

**Van Buren Community Schools  
Agricultural Education**

**Developed by Max Dirks  
Summer of 2008**

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### **Acknowledgement**

This curriculum should assist teachers in determining the expected concept and performance level at the various grades. It is not designed to restrict or limit the creativity or imagination of the teachers. This guide serves as a springboard for the development of additional concepts and master of skills, depending on the ability and interests of each student.

This project was successfully completed in the summer of 2008, because of the dedication and consistent efforts of Max Dirks, Van Buren Community Schools Agricultural Education instructor. We are grateful and compliment his fine efforts.

## **Forward**

The purpose of this guide is to assist teachers in the organization and instruction of Agricultural Education classes in the Van Buren Community School District.

This guide provides direction for teachers of Agricultural Education and is adaptable for individual and class needs. It is however, important that teachers follow the suggested sequence and scope of lesson content to ensure systematic and comprehensive instruction concepts and skills.

This guide prepared by Max Dirks, provides direction for instruction, which reflects a sense of wonder, and appreciation for the gifts within and around us.

## EDUCATIONAL PHILOSOPHY

The Board of Directors of the Van Buren Community School District is committed to the operation of schools whose purpose is to serve by assisting each learner develop into a mature individual and contributing member of society. The goals of education and the goals of democracy are fundamentally the same. The board believes the nature of learning is a continuous experience throughout the life of each individual. This experience is influenced by a variety of factors including the environment surrounding the learner. The board also believes, and recognizes, the nature of a learner requires an awareness of the unique needs of each individual and the various stages of development associated with growth. It is believed all have the capability of learning given appropriate opportunity.

The Board of Directors recognizes the guardianship of public education is a trust and an obligation. Consequently, the board believes that a desirable learning atmosphere must be provided which includes the following: (1) Appropriate facilities; (2) Competent staff; (3) Appropriate educational and instructional materials; (4) Assurance of safety; (5) Recognition of individual dignity and worth; (6) A scope of educational experiences to challenge each student; and (7) Periodic review, revision, and evaluation.

The Board further believes the scope of educational experience should meet the needs of varied learners and include experiences that encompass the intellect and associated basic and developmental skills, as well as aesthetic, physical, civic, social, vocational, multicultural, and technological awareness.

Date of Adoption: May 9, 1990  
Date Reviewed: March 9, 2005  
Date Revised: November 8, 1995

## EDUCATIONAL EQUITY POLICY

1. It is the policy of Van Buren Community School District to provide equal educational and employment opportunities and not to illegally discriminate on the basis of sex, color, national origin, religion, marital status, race, socioeconomic status or disability in its educational programs, activities or its employment and personnel policies.
2. This district shall provide program activities, a curriculum and instructional resources which will reflect the racial and cultural diversity present in the United States and the variety of careers, roles and life styles open to both men and women in our society. One of the objectives of the district's programs, curriculum, services and teaching strategies is to reduce stereotyping and to eliminate bias on the basis of sex, race, color, religion, marital status, socioeconomic status, national origin and disability. The curriculum, programs and services shall foster respect and appreciation for the cultural diversity found in our country and an awareness of the rights, duties and responsibilities of each individual as a member of a pluralistic society.
3. It is the policy of this district to affirmatively recruit women and men, members of diverse racial/ethnic groups and persons with disabilities for job categories where they are underrepresented. A fair and supportive environment will be provided for all students and employees regardless of their sex, race, national origin, marital status, religion, socioeconomic status, color or disability. Harassment or discriminatory behavior that denies civil rights or access to equal educational opportunities included comments, name-calling, physical conduct or other expressive behavior directed at an individual or group that intentionally demeans the race, color, national origin, sex, disability, socioeconomic status, marital status or religion, made from one employee to another, from an employee to a student or vice versa, and from one student to another creating an intimidating, hostile or demeaning environment is a violation of this policy.
4. The board requires all persons, agencies, vendors, contractors and other persons and organizations doing business with or performing services for the school district to subscribe to all applicable federal and state laws, executive orders, rules and regulations pertaining to contract compliance and equal opportunity.
5. Inquiries regarding compliance of equity policies may be directed to the following:  
Title IX – High School Principal; Title VI – Early Childhood Center Director; and Section 504 – Superintendent, Van Buren Jr/Sr. High School, 503 Henry Street, Keosauqua, Iowa 52565, 319-293-3333, to the Director of the Iowa Civil Rights Commission, Des Moines, Iowa, or to the Director of the Region VII Office of Civil Rights, Department of Education, Kansas City, Missouri.
6. The Affirmative Action Coordinator for the district shall be the Building Principals/Superintendent. The Educational Equity Coordinator for the district will be the Curriculum Coordinator. Inquiries concerning a grievance procedure should be addressed to either coordinator.

