vital to our future. Agricultural literacy is important to every consumer as well as to those planning a career in agriculture.

This guide has been developed to meet the needs of administrators, teachers and others who want to implement a middles school exploratory program in agriculture or to revitalize an existing program. It outlines development of programs to teach agricultural literacy and career exploration. The curriculum is designed to integrate with other disciplines at the sixth, seventh and eighth grade levels in an effort to make English, science, math and other academic subjects more relevant to careers in the world of work. There is a broad spectrum of career opportunities in the agricultural industry and the many related fields. The middle school program is intended to give students an overview of these opportunities.

- ✓ Dependence on agriculture knows no boundaries. Urban and rural, wealthy or poor, white collar and blue collar, young and old, developed nation or developing nation, any culture, any race . . . no matter how people are classified, agriculture is the lifeline that supports them all.

ACKNOWLEDGMENTS

The Committee for Middle School Development:
Sincere appreciation is due to the teachers who served on the middle school curriculum development committee. This was a volunteer effort on their part. Each member has committed many hours of hard work on curriculum development. In addition, several members of the State Agricultural Education staff also served on the committee.

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INTRODUCTION

This publication is a guide to establishing or renewing middle school agricultural education programs. It is directed to school administrators, middle school teachers and others for the purpose of improving existing programs or to plan for the establishment of new programs. Its objective is to clearly convey the purpose and components of middle school programs in agricultural education. Persons working to improve an existing middle school program or establish a new program should also consult with the State Director or Regional coordinator of Agricultural Education.

Middle school programs in agricultural education are an important component of the overall agricultural education program in Georgia. Middle school programs introduce students to the agricultural industry at a critical stage of their development. Middle school students are at the appropriate age to learn about the important issues and vast career opportunities related to agriculture. Middle school students are ready and able to learn about the agricultural industry and the crucial relationships between agriculture, the economy and society.

Instructional guides for agricultural education at the sixth, seventh and eighth grades have recently been published (1998) by the Georgia Department of Education and are available upon request. The middle school curriculum in agriculture is designed to provide for instruction about agricultural and environmental literacy and agricultural careers for middle school students. Lessons encompass a problem-solving instructional approach where applicable. Student-oriented activities are included to provide opportunities for experiential learning. Quality Core Competencies (QCC) have been identified by lesson to encourage teachers to enhance the attainment of those educational outcomes. A cross-referenced table is included in this publication along with the curriculum outline.

SUGGESTIONS FOR IMPLEMENTING THE MIDDLE SCHOOL AGRICULTURE CURRICULUM

This guide contains suggestions for planning programs which provide instruction in all areas of the agriculture curriculum. Examples include: agriculture mechanics, small animal care, livestock, crop production, horticulture, agribusiness sales and service, agriscience research, agricultural leadership, and forestry and natural resources. Suggestions for teaching units on personal development have been incorporated into each of the curriculum areas.

Each teacher should be familiar with the needs and characteristics of their students as well as what has been taught in relation to career awareness, career development, and career exploration in prior grades. This will help to avoid unnecessary duplication of experiences.

A detailed course calendar should be developed after the teacher becomes familiar with the needs and interests of students. The teaching units, as listed in the middle school instructional guides, are not necessarily organized in the best sequence for teaching in every situation. The sequence should be planned by each teacher depending on their local situation. The teacher should also plan the curriculum with local agriculture in mind. Important local content should be incorporated into the lessons.

Laboratory experiences or hands-on activities should consume a significant portion of the time allotted for each instructional area. Hands-on laboratory experiences supplement classroom activities by providing students an opportunity to experience what it is like to work in agricultural occupations. Exploration of careers assists students in making tentative career choices. Students must be provided opportunities to investigate occupations. Exploration of careers assists students in making tentative career choices. Students must be provided opportunities to investigate occupations in a variety of ways including individual, small group, and large group activities.

- ✓ Agricultural education exposes students to a wide range of career choices. Agriculture is the largest industry in the U.S., involving 22% of the U.S. workforce.

AGRICULTURE EDUCATION PROGRAM PHILOSOPHY

As a part of the overall educational program, agriculture education is designed to provide students with competencies to make them aware of and prepared for the world of work. Agriculture is a dynamic, rapidly changing industry that has an exciting future. The "new Agriculture" consists of the intriguing new frontiers of biotechnology. While the primary thrust of the program is for those students who are preparing for employment in agricultural occupations requiring less than a baccalaureate degree, agricultural education has a long tradition of preparing students who continue their education in agriculture at the postsecondary level. The program concentrates on the development of essential technical skills that are vital to the success of people entering a career in agriculture. Just as important as the technical skills are the skills developed in leadership through the comprehensive nature of the program. Since its inception, agricultural education ahs trained youth in the skills necessary to assume leadership positions in agriculture. As agriculture addresses controversial issues such as genetic engineering, leadership training takes on increasing importance among our youth. People will be needed who not only have an understanding of the technical aspects of the issues, but who also have an understanding of the ethical and philosophical issues.

Agricultural Education is composed of three distinct yet interrelated components. A basic component is classroom and laboratory experiences. In the classroom, students learn concepts and theories dealing with a broad spectrum of agricultural and agribusiness topics. The classroom is followed by the laboratory mode of instruction where concepts and theories are carried through to their application. Here, the students are taught "hands-on" skills that ensure that the skills learned are practical and usable.

Both classroom and laboratory instruction are put to use in the Supervised Agricultural Experience Program (SAEP) component of the program. In this approach, students work and learn in a real-life situation where they obtain on-the-job skills. SAEP can vary from the traditional home projects to entrepreneurship or cooperative work experience in production or agribusiness.

The third component, the FFA organization, provides an avenue for developing leadership skills. As an integral, intracurricular component of the agricultural education program, the FFA has numerous systems to deliver instruction in leadership. In addition, FFA provides incentives for improved student performance through its awards program Teachers of agriculture have always stressed the problem solving and decision making approach to teaching. Through this approach, students are better equipped to cope with changes that are constantly occurring, not only in agricultural industry but in life in general. The strength of the program lies in the flexibility and dedication of teachers whose philosophy is, "We don't just teach agriculture, we teach students."

Agriculture Facts

- ✓ The first agricultural experiment station in the U.S. was established at Savannah in 1735.
- ✓ Georgia was the first colony to cultivate grapes.
- ✓ Eli Whitney invented the cotton gin near Savannah in 1793. Georgia was the first state to commercially grow cotton and first to run a successful cotton mill.
- ✓ The first silk from the colonies was shipped from Savannah and made into a dress for the Queen of England.
- ✓ American cattle were first exported from Savannah in 1785.
- ✓ Farm and forest production are responsible for $5.3 billion in output and 78,100 jobs in Georgia.
- ✓ Food and fiber processing firms contribute about 169,700 jobs and $27 billion in output in Georgia.

*All facts are based on 1998 figures.

AGRICULTURE EDCUATION VISION STATEMENT

Vision: "To be a premier learning system that delivers agricultural, environmental and leadership education programs and services."

Vision Emphasis:

- **Agricultural Awareness**
  To deliver a literacy and appreciation program that enhances public understanding of agriculture and the environment.

- **Biotechnology**
  To interpret, communicate and encourage the proper application of biotechnology.

- **Curriculum**
  To develop and provide a functional and challenging curriculum utilizing state of the art equipment, facilities and technology.

- **Environmental**
  To develop awareness, appreciation and application of environmental stewardship.

- **Global Agriculture**
  To foster global understanding and relationships through learning experiences in agricultural and environmental education.

- **Leadership**
  To provide a dynamic leadership program through communication, citizenship and cooperative activities.

- **Life Long Learning**
  To provide life long agricultural learning experiences.

- **Marketing**
  To promote the value of agricultural education and implement marketing strategies for each of our target groups.

- **Partnerships**
  To develop a mutually beneficial educational network.

- **Recruitment**
  To develop and implement systems for recruiting and retaining quality teachers and students.

- **Technology**
  To enhance the utilization of advanced and emerging technologies.

The Georgia Agricultural Education Vision was developed during the 1998 conference on 2020 Vision for the agriculture education program. Over 200 of the state's leaders in agriculture, agribusiness, agriscience and education participated. This committee's charge was to develop a vision statement that would guide development of the program into a vibrant, viable, premier leader in agriculture education through the year 2020.

PURPOSE AND OBJECTIVES

The purpose of the middle school agricultural education program is to explore and stimulate interest in the world of work in the agricultural industry through prescribed classroom and laboratory experiences designed for basic understanding, introductory skill development, agricultural literacy and personal development.

Specific Objectives of the Middle School Agriculture Education Programs are to:

1. Provide background knowledge, understanding and abilities useful in helping students make decision.

2. Develop personal attributes, attitudes and knowledge toward becoming a contributing member of society.

3. Stimulate interest and provide opportunities to acquire basic knowledge of and explore skills in such areas as agricultural research, forestry and natural resources, horticulture, and the plant and animal sciences.

4. Provide a setting for the application of the instruction in academic disciplines.

5. Provide a basis for student selection of one or more career areas for further study at the high school and collegiate level.

6. Develop agricultural and environmental literacy skills for all students for their benefit as consumers and citizens.

> ✓ Agriculture education addresses important, real-world topics that interest middle grade students: plants, animals. The environment, mechanics and careers.

AGRICULTURAL AND ENVIRONMENTAL LITERACY

Agricultural education is broader than vocational agriculture. Education about agriculture—*agricultural and environmental literacy*—is an important part of a comprehensive agricultural education program at the middle school and high school levels.

Students enrolled in grades 6-8 should have the opportunity to learn about the food, fiber and environmental systems and their economic, social and environmental significance. Much of the instruction is designed for those students who are not involved in or pursuing careers in the agriculture industry.

Agriculture and environmental literacy has received renewed emphasis based on a recommendation of the 2020 vision Conference participants (see page ?? for the complete vision statement). The middle school curriculum has been designed to include literacy as well as career exploration. Design of the middle school agriculture curriculum was based on the idea that most of the students will never work in an agricultural or environmental science career, but that they will benefit as consumers from a basic understanding of the food, fiber and environmental systems.

An effort is also being made through the "Agriculture in the Classroom" program, sponsored by the Georgia Farm Bureau Federation, to provide agricultural literacy education. Most middle school students are not in a school that has an agriculture education program. The "Agriculture in the Classroom" materials are designed to integrate agriculture literacy into existing courses such as math and science. Teachers and administrators may wish to contact the Georgia Farm Bureau Federation for a copy of the Agriculture in the Classroom materials to supplement state provided curriculum materials.

- ✓ Agricultural and environmental literacy have received renewed emphasis based on the 2020 Vision Conference recommendations.

AGRICULTURAL EDUCATION GOALS

Goals	Middle School	High School	Technical School	College & University	Adult Ag Ed Program
Agricultural Career Awareness	●				
Agricultural Career Exploration	●	●			
Reinforce Academic Skills	●	●		●	
Personal Development/Leadership	●	●			
Consumer Awareness	●	●			●
Agricultural and Environmental Literacy	●	●	●	●	●
Technological Literacy	●	●	●	●	●
Orientation to Agricultural Education	●	●			
Preparation for Employment		●	●	●	●
Preparation for College or University Education		●			
Technical Training		●	●		●
Professional Preparation				●	
Continuing Education			●		●
Avocational Agriculture			●		●
Short-Term Training and Retraining					●

CURRICULUM FOR MIDDLE SCHOOL AGRICULTURE PROGRAMS

Detailed curriculum and instructional materials in agriculture education have recently been developed and are available through the Georgia Department of Education. These include the Curriculum Framework and instructional guides for each of the middle school grades.

Curriculum Consistency

Historically, the agricultural education program was based on local needs due to the diversity of agriculture in Georgia and the fact that most people did not move far from their home community for employment. Consequently, there was very little consistency in the agriculture education curriculum content and content organization in the state. Success in modern agriculture and agribusiness requires a knowledge of global agriculture. The world market affects every product, service and business. The recently developed middle school curriculum seeks to incorporate a global economic perspective based on a recommendation by the Vision 2020 Conference participants. With increased emphasis on state, national and international agriculture, it is advantageous to have a more consistent curriculum across the state. Local systems are encouraged to adopt the new curriculum and localize it as necessary to accommodate specific local agricultural needs.

Curriculum Framework

The middle school curriculum committee met in 1997 to review that challenges middle school programs were facing and to establish a suggested curriculum for middle schools. The outline of the curriculum is included in this publication. It is a suggested outline in an attempt to make middle school agriculture curriculum more consistent across Georgia. The curriculum also guides teachers to include the most important content in their programs, as well as the most appropriate grade and age level at which to teach the content.

The curriculum content was selected and sequenced for appropriate grade level by the middle school curriculum committee. It is suggested that this curriculum be used as a basis for instruction in the local school. However, it is recognized that no one curriculum will fit every school and situation. The teacher, advisory committee, and local administration must develop the curriculum for their particular situation.

The committee began its work by reviewing the results of a recent middle school research study on middle school content (Pool, 1996). In the study, all middle school agricultural education teachers in Georgia were surveyed to determine what the curriculum content should be for middle school programs. After review of the study recommendations, the committee approved 68 areas of study to be included in the middle school agricultural education program.

The committee approved the following principles to guide school personnel in establishing new middle school programs or in renewing current programs.

- The curriculum should be designed so that there are no pre-requisites to the courses.
- Lab facilities should be provided for supervised practice.
- Personal development and leadership education should be an integral part of the curriculum at each grade level.
- Hands-on learning is a highly desirable methodology for this age student and should be used where possible.
- Team building activities should be emphasized.
- All agricultural careers should be explored, including jobs in new and emerging technologies.
- Agricultural and environmental literacy should be a major objective of the program.

Quality Core Curriculum

The Quality Core Curriculum (QCC) is the uniformly, sequenced core curriculum for grades kindergarten through 12 adopted by the Georgia Board of Education (1989; revised 1997). QCC standards in Agricultural Education were revised with an emphasis on student needs based on changes in industry, education and community needs and expectations. The Quality Basic Education Act charges the State Board of Education with establishing competencies that each student has the opportunity to master. The QCC standards in agriculture education were revised to meet these needs.

Instructional Guides

The middle school instructional guides for sixth, seventh, and eighth grades are a result of efforts by the middle school committee and based on curriculum research, QCC revision, and the 2020 Vision Conference results. The instructional guides contain detailed lesson plans and teaching materials for middle school agriculture. Copies of the guides may be obtained from the State Director or the Regional Coordinator of Agricultural Education.

ORGANIZATION OF PROGRAM

The middle school agricultural education program is organized to complement existing academic programs. A three year program is suggested for the middle school. Suggested courses and grades are:

6th grade - Introduction to Agriculture – 9 to 18 weeks
7th grade - Exploring Agriculture -- 9 to 18 weeks
8th grade - Agricultural Careers Development – 1 year

Agricultural education has traditionally been a part of the middle school career exploration program in which students rotate among several exploratory classes, typically spending 6-18 weeks in each. Sixth and seventh grade classes in agricultural education have traditionally been six, nine or eighteen weeks long. Eighth grade agricultural education classes have been from nine weeks up to one year in length. It is recommended that middle school agriculture consist of at least nine weeks of study in the sixth and seventh grades or approximately 45 hours. The eighth grade program should be one year (180 hours) in length, but a minimum of one semester (90 hours). It is understood that local situations vary and these minimum recommended times may not be practical in all schools. The program lengths listed here are suggestions.

In the sixth and seventh grades, students are exposed to broad career areas and learn about the food, fiber, and environmental systems. Students are introduced to these career areas through selected lessons and hands-on activities related to those careers. In the eighth grade, students receive more in-depth exploratory experiences in specific occupational fields. As a result of their experiences in sixth and seventh grades, students begin to make tentative choices of career options in terms of their interests and abilities.

During the eighth grade, it is suggested that students be given the opportunity to expand their interests in agriculture by taking a course for one full year. This allows for more focused planning with the student's individual needs and career objectives. The eighth grade curriculum should be expanded horizontally and vertically to keep pace with the student's expanding physical and mental capacity to study more in-depth, as well as to allow the student to continue to explore new career opportunities in agriculture. The curriculum guide provides the basis for the year-long eighth grade course. The teachers should expand the curriculum, as needed, with more activities and in-depth study of the subjects.