*Federal and state regulations require that the non-discrimination policy, the identity of the designated local coordinator and notification about the existence of the grievance procedure be disseminated to employees, students and parents on an annual or ongoing basis. This notification must be included in major annual or general publications such as:*

*Student Handbooks*

*Local Newspapers*

*Application Forms*

*Program Brochures & Publications*

*Agreement forms with labor organizations and businesses which hold professional agreements with the school or agency.*

*School Newsletters*

*Employee (Staff) Handbooks*

*Registration Handbook*

*Teacher Handbooks*

*Employment*

*Legal Reference:*

*20 U.S.C 1221 et seq. (1994)*

*20 U.S.C 1681 et seq. (1994)*

*20 U.S.C. 1701 et seq. (1994)*

*29 U.S.C. 794 (1994)*

*42 U.S.C. 12101 et seq. (1994)*

*34 C.F.R. Pt. 100 (1999)*

*34 C.F.R. Pt. 104 (1999)*

*Iowa Code 216.9; 256.11, .11A; 280.3 (2001)*

*281 I.A.C. 12*

*Cross Reference:*

*100.2 District Educational Equity Policy*

*516 Students Educational Equity Policy*

Date of Adoption: May 9, 1990

Date of Review: March 8, 2006

Date of Revision: April 12, 2006

## CAREER EDUCATION

Preparing students for careers is one goal of the education program. Career education will be infused into the education program for grades kindergarten through twelve. This education shall include, but not be limited to, awareness of self in relation to others and the needs of society, exploration of employment opportunities, experiences in personal decision-making, and experiences of integrating work values and work skills into their lives.

It shall be the responsibility of the curriculum development committee assist certified personnel in finding ways to provide career education in most courses. The board, in its review of the curriculum, shall review the means in which career education is combined with other instruction programs.

*Legal Reference:* Iowa Code Sections 256.11, 280.9 (1989); 670 Iowa Admin. Code 3.5(9); 281 Iowa Admin Code 12.5(7) (new standards).

*Cross Reference:* Curriculum Study

Date of adoption: February 8, 1989

Date of Review: April 11, 2001

Date of Revision: \_\_\_\_\_

## MULTICULTURAL AND GENDER FAIR EDUCATION OPPORTUNITY

Enrolled children in the school district community shall have an equal opportunity for a quality public education without discrimination regardless of their race, color, sex, marital status, national origin, religion, socioeconomic status or disability.

The education program shall be free of such discrimination and provide equal opportunity for the participants. The education program shall foster knowledge of, respect and appreciation for the historical and contemporary contributions of diverse cultural groups as well as men and women, to society. Special emphasis is placed on Asian-Americans, African-Americans, Hispanic-Americans and persons with disabilities. It shall also reflect the wide variety of roles open to both men and women and provide equal opportunity to both sexes.

Inquiries regarding compliance with equal education opportunity shall be directed to the High School Principal by writing to Central Administrative Office, Title IX Compliance Officer, 503 Henry Street, Keosauqua, Iowa 52565, or telephoning at 319-293-3334.

Date of Adoption: February 8, 1989

Date of Review: March 8, 2006

Date of Revision: April 12, 2006

## PROGRAM FOR STUDENTS AT RISK

The board recognizes some students require additional assistance in order to graduate from the regular education program. The board shall provide a program to encourage and provide an opportunity for students at risk to achieve their potential and obtain their high school diploma.

It shall be the responsibility of the superintendent or his designee to develop a program for students at risk.

It shall also be the responsibility of the superintendent or his designee to develop administrative regulations for identifying students, for program evaluation and for the training of school district personnel.

*Legal Reference: Iowa Code Sections 256.9, 261C, 262.71, 280.19, 442.51-.54 (1989); 670 Iowa Admin. Code 3.5(9); 281 Iowa Admin. Code 12.5(13) (new standards).*

Date of Adoption: February 8, 1989

Date of Review: April 11, 2001

Date of Revision: \_\_\_\_\_

## SPECIAL EDUCATION AND INTEGRATION

### 1. Special Education

The board recognizes special education laws change from year to year. All special education students will be identified and placed according to state and federal laws and will be maintained in the least restrictive environment. The board shall provide a free appropriate education program and related services to students identified in need of special education. The special education services will be provided from birth until the appropriate education is completed, age twenty-one or to maximum age allowable in accordance with the law. Students requiring special education shall attend general education classes, participate in nonacademic and extra curricular services and activities and receive services in a general education setting to the maximum extent appropriate to the needs to each individual student. The appropriate education for each student shall provide an appropriate education for a child in need of special education but the board is not required to provide the best possible option or to maximize the potential of the child commensurate with the opportunity provided to nondisabled children.