In the eighth grade, students may select several occupational families, which are related to the areas of interest initially investigated during the sixth and seventh grades. Learning activities should be provided which emphasize "hands-on" experiences in realistic or simulated work environments. Activities such as constructing small wood or metal projects, distributing and selling a product, or landscaping a portion of the school campus enables students to examine various work roles and acquire manipulative skills and knowledge related to the occupational area. The subject areas of mathematics, science,

social studies and English should be integrated with the learning activities of the program.

The year-long program in the eighth grade allows time for students to select a single occupational area for in-depth investigation and exploration. The study of occupations enable students to further develop attitudes, skills and knowledge needed to make tentative career decisions.

The success of a career exploration program is dependent upon the cooperation and support of the local community, school administration and teachers. Provisions should be made for business leaders in the community to participate in the middle school program through an advisory committee. Detailed information on establishing and utilizing an advisory committee may be obtained form the Regional Coordinator or State Director of Agricultural Education.

The middle school agriculture program, when implemented as outlined, should provide a method whereby all students may:

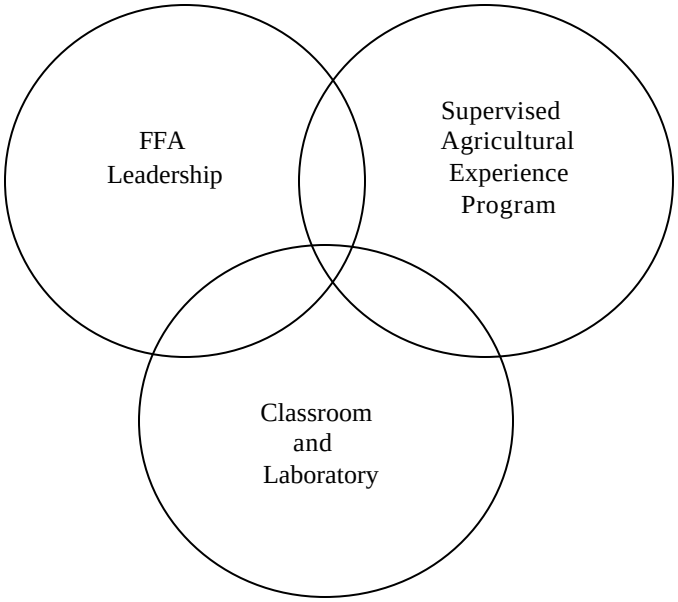
- be introduced to a wide range of career opportunities
- become informed consumers
- participate in personal development and leadership activities
- develop agricultural and environmental literacy skills

COMPONENTS OF THE PROGRAM

The agricultural education program, middle school as well as high school, is composed of three major components:

1. Classroom and laboratory
2. Supervised Agricultural Experience Program (SAEP)
3. Leadership development

Each of these is important to the success of a local program of agriculture education and development of students into informed, participating and contributing members of society. It is important that students be allowed to practice in the laboratory what they have leaned in the classroom. Agriculture students, especially high school students, further expand their learning through work in a Supervised Agricultural Experience Program. In middle school, the age of the students, numbers of students and limited course time may reduce the opportunity for students to develop in extensive Supervised Agricultural Experience (SAE) programs. Experience for middle school students may be most appropriate in the school laboratory under the supervision of the teacher. Personal development through leadership training and the FFA is highly valuable to all students, whether or not they select a career choice in agriculture.



CLASSROOM AND LABORATORY INSTRUCTION

Classroom study of agriculture develops an understanding of the food, fiber and environmental systems. Agriculture teachers strive to reinforce basic academic skills in classroom activities by demonstrating the application of those skills to the world of work. Classroom work is supplemented and reinforced by laboratory activities.

Agricultural education places great emphasis on the education value of practice under supervision – learning by doing. Supervised practice, coordinated with classroom instruction, results in students who are more knowledgeable about skills required in agricultural careers. Also, students learn about the education and skill level training required for those jobs. Supervised practice in the school laboratory and SAE programs help motivate students to learn. Most students enjoy hands-on learning activities.

The distinction between supervised practice and SAE programs should be recognized. Supervised practice can be accomplished in the laboratory as a part of the classroom and laboratory instruction or outside the class time as part of the classroom and laboratory instruction or outside the class time as part of the SAE program. Supervised practice should e a part of all teaching units, where applicable. For example, if a teacher is teaching pruning of peach trees, the student should be provided an opportunity to prune peach trees under the teacher's watchful supervision—in the school laboratory or in an out-of-class setting (SAE).

Agricultural Facts

- ✓ Georgia is ranked #1 in the U.S. for peanuts, pecans and rye.
- ✓ Cotton is the world's most important non-food crop. China and the U.S. are the world's largest producers.
- ✓ Georgia was the first state to create a state department of agriculture.
- ✓ The first Southern School of Forestry was established at the University of Georgia in 1906.
- ✓ Cotton was an ingredient in the first light bulb, the telegraph, the Wright brother's plane and the first automobile tires.

SUPERVISED AGRICULTURAL EXPERIENCE

Supervised practice may be provided in a number of ways. Historically, the most common supervised practice method has been the supervised practice program. For students who have adequate home facilities and who are interested in a career in agriculture, this continues to e the most desirable approach. On the other hand, desirable experiences and valuable learning may e obtained in many other ways. A teacher should be creative by preparing a well-balanced supervised experience plan for student. A combination of the following methods may be used:

1. Supervised experiences in agriculture at the student's home.
2. Hands-on agriculture activities in school-provided facilities.
    a. Agricultural mechanics lab
    b. Land laboratory
    c. School garden
    d. School forest
    e. School greenhouse/nursery
    f. Agriscience laboratory
3. Work experience/cooperative learning in agribusiness.
4. Agriscience fairs and displays.
5.

When the teacher, student and parents plan a coordinated series of supplemented learning experience opportunities, the overall result is referred to as a Supervised Agricultural experience Program (SAEP). When the student undertakes a project, such as home landscape maintenance or carrying out an agriscience experiment, they have a planned supervised agricultural experience program.

The middle school curriculum provides an orientation to and background understanding of the global agricultural industry and career opportunities in the industry. The course content, encircled by the SAEP program, provides core learning for future development and refinement. The SAEP program provides core learning for future development and refinement. The SAEP program may be less important during high school, but it is nonetheless very important. It is highly desirable to provide students with hands-on activities to supplement classroom learning as a basis for choosing or rejecting a possible career area. When students enter high school, the experiences they have had in agricultural education, as well as in other exploratory classes, will help them focus on a career area and begin to plan their educational goals. Since most students lack extensive experiences in agriculture at home, the school should provide land and laboratory facilities. Facilities may include an agricultural mechanics laboratory, greenhouse, nursery, small and large animal facility, aquaculture unit and agriscience laboratory. Exact facilities will depend on needs and resources of the local community. For example, an urban school may emphasize horticulture and plant science while a rural school may emphasize animal science.

> ✓ Agricultural education's hands-on, real life experiences are fun, and motivate students to learn.

- ✓ Agricultural education can enhance learning in other subject areas by applying academic concepts to real-life, hands-on activities.

Examples of Supervised Agricultural Experience Programs for Middle School Students

- ✓ Attend agricultural meetings
- ✓ Career research
- ✓ Community/volunteer work
- ✓ Conduct safety inspections
- ✓ Construct bird houses
- ✓ Flower garden
- ✓ Home landscape care
- ✓ House plants
- ✓ Job shadowing
- ✓ Monitor a stream for pollution
- ✓ Neighborhood plant sale
- ✓ Pet care
- ✓ Plant experiments
- ✓ Write a newspaper article
- ✓ Science and agriscience fair projects
- ✓ Show animals (small and large animals)
- ✓ Soil test neighbors' yards
- ✓ Vegetable garden
- ✓ Volunteer at humane society
- ✓ Programs for civic groups

FFA LEADERSHIP ACTIVITIES

FFA provides opportunities for students to obtain experience in group dynamics in a controlled and applied manner. The high school and middle school curriculum is planned in such as way as to encourage students to participate in the FFA organization during each of their years in the program. The level of instruction conducted by the teacher in the area of personal and leadership development should advance by years in keeping with the student's own development and ability to participate in leadership activities.