Special education students shall be required to meet the requirements stated in board policy "Graduation Requirements" for graduation, or the requirements stated in their individual education plans.

It shall be the responsibility of the superintendent or his designee and the area education agency director of special education to administer the special education program. While the board secretary shall be custodian of school records, the building principal shall be responsible for maintaining the records of the children in need of special education. These records may be viewed by authorized school personnel and in accordance with the requirements of board policy, "Student Records Access."

Special education students shall be required to meet the requirements stated in board policy or in their IEP's for graduation. It shall be the responsibility of the superintendent and the area education agency director of special education to provide or make provisions for appropriate special education and related services.

### 2. Integration

All education programs, including those of the moderately and severely handicapped, will be integrated to the least restrictive environment. The integration shall assure that the educational program include the physical, functional, social and societal aspects of development. Such integration shall also include minority populations regardless of the race, creed, color, gender, marital status, national origin, ability or disability.

### **3. Provision of Special Education**

In keeping with education's commitment to provide a seamless system of special education services for children from birth through twenty-one years of age, children from birth through two years of age, and children three through five years of age shall be provided comprehensive special education services within the public education system. The district shall work in conjunction with the Are Education Agency to provide services, at the earliest appropriate time, to children with disabilities from birth through age two, and to ensure for eligible children a smooth transition from early childhood special education provided through an individualized family service plan (IFSP) to early childhood special education services provided through an individualized education program (IEP).

Legal Reference: Board of Education v. Rowley, 458 U.S. 176 (1982).

Springdale School District #50 v. Grace, 693 F. 2d 41 (8<sup>th</sup> Cir. 1982)

Southeast Warren Comm. School District v. Dept. of Public Instruction.

258 N.W. 2d 173 (Iowa 1979)

20 U.S>C. §§ 256.11(7); 256B; 273.1, .2, .5, .9(2)-(3); 280.8

Date of Adoption: August 13, 1986

Date of Review: February 21, 2001

Date of Revision: March 14, 2001

## **General Accreditation Standards**

### **Preamble**

The goal for the early childhood through twelfth grade educational system in Iowa is to improve the learning, achievement, and performance of all students so they become successful members of a community and workforce. It is expected that each school and school district shall continue to improve its educational system so that more students will increase their learning, achievement, and performance.

Accreditation focuses on an ongoing school improvement process for schools and school districts. However, general accreditation standards are the minimum requirements that must be met by an Iowa public school district to be accredited. A public school district that does not maintain accreditation shall be merged, by the state board of education, with one or more contiguous school districts as required by Iowa Code subsection 256.11(12). A nonpublic school must meet the general accreditation standards if it wishes to be designated as accredited for operation in Iowa.

General accreditation standards are intended to fulfill the state's responsibility for making available an appropriate educational program that has high expectations for all students in Iowa. The accreditation standards ensure that each child has access to an educational program that meets the needs and abilities of the child regardless of race, color national origin, gender, disability, religion, creed, marital status, geographic location, or socioeconomic background.

With local community input, school districts and accredited nonpublic schools shall incorporate accountability for student achievement into comprehensive school improvement plans designed to increase the learning, achievement, and performance of all students. As applicable, and to the extent possible, comprehensive school improvement plans shall consolidate federal and state program goal setting, planning, and reporting requirements. Provisions for multicultural and gender fair education, technology integration, global education, gifted and talented students, at-risk students, students with disabilities, and the professional development of all staff shall be incorporated, as applicable, into the comprehensive school improvement plan. See subrules 12.5(8) to 12.5(13), 12.7(1), and 12.8(1).

## **DIVISION V EDUCATION PROGRAM 281 Chapter 12**

**281-12.5(256) Education program.** The following education program standards shall be met by schools and school districts for accreditation with the start of the 1989-1990 school year.

**12.5(5) High school program, grades 9-12.** In grades 9 through 12, a unit is a course or equivalent related components or partial units taught throughout the academic year as defined in subrule 12.5(14). The following shall be offered and taught as the minimum program: English-language arts, six units; social studies, five units; mathematics, six units as specified in 12.5(5)"c"; science, five units; health, one unit; physical education, one unit; fine arts, three units; foreign language, four units; and vocational education, 12 units as specified in 12.5(5)"i." Beginning with the 2010-2011 school year graduating class, all students in schools and school districts shall satisfactorily complete at least four units of English-language arts, three units of mathematics, three units of science, three units of social studies, and one full unit of physical education as conditions of graduation. The three units of social studies may include the existing graduation requirements of one-half unit of United States government and one unit of United States history.