Development for agricultural leaders of the future is as important as technical training—if not more important. It should be an integral part of the middle school and high school curriculum. Leadership development in agriculture programs is facilitated mainly through FFA. It is strongly suggested that teachers take advantage of FFA as a vehicle for teaching leadership in and outside the classroom.

Middle school teachers and administrators emphasize that middle grade students need frequent hands-on activities and more team work with fewer individual activities than high school students. They point out that the energy and competitive spirit of students this age should e harnessed to maximize learning. FFA provides the type of learning experiences that most interest these students. Competitive team events and team work through projects provide a great opportunity to teach leadership and personal development. Many community and school projects may be undertaken by the local middle school FFA chapter. In addition, leadership activities available to middle school FFA members above the chapter level include:

- Seed and Plant ID Career Development Event
- Natural Resources Career Development Event
- Junior Public Speaking
- Junior Parliamentary Procedure
- Creed Speaking Event

The Georgia FFA Awards Bulletin discusses each Career Development Event in detail. Contact the Georgia FFA Organization for more details on activities or for information on chartering a middle school FFA chapter or participating in career development events.

> ✓ The FFA is a national organization once known as "Future Farmers of America". Founded in 1928, the FFA has been and continues to be a perfect vehicle for incorporating leadership and personal development into agricultural education instruction.

MEETING STUDENT NEEDS

Developmental Needs of Middle Grade Students	Through agricultural education and its student organization, middle grade students will . . .
Self Identify	- learn about global interdependence - explore career options - earn recognition for their unique achievements - identify personal interests in agricultural content
Self Esteem	- master hands-on skills related to the production, science and technology of agriculture - do something they enjoy - experience success - discover talents and skills - earn recognition - participate in community service and development activities - evaluate their own progress - establish healthy, supportive relationships
Understanding and Respect	- interact with a variety of peers, children, older teens and adults
Diversity	- learn about the people and cultures in other lands - make cooperative decisions - appreciate the variety of ideas and skills people bring to a project
Social Skills	- explore what citizenship means - apply public speaking skills - learn to work on a team - work with others in a group setting toward a common goal
Problem Solving and Decision Making Skills	- participate in group decision making - solve problems as part of a team - set personal goals and work toward them - identify problems facing American agriculture
Reflective, Critical and Creative Thinking	- learn to utilize limited resources wisely - learn importance of environmental stewardship - apply scientific concepts - discuss ethical considerations in production agriculture

Caring and Sharing	- learn animal and plant care and participate in hands-on projects - explore the interdependence of humans and nature - experience community service and development - show consideration for others
Applied and Experiential Learning	- learn about the production, science, processing and marketing of food and fiber - apply and observe the scientific method - apply interpersonal, leadership and cognitive skills within and outside the classroom setting - participate in growing plants and raising animals - teach others lessons about agriculture - learn academic concepts in an applied context
Occupational Awareness	- explore agricultural careers - visit work sites and meet people involved with agricultural careers - hear from people employed in agricultural careers - develop interpersonal, leadership and cognitive skills for future careers

Team Building Activities

Career Development Events
Recreational Activities
Chapter Meetings
Committee Meetings
Group Projects
Community Activities

ARTICULATION WITH HIGH SCHOOL AGRICULTURE PROGRAMS

One of the purposes of the middle school career exploration curriculum is to make students aware of the broad career opportunities in the agricultural industry by giving them basic knowledge and experiences. They are encouraged to begin setting career goals and to develop tentative plans to accomplish those goals. Plans for accomplishing career goals in agriculture may include continuing the study of agriculture and agriscience in a high school program, concentrating coursework in the sciences such as chemistry and biology, and post-secondary study at a college, university or technical institute.

In many instances, middle school students will enter a high school that does not have agriculture. The question then arises, "Was the middle school program a dead end, and should it exist without a continuation component in high school?" If middle school agriculture programs accomplish their purpose, students benefit whether or not they have a high school agriculture program in which to continue their study. The goals of middle school programs are significant and meaningful and not necessarily dependent on continuation into high school agriculture programs.

However, an articulated and sequential program gives students the opportunity to pursue career goals according to their physical, social and intellectual development. High school programs allow students to study and to continue to explore their interest areas in agriculture. When high school agriculture programs are not available for continuation of agriculture study, student should e encouraged to concentrate in other science areas in preparation for agriculture at the post-secondary level.

- ✓ If middle school agriculture programs accomplish their purpose, students benefit whether or not they have a high school agriculture program at which to continue their study.

IMPLEMENTING A MIDDLE SCHOOL AGRICULTURE PROGRAM

Local school systems must decide the nature and scope of the agriculture program to be offered. A program establishment plan should be developed.

Middle school agriculture education may be implemented at the local level in (1) school systems where no agriculture programs are currently conducted, (2) school systems which now offer an agriculture program at the high school level or (3) in systems which have middle school programs which need to be revised, modified or expanded.

Procedures used in all situations are basically the same. The major steps involved in the program planning process can be followed in most schools.

A procedure for developing a new middle school agriculture education program or modifying an existing program could include the following steps:

1. Establish a development committee to include school personnel, agribusiness and community representatives, and state or regional agricultural education staff from the Georgia Department of Education.
2. Develop program mission and goals. Written goals should be identified to provide guidance in accomplishing the mission of the program.
3. Develop program objectives. These objectives should describe what the program of agricultural education is supposed to accomplish, the groups to be served and the outcomes to e achieved.
4. Prepare a list of items which must be considered in developing a program. These assumptions should include answers to the following questions:
    a. What facilities and equipment will be made available?
    b. How will youth organizations, and supervised agriculture experience programs be encouraged?
    c. Will the agriculture teacher(s) be employed with an extended day and extended year contract?
    d. How will agriculture courses integrate academic concepts in support of basic skills?
    e. Who will serve on the advisory committee and how will it be organized?
    f. How will initial funding of the program be obtained?
    g. At what grade levels will the program be taught? What will be the length of the courses? If applicable, how will middle school students rotate through the agriculture program?
5. Consider the following suggestions for identifying course content and installing the core curriculum units and problem areas in the instructional program:
    a. Select the core content areas which should be taught from he state instructional guides for middle school agriculture.
    b. Add additional content areas which address unique needs of the local community.
    c. Schedule the proposed content areas for each course to allow for seasonal arrangement of instruction, efficient use of classroom and

laboratory space, and coordination of class instruction and FFA/Leadership activities.

d. Prepare a course calendar.

6. Articulate programs and courses with the high school agriculture program if applicable.
7. Contact the Regional Coordinator or the State Director of Agricultural Education for a list of qualified agricultural education teacher candidates.

Agriculture Facts

- ✓ During the 1996 Centennial Olympic Games, Olympic athletes drank an estimated 100,000 gallons of milk, or the milk from 1,680 cows.
- ✓ About 18 million laying hens produce more than 4 billion eggs per year.
- ✓ Georgia produces 44% of the U.S. peanut crop.
- ✓ One U.S. Farmer feeds 129 people.
- ✓ The total land area for Georgia is 37,068,000 acres, of which 64% is considered commercial forest, more than any other state.
- ✓ One in every five forest product manufacturing jobs is located in the Metropolitan Atlanta Area.
- ✓ On average, each American will use the equivalent of a 100-foot tree, 18 inches in diameter every year.

CERTIFICATION OF MIDDLE SCHOOL AGRICULTURE TEACHERS

Middle school agricultural education teachers should be certified in the area of agricultural education through the Georgia Professional Practices Commission. Certification is based upon completion of an approved course of study in agricultural education from an accredited college or university and posting of a passing score on the examination required for teacher certification in agriculture. In Georgia, two institutions have accredited programs in agricultural education, the University of Georgia and Fort Valley State University. In addition, classes in middle school education may be required for certification.

Contact the Regional Coordinator or State Director of Agricultural Education for a list of candidates certified to teach agricultural education at the middle school level.

Teacher Education Programs in Agriculture

Agricultural Education
The University of Georgia
107 Four Towers
Athens, Georgia 30602
Office Phone: (706) 542-8913
Fax: (706) 542-0262

Agricultural Education
Fort Valley State University
P.O. Box 4793
Fort Valley, Georgia 31030
Office Phone: (912) 825-6262
Fax: (912) 827-3062

CAREER OPPORTUNITIES IN AGRICULTURE

Examples:

Ag Accountant
Ag Chemical Dealer
Ag Electrician
Ag Investment Manager
Ag Journalist
Ag Lawyer
Ag Loan Officer
Ag Photographer
Ag Public Relations
Agribusiness Manager
Agriculture Teacher
Agriculturist
Agriscience Researcher
Agronomist
Ag Scientist
Animal Behaviorist
Animal Cytologist
Animal Geneticist
Animal Health Products Distributor
Animal Physiologist
Animal Nutritionist
Apiculturist
Arboriculturist
Bacteriologist
Beekeeper
Biochemist
Bioengineer
Botanist
Christmas Tree Producer
Computer Analyst
County Extension Agent
Crop Consultant
Crop Duster
Crop Scientist
Dairy Nutritionist
Ecologist
Economist
Embryologist
Entomologist
Environmentalist
Equipment Dealer
Farm Appraiser
Farm Broadcaster
Fiber Technologist
Field Inspector
Fire Warden
Fish Farmer
Fish Hatchery Manager
Floral Designer
Florist
Food Chemist
Food Process Supervisor
Food Scientist
Forester
Forest Ranger
Game Farm Supervisor
Game Warden
Geneticists
Golf Course Superintendent
Grain Broker/Buyer
Grain Elevator Buyer
Greenhouse Management
Ground Water Geologist
Home Economist
Horticulturist
Hydraulic Engineer
Hydrologist
Ichthyologist
Insect & Disease Control
International Specialist
Irrigation Engineer
Lab Technician
Landscape Architect
Land Surveyor
Livestock Consultant
Livestock Rancher
Machine Engineer
Mammalogist
Marine Biologist
Meat Cutter
Meat Scientist
Meteorological Analyst
Microbiologist
Nematologist
Orchard Supervisor
Organic Chemist
Parasitologist
Park Ranger
Pest Control Technician
Pharmacologist
Poultry Scientist
Quality Control Supervisor
Range Manager
Safety Engineer
Salesperson
Scientific Illustrator
Scientific Writer
Seed Analyst
Silviculturist
Soil Conservationist
Soil Engineer
Soil Scientist
Tobacco Buyer
Turf Grass Management
USDA Inspector
Veterinarian
Wildlife Biologist
Winery Supervisor
Zoologist

FACILITIES

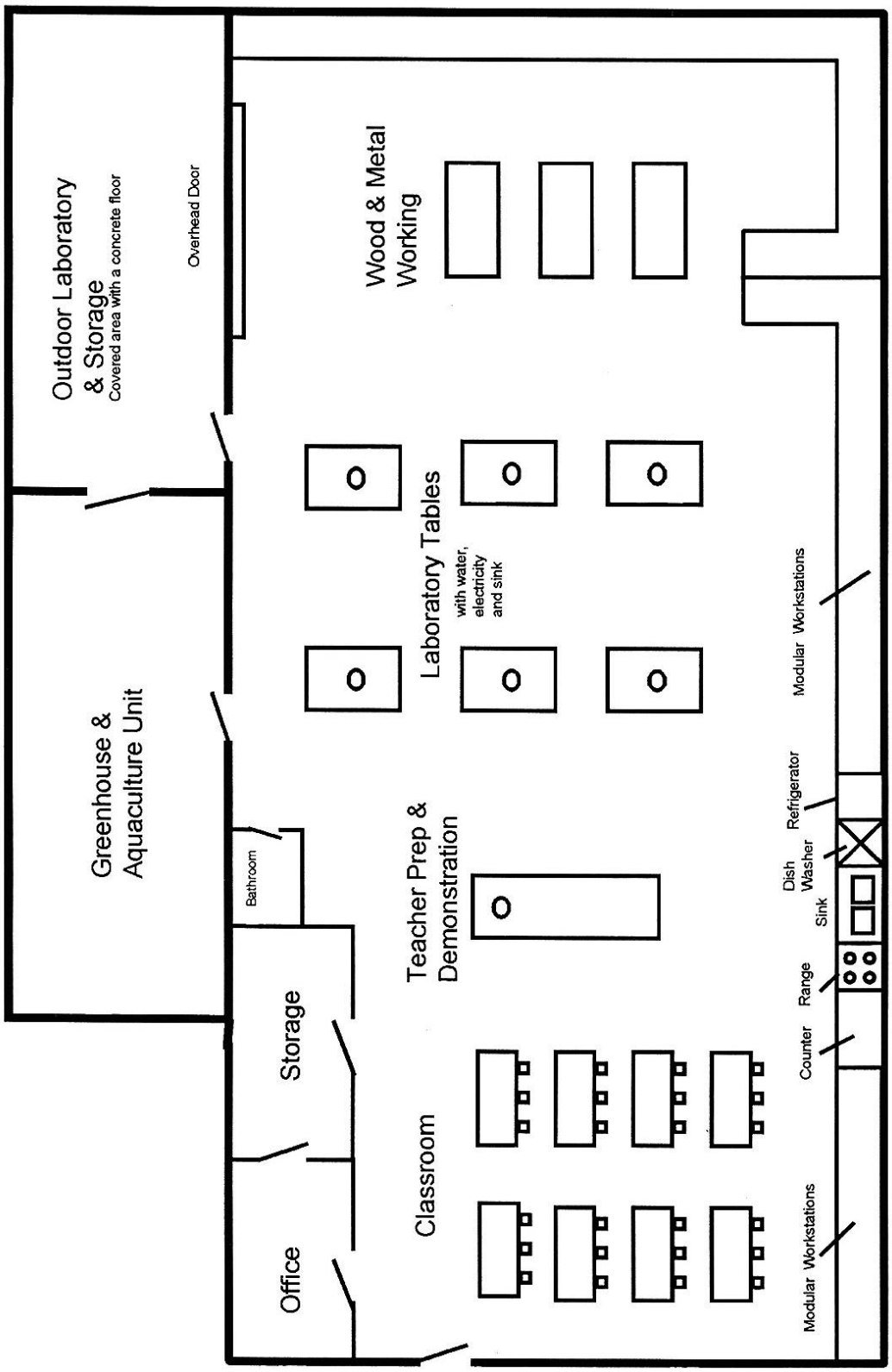
Middle school agriculture is a laboratory course. In addition to adequate classroom and teacher office space, indoor and outdoor laboratory facilities should be provided. They type of facilities need depends on the nature of the program implemented. For example, a school may design the program with an emphasis area such as agriscience research or forestry.

In most cases a general middle school program is recommended. Emphasis areas are more appropriately used in high school programs. General middle school facilities include a space for agriscience, agriculture mechanics, a greenhouse, and outdoor areas for environmental study, natural resources, nursery and landscape, forestry and gardening. The classroom may stand alone or be a part of the lab with little or no dividing partition.

Modular Delivery System
A minimum of the recommended facilities should be included even if the modular system of middle school teaching is implemented. A complete modular delivery system is not recommended. It is recommended that instruction provided in modular format be used in conjunction with more traditional forms of teaching and that the modules be used as only one component of the teacher's repertoire of instructional techniques.

Recommended Facilities	
Facility Type	**Minimum Size**
Classroom	800 square feet
Agriscience Laboratory, including areas for mechanics, soil science and animal and plant biological studies	1800 square feet
Teacher Office	150 square feet
Storage/Supplies/Resource Area	250 square feet
Outside Storage Area	250 square feet
Greenhouse	1200 square feet
Forestry, Environmental, & Natural Resource Area	1 acre
Garden Area	5000 square feet

FACILITIES FOR MIDDLE SCHOOL AGRICULTURE



EQUIPMENT

Note: For a complete list of equipment with specifications, contact your Regional Coordinator of Agricultural Education.

Air compressor
Alcohol burners
Altimeter
Aquaculture unit
Aquariums
Balance – triple beam
Balling gun
Band saw (teacher use only)
Bench grinder (teacher use only)
Biltmore sticks
Bolt cutter
Brooder, electric
Butter churn
Cattle handling equipment
Chemical storage cabinet
Classroom plant display cart
Clinometer
Compression tester
Computers and printers
Cruising prism
Dehydrator (teacher use only)
Demonstration table, science type
Diameter tapes
Dibble, tree planting
Dishwasher
Drafting kit
Drill bits
Drills, manual and electric
Egg incubator
Electric soil sterilizer
Electric extension chords
Electrical wiring hand tool kits
Electronic timers Electronic scale
Emasculator
Eyewash station
Face safety shield
Fertilizer spreader
First aid kit
Floral cooler
Floral hand tool kit
Food processor
Garden hand tools
Garden tiller
Glue guns
Grain grinder
Handwash station
Hose reel
Hotplates, laboratory type
Hydrometer
Hydroponics unit
Hygrometer
Increment borer
Indicator, temperature and humidity
Kitchen glassware and tools
Lab safety charts
Lab work stations, science type
Laboratory aprons
Laboratory dissection kits
Laboratory glassware sets
Ladders
Landscape drawing kits
Landscaping hand tool sets
Lawnmower, push type
Level, mason's
Level, carpenter's
Level, surveyor's
Leveling rod
Light meter
Light gardens
Livestock identification tools
Livestock grooming set
Lumber storage rack
Machinist's vise
Magazine rack
Magnifier, extension arm
Masonry hand tool sets
Metal working bench
Metal working tool kits
Micro projection unit
Microscopes, compound
Microscopes, dissecting
Microwave oven
Multimedia workstation
Notebook rack
Oxyacetylene kit (teacher use only)
Pick machines
Power saw (teacher use only)
Power miter saw (teacher use only)
Plumbing tool kit
Preparation chart
Propagating mat
Rain gauge
Refrigerator with freezer
Respirators
Rootview growth chamber
Safety glasses with cabinet
Safety gloves and hats
Scale, tree and log
Screwdriver sets
Seeder
Shop vacuum, industrial type
Siphon mixer
Slide projector
Small engine tool kits
Soil test meter
Soil auger
Soil thermometer
Soil moisture meter
Soil probe
Soil storage bins
Spark plug gauge
Spark tester
Sprayer, 3 gallon pump
Stove with oven
Surveyors compass with staff
Swine handling equipment
Syringes
Tape measure, 100 ft.
Tattoo marking kit
Telephone simulators
Thermometer, outdoor
Thermometer, indoor/outdoor
Thermometer, hi/lo
Time clock
Torque wrench
Tree marking gun
VCR
Video monitor
Video camera
Voltmeter
Water hoses
Water test kit
Watering wands
Weather vane
Wheelbarrows
Woodworking bench
Woodworking tool kits
Woodworking vise
Wrench sets

STANDARDS FOR MIDDLE SCHOOL AGRICULTURE PROGRAMS

In 1996, the State Board of Education approved a plan for revitalization of the agricultural education program. Included in the plan was adoption of the standards for Georgia agriculture programs developed by the Georgia Vocational Agriculture Teachers Association (GVATA). The standards relating to middle schools are included on the following pages.

Use of GVATA Program Standards Manual

Note: The following is the GVATA introduction to and recommended use of the GVATA Program Standards Manual. However, it is not necessarily the procedure that will be used by the Georgia Department of Education for evaluation of programs. It does serve as a guide to characteristics of a good program.

We the members of the GVATA are teachers of agriculture by choice and not by chance. We believe in American agriculture and dedicated our lives to its development and the advancement of its people. Consequently, we wish to maintain high standards for our programs knowing that only though comprehensive, quality programs we can provide the kind of educational experiences for the youth and adults of our communities that will meet their needs and have a lasting positive influence on their lives.

Our concern for quality programs and program improvement has led to the adoptions of this Program Standards Manual. The Manual was developed and approved by members of the profession for the purpose of program evaluation and program improvement. The Standards Manual sets forth the minimum standards for individual teachers (high school, middle school, Young Farmer, and Area Agriculture Teachers), system support for programs, and food processing centers.

The GVATA recommends that each teacher of agriculture be evaluated using this instrument at the conclusion of each school year by the Regional Director or his designee, along with a local administrator. The presence of a peer teacher at the evaluation is recommended, but not required. An overall rating of "Standard" or "Substandard" will result from the evaluation. The specific criteria for establishing the final rating is included at the end of each program area.

The GVATA recommends that each Regional Director mail a copy of the evaluation instrument along with a cover letter to the appropriate local administrator by September 1 of each year. The GVATA further recommends that the completed evaluation be mailed to the teacher of agriculture upon completion of the evaluation process, and that additional copies of the evaluation e mailed to the vocational Supervisor, Principal and Superintendent.

Professional Standards

Adopted from the Georgia Agricultural Education Program Standards Manual (1996)

	Yes	No	
1.	_____	_____	Does the teacher hold a valid Teaching Certificate in Agricultural Education? If employed on a provisional certificate, is a teacher working toward completion of certification requirements?
2.	_____	_____	Did the teacher comply with the "Code of Ethics for Vocational Agriculture Teachers"?
3.	_____	_____	Is the teacher a member of the Georgia Vocational Agriculture Teacher's Association?
4.	_____	_____	Did the teacher attend all Regional meetings for Agricultural Education teachers (unless excused by Regional Director)?
5.	_____	_____	Did the Agricultural Education Department have at least two meetings of the Advisory Council?
6.	_____	_____	Was a copy of the monthly report form mailed by the teacher to the Regional Director for each month?
7.	_____	_____	Was the annual Program of Work approved by the local system and Regional and State Director of Agricultural Education?
8.	_____	_____	Did the teacher attend the GVATA State Leadership Conference (unless excused by the Regional Director)?
9.	_____	_____	Did the teacher attend one or more summer in-service training clinics?

In-school Instructional Program Standards

10.	_____	_____	Has the teacher submitted a class schedule with enrollment counts to the Regional Director?
11.	_____	_____	Have practical lesson plans been developed and filed for each course taught?
12.	_____	_____	Are all classes taught by the teacher listed on the approved Agricultural Education course offering (CIP taxonomy) listing?
13.	_____	_____	Has a course calendar of all teaching units been prepared for each course taught?
14.	_____	_____	Was a unit on leadership and personal development (including parliamentary procedure) taught?
15.	_____	_____	Did the teacher maintain all facilities (ex. classroom, agricultural mechanics laboratory, livestock facilities, food processing center, forestry plot, greenhouse) in a safe, neat, and aesthetically pleasing condition?

Supervised Agricultural Experience Program Standards

16.	_____	_____	Do at least 80% of students have in place an approved Supervised Agriculture

Experience Programs?

17. ____ ____ Did the teacher provide project supervision for each student with a Supervised Agricultural Experience Program?

18. ____ ____ Was each student provided with a record book appropriate for their SAEP?

19. ____ ____ Was systematic instruction on record keeping included in the instructional program?

20. ____ ____ Did the Chapter (each teacher in multi-teacher departments) submit one or more Proficiency Applications above the Chapter level?

FFA Standards

21. ____ ____ Was the Chapter Program of Activities and Budget submitted to the Regional Director by November 30?

22. ____ ____ Was systematic instruction on the FFA included in the instructional program?

23. ____ ____ Did the Chapter hold a minimum of four Chapter meetings during the year using the official opening and closing ceremonies?

24. ____ ____ Did the Chapter conduct an Awards or Parent-Member Banquet?

25. ____ ____ Did the Chapter conduct activities in recognition of National FFA Week?

26. ____ ____ Did the Chapter conduct a community service project?

27. ____ ____ Did the Chapter have a participant above the Chapter level Prepared Public Speaking, Extemporaneous Public Speaking, Jr. Division Public Speaking, Parliamentary Procedure, Discussion Meet or Creed Speaking?

28. ____ ____ Did the Chapter have two official delegates at the State FFA Convention?

29. ____ ____ Did the Chapter compete in a minimum of four FFA competitive activities, of which at least two are team events, above the Chapter level (not including those listed in item 24 above)?

30. ____ ____ Did the Chapter have members attend FFA Camp at either the State FFA-FHA Camp or Camp John Hope?

31. ____ ____ Did the Chapter have one or more applicants for the State FFA Degree (newly established departments will have three years to fulfill)?

32. ____ ____ Was each student enrolled in Agricultural Education as an FFA member?

Adult Education Standards

33. ____ ____ Was a minimum of one organized adult class conducted by the teacher? The course must have shown a minimum of 10 adults on an enrollment form submitted to the adult education coordinator.

34. ____ ____ Is there an organized FFA Alumni affiliate?

EVALUATION CRITERIA FOR MIDDLE SCHOOL AGRICULTURE PROGRAMS

For programs to be assigned a final rating of "Standard" all items preceded by an asterisk are required and must be checked “yes” along with 2 of the remaining 5 items.

Name of Agriculture Teacher: _____

Name of Evaluator: _____

Evaluation Period: _____ to _____

_____ Required Program Standards met by teacher (25 possible)

_____ Remaining Program Standards met by teacher (5 possible)

Based upon my evaluation of _____
I have assigned the following rating:

_____ Standard Teacher of Agriculture

_____ Substandard Teacher of Agriculture

_____ _____

Signature of Evaluator Date Signature of Teacher Date

PROGRAM STANDARDS FOR LOCAL SYSTEM SUPPORT

	Yes	No	
1.	_____	_____	Was the teacher provided with adequate funds to cover travel expenses for such things as FFA activities, project supervision, State and National Conventions, and Regional and State Teacher's Meetings?
2.	_____	_____	Is the teacher currently employed on an extended day contract based upon the recommendation of the Regional Director?
3.	_____	_____	Is the teacher currently employed on an extended year contract based upon the recommendation of the Regional Director?
4.	_____	_____	Does the teacher have a planning or preparation period during normal school hours (preferably during the last instructional period of the day)?
5.	_____	_____	Does the budget for the purchase of consumable materials meet the needs of the program?
6.	_____	_____	Does the budget for the purchase of new equipment meet the needs of the program?
7.	_____	_____	Does the Agricultural Education Department have enough computers to meet the needs of the instructional program?
8.	_____	_____	Is there adequate office space?
9.	_____	_____	Does the Agricultural Education Department have access to audio-visual equipment including: _____ Camera _____ Slide Projector _____ TV and VCR _____ Video Camera (Camcorder) _____ Cassette Tape Recorder _____ Overhead Projector _____ Other (List)
10.	_____	_____	Are specialized facilities available to compliment the instructional program and facilitate school-provided Supervised Agricultural Experience Programs? _____ Greenhouse _____ Nursery/Shade House _____ School Forestry Plot _____ Ag Mechanics Laboratory _____ Livestock Facility _____ School Farm/Land Laboratory _____ Food Processing Center/Meats Laboratory
11.	_____	_____	Do the classroom facilities adequately meet the needs of the program?
12.	_____	_____	Was the teacher provided with adequate funding, supervision, and support to maintain all facilities in safe, neat, and aesthetically pleasing condition?

EVALUATION CRITERIA FOR LOCAL SYSTEM SUPPORT

For Local Systems to be assigned a final rating of "Standard" all items preceded by an asterisk are required and must be checked “yes”.

Name of School: _____

Name of Evaluator: _____

Evaluation Period: _____ to _____

_____ Required Standards met by system (12 possible).

Based upon my evaluation of _____
I have assigned the following rating:

_____ Standard Local System Support

_____ Substandard Local System Support

_____ _____

Signature of Evaluator Date Signature of Teacher Date

Curriculum Outline

Middle School Curriculum
See www.gaaged.org for complete outline.

GEORGIA'S QUALITY CORE CURRICULUM FOR MIDDLE SCHOOL AGRICULTURE PROGRAMS

Agriculture QCC by Content Standard Number:

1. Explores the scope of the agribusiness industry on the local, state, national and international levels.

2. Identifies and explores the science and technology of the agribusiness industry.

3. Develops leadership, communication, citizenship and competitive skills through co-curricular student organization activities in agribusiness.

4. Develops computer skills relevant to the agribusiness industry.

5. Explores employment and career opportunities in agribusiness.

6. Develops skills in selected practices that relate to the agribusiness industry.

7. Explores the scope of the agricultural mechanics industry on the local, state, national and international levels.

8. Identifies and explores the science and technology of the agricultural mechanics industry.

9. Develops leadership, communication, citizenship and competitive skills through co-curricular student organization activities in ag mechanics.

10. Demonstrates safety procedures related to agricultural mechanics.

11. Explores employment and career opportunities in agricultural mechanics.

12. Develops skills in selected practices that relate to the agricultural mechanics industry.

13. Explores the scope of the agricultural production industry on the local, state, national and international levels.

14. Identifies and explores the science and technology of the agricultural production industry.

15. Develops leadership, communication, citizenship and competitive skills through co-curricular student organization activities in ag production.

16. Demonstrates safety practices related to agricultural production.

17. Explores employment and career opportunities in agricultural production.

18. Develops skills in selected practices that relate to the agricultural production industry.

19. Explores the importance of agriscience on the local, state, national and international levels.

20. Identifies and explores science and technology in the agriscience industry.

21. Develops leadership, communication, citizenship and competitive skills through co-curricular student organization activities in agriscience.

22. Demonstrates safety practices related to agriscience.

23. Explores employment and career opportunities in agriscience.

24. Develops skills in selected practices that relate to agriscience.

25. Explores the scope of the environmental horticulture industry on the local, state, national and international levels.

26. Identifies and explores science and technology in environmental horticulture.

27. Develops leadership, communication, citizenship and competitive skills through co-curricular student organization activities in environmental horticulture.

28. Demonstrates safety practice related to environmental horticulture.

29. Explores employment and career opportunities in environmental horticulture.

30. Develops skills in selected practices that relate to the environmental horticulture industry.

31. Explores the scope of the forestry and natural resources industry on the local, state, national and international levels.

32. Identifies and explores the science and technology of forestry and natural resource conservation.

33. Develops leadership, communication, citizenship and competitive skills through co-curricular student organization activities in forestry and natural resource conservation.

34. Demonstrates safety practices related to forestry and natural resources.

35. Explores employment and career opportunities in forestry and natural resources.

36. Develops skills in selected practices that related to the forestry and natural resources industry.

- ✓ The complete QCC listing for agriculture education can be found on the Georgia Department of Education web site at: www.doe.k12.ga.us

TEACHER'S COURSE CALENDAR

Course Name_____

Course Number _____

Date Planned _____

Date Revised _____

	Time Schedule			
Teaching Unit, Job or Problem	**Estimated Teaching Time**	**Date Planned**	**Date Taught**	**Notes**

RECOMMENDED TEXTS AND INSTRUCTIONAL GUIDES

Burton, L. DeVere. Agriscience & Technology. ISBN 0-8273-6747-3. Delmar Publishers, Inc.: Albany, NY. 1998. 1-800-998-7498.

Chelewski, Ray E. AgriScience Explorations. 3rd ed. Prentice Hall (Interstate Publishers, Inc.) 2004.

Crunkilton, John R. The Earth and AgriScience. Prentice Hall (Interstate Publishers, Inc.): Danville, IL 2002.

Curriculum Framework for Agricultural Education in Georgia. Curriculum Guide. Georgia Department of Education, State Agricultural Education Curriculum Office: Athens, GA.

Herren, Ray V. Exploring Agriscience. ISBN 0-7668-1674-5. Delmar Publishers, Inc.: Albany, NY. 2002. 1-800-998-7498.

Lee, Jasper S., Murphy, Erin, Patrick, Amanda, Vaughn, Rosco, Vaughn-Randel. AgriScience Discovery. Prentice Hall Publishers. 2003.

Middle School Biotechnology in Agricultural Education: Grade 6. Instructional Guide. Georgia Department of Education, State Agricultural Education Curriculum Office: Athens, GA.

Middle School Biotechnology in Agricultural Education: Grade 7. Instructional Guide. Georgia Department of Education, State Agricultural Education Curriculum Office: Athens, GA.

Middle School Biotechnology in Agricultural Education: Grade 8. Instructional Guide. Georgia Department of Education, State Agricultural Education Curriculum Office: Athens, GA.

REFERENCES AND MATERIALS FOR MIDDLE SCHOOL AGRICULTURE PROGRAMS

Agri America: 2003 A.D. Video. Modern Talking Picture Service, 5000 Park St., N., St. Petersburg, FL,

America's Soil and Water Condition and Trends. United States Department of Agriculture, Soil Conservation Service.

Bennett, Charles F. Conservation and Management of Natural Resources in the United States. New York, NY: John Wiley and Sons, 2002.

Burton, DeVere L. Agriscience and Technology. ISBN 0-8273-6747-3. Albany, NY: Delmar Publishers, Inc., 1998. 1-800-998-7498.

Burton, L. DeVere. Agriscience: Fundamentals and Applications. ISBN: 0-7668-1664-8. Albany, NY: Delmar Publishers Inc., 2002. 1-800-998-7498.

Camp, William G.; Thomas B. Daugherty. Managing Our Natural Resources. ISBN: 0-7668-1554-4. Albany, NY: Delmar Publishers, 2002. 1-800-998-7498.

Care of Flowering Pot Plants in the Home. Champaign-Urbana, IL: University of Illinois, College of Agriculture.

Conserving Soil. National Association of Conservation Districts. U.S. Soil Conservation Service. USDA, nd.

Cooper, Elmer L. Agriscience Fundamentals and Applications. ISBN: 1-4018-5962-3. Albany, NY: Delmar Publishers Inc., 2005. 1-800-998-7498.

Donahue, Roy L.; James E. Christiansen. Exploring Agriculture. 6th ed. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1995.

Environmental Progress and Challenges: EPA's Update. Washington, D.C.: Public Information Center, Environmental Protection Agency, 1995.

Exploring Agriculture in America (Instructor Guide). University of Missouri-Columbia: Instructional Materials Laboratory, 1991.

Fact Book of U.S. Agriculture. Washington, DC., 2000.

Food for America. Program of the National FFA Organization sponsored by Mobay Corporation, Agricultural Chemicals Division as a special project of the National FFA Foundation

Crunkilton; Osborne: Newman: Osborne; Lee. The Earth and AgriScience. Danville, IL: Prentice Hall (Interstate Publishers, Inc.), 2002.

Georgia Farm Facts. Atlanta, GA. Georgia Department of Agriculture, 2004.

Herren, Ray V. The Science of Agriculture: A Biological Approach. ISBN: 0-7668-1669-9. Albany, NY: Delmar Publishers, 2002. 1-800-998-7498.

Hunter; Stewart; Scheil; Terry; Fraze. Developing Leadership and Personal Skills. Danville, IL: Prentice Hall (Interstate Publishers, Inc.), 2004.

Introduction to Agricultural Products and Processing. Stillwater, OK: Curriculum and Instructional Materials Center, 1990.

Krebs, Alfred H. Agriculture in Our Lives: An Introduction to Resources. 6th ed. Danville, IL: Prentice Hall (Interstate Printers and Publishers, Inc.), 2002.

Lee, Jasper S.; Diana L. Turner. Introduction to World AgriScience and technology. 2nd ed. Danville, IL: Prentice Hall (Interstate Publishers, Inc.), 2002.

McMillan, W. Feeding Multitudes: A History of How Farmers Made America Rich. Danville, IL: Prentice Hall (Interstate Printers and Publishers,) 2002.

Osborne, Edward W. Biological Science Applications in Agriculture. Danville, IL: Prentice Hall (Interstate Publishers, Inc.), 1994.

Reiley, Edward H.; Carrol L. Shry, Jr. Introductory Horticulture. ISBN: 0-7668-1567-6 6th ed. Albany, NY: Delmar Publishers, 2002. 1-800-998-7498.

Rickett, Cliff. Leadership: Personal Development and Career Success. ISBN: 0-7668-2536-1. Albany, NY: Delmar Publishers, 2003. 1-800-998-7498.

Soil Testing Methods and Procedures (student materials 8185). College Station, TX: Vocational Instructional Services, Texas A and M University, nd.

University of Georgia Extension agricultural guides: University of Georgia, Athens.
1) Caring for House Plants
2) Developing the Landscape Plan
3) Home Fruit Spray Schedule
4) Organic Gardening Techniques
5) Vegetable Harvest and Storage

National FFA Organization Resources

The National FFA Organization offers a wide variety of resources to serve FFA chapters and agricultural education programs.

For Information, Contact:
National FFA Organization
P.O. Box 68960
6060 FFA Drive
Indianapolis, Indiana 46268-0999
(317) 802-6060
Fax: (317) 802-6061
Telephone Orders: 1-800-366-6556
Fax Orders: 1-800-366-6556
http://www.ffa.org

Periodicals
FFA New Horizons
FFA Adivors making a Difference

FFA-Related Handbooks and Instructional Materials
Bridging Horizons, and FFA Advisor's Guide to FFA Involvement for Members with Disabilities
Chapter Planning and Recognition: A Student Handbook
FFA Advisor's Public Relations Guide
Official FFA Manual
FFA Student Handbook
PALS: Partner in Active Learning Support
Handbooks, Brochures, posters and Video
Reporter's Handbook
Secretary's Book
Treasure's Book

Leadership and Personal Growth Videos
"Goal Setting"
"Self-Motivation"
"Teamwork"
"Self-Esteem"
"Leadership"
"Communication"

Curriculum-Related Handbooks and Instructional Materials
American FFA Degree Handbook
Aquaculture Instructional
Career Development Event Handbook
Food for America Kit

Middle Grade Agricultural Leader's Guide
Proficiency Award Handbook

Careers

Agricultural Biotechnology National Skills Standards
Booklet – Guide and Video
Agriculture: An Industry Too Big to Ignore –
Brochure
Chronicle Agriculture Occupations Guidebooks
"Create a Reaction" –Video
Discover and Agricultural Biotechnology Career That May Be For You – Brochure
Open Door – Brochure
Think About It – Brochure

Agriculture Internet Resources

Internet Web Site Addresses

- **Be sure to type http:// before all web site addresses.**

Agriculture online
www.agriculture.com

Agrigator
gnv.ifas.ufl.edu/www/agator_home.htm

American Crop Protection Association's "Ag on the Internet"
www.careermag.com

Career Magazine
www.careermag.com

Career Magazine
www.cew.wisc.edu

Cooperative Extension Service, University of Georgia
www.ces.uga.edu/ces/pubs.htm

Dairy Industry
www.moomilk.com/

Environment Careers Guide
www.princeton.edu/~rcurtis/careeroe.html

Farm Bureau
www.fb.com/

Agricultural Information Services
www.aginfo.com

Cooperative State Research Education and Extension Service
www.reeusde.gov/

Livestock Virtual Library
www.ansi.okstate.edu/library/

Matt Raven's Home Page (agriculture-related links)
www2.msstate.edu/~raven/ag/aglinks.html

National Council for Agricultural Education
www.council@ffa.org

National FFA Online
www.ffa.org

National 4-H Council
www.fourhcouncil.edu/

University Council for Vocational Education
www.ed.uiuc.edu/

U.S. Department of Agriculture
www.usda.gov

Virtual Library for Integrated Pest Management
ipmwww.ncsu.edu/cipm/Virtual_Center.html

Glossary

Agricultural Education Program – the total structure and content of agricultural education at a school; includes classroom and laboratory instruction, supervised agricultural experience (SAE) programs, FFA leadership activities and more.

Agriculture Teacher – educator certified to teach agriculture education.

Career Development Events (CDE) – hands-on educational activities by the National FFA Organization through which students demonstrate mastery of skills related to specific agricultural careers and leadership.

Entrepreneurship – type of supervised agricultural experience (SAE) program that typically involves student ownership of an agricultural production or agribusiness enterprise.

Extended Program – activities conducted during times when school is not in session by agriculture teachers employed for up to 12 months a year.

FFA Advisor – local agriculture teacher who guides student involvement in the FFA chapter.

FFA Chapter – an organization of students in agricultural education programs at the middle school, secondary or high school level who integrate classroom and laboratory instruction with supervised experiences and FFA activities such as leadership training, competitive events and award recognition.

Middle Grade Students – students in grades sixth through eighth.

National FFA organization – national organization of students enrolled in agricultural education programs that develops students' potential for premier leadership, personal growth and career success through agricultural education.

Program of Activities – written student-developed plan that defines FFA chapter goals and outlines steps students will take to meet the goals.

Supervised Agricultural Experience (SAE) Program – specific learning experiences planned and contributed by an individual student that contributes to the development of agricultural and personal skills.