*i. Vocational education-school districts (three units each in at least four of the six service areas).* A minimum of three sequential units, of which only one may be a core unit, shall be taught in four of the

following six service areas: agricultural education, business and office education, health occupations education, home economics education, industrial education, and marketing education. The instruction shall be competency-based; shall provide a base of knowledge which will prepare students for entry level employment, additional on-the-job training, and postsecondary education within their chosen field; shall be articulated with postsecondary programs of study, including apprenticeship programs; shall reinforce basic academic skills; shall include the contributions and perspectives of persons with disabilities, both men and women, and persons from diverse racial and ethnic groups. Vocational core courses may be used in more than one vocational service area. Multi-occupations may be used to complete a sequence in more than one vocational service area; however, a core course(s) and multi-occupations cannot be used in the same sequence. If a district elects to use multi-occupations to meet the requirements in more than one service area, documentation must be provided to indicate that a sufficient variety of quality training stations be available to allow students to develop occupational competencies. A district may apply for a waiver if an innovative plan for meeting the instructional requirement for the standard is submitted to and approved by the director of the department of education.

The instructional programs also shall comply with the provisions of Iowa Code chapter 258 relating to vocational education. Advisory committee/councils designed to assist vocational education planning and evaluation shall be composed of public members with emphasis on persons representing business, agriculture, industry, and labor. The membership of local advisory committees/councils will fairly represent each gender and minority residing in the school district. The accreditation status of a school district failing to comply with the provisions of this subrule shall be governed by 281-subrule 46.7(10), paragraph "g."

(2) "Agricultural education programs" prepare individuals for employment in agriculture-related occupation. Such programs encompass the study of applied sciences and business management principles, as they relate to agriculture. Agricultural education focuses on, but is not limited to, study in horticulture, forestry, conservation, natural resources, agricultural products and processing, production of food and fiber, aquaculture and other agricultural products, mechanics, sales and service, economics marketing, and leadership development..

## **281 Chapter 46**

**281-46.1(258) Standards for vocational education.** Vocational education programs carried on under the provisions of Iowa Code chapter 258 shall be governed by and administered pursuant to the Acts of Congress accepted by chapter 258 and its provisions, duly-adopted rules of the federal agencies involved and the current federal-state contracts or plans approved pursuant to these statutes and rules.

**281-46.6(258) Revised standards for vocational education.** Vocational education programs under the provisions of Iowa Code chapter 258 shall be administered by the specific provisions of 281-subrule 12.5(4), as well as the other provisions set forth in 281-Chapter 12.

This rule is intended to implement Iowa Code section 256.11 and chapter 258.

**281-46.7(258) Definitions and descriptions of procedures.** The strategies for implementing the vocational education standards may be clarified by the following definition and descriptions of procedures which shall be utilized:

Vocational education means organized educational programs offering a sequence of courses which are directly related to the preparation of individuals in paid or unpaid employment in current or emerging occupations requiring other than a baccalaureate or advanced degree. Such programs shall include competency-based applied learning which contributes to an individual's academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, and the occupational-specific skills necessary for economic independence as a productive and contributing member of society. Program content shall include recognition of the contributions of individuals with

disabilities, men and women in nontraditional roles and minorities. Such term also includes applied technology education.

## **CHAPTER 258** **VOCATIONAL EDUCATION**

### **258.9 Local advisory council.**

The board of directors of a school district that maintains a school, department, or class receiving federal or state funds under this chapter shall, as a condition of approval by the state board, appoint a local advisory council for vocational education composed of public members with emphasis on persons representing business, agriculture, industry and labor. The local advisory council shall give advice and assistance to the board of directors in the establishment and maintenance of schools, departments, and classes that receive federal or state funds under this chapter. Local advisory councils may be organized according to program area, school, community, or region. The state board shall adopt rules requiring that the memberships of local advisory councils fairly represent each sex and minorities residing in the school district. Members of an advisory council shall serve without compensation.

[C24, 27, 31, 35, 39, § 3845; C46, 50, 54, 58, 62, 66, 71, 73, 75, 77, 79, 81, §258.9]

86 Acts, ch. 1245, §1431

### **258.10 Powers of district boards.**

1. The board of directors of a school district may carry on prevocational and vocational instruction in subjects relating to agriculture, commerce, industry, and home economics, and pay the expense of such instruction in the same way as the expenses for other subjects in the public schools are paid.

2. The board of directors of a school district may establish and maintain school-to-work programs including alternative learning opportunities through which students may obtain skills or training outside the classroom. School-to-work programs include, but are not limited to, the following:

*a.* Short-term job shadowing opportunities for students to explore career interests by observing work at a workplace or to include a series of visits to various workplaces and time spent with individual workers to observe specific jobs.

*b.* Structured work experiences integrating school and work-based experiences in an internship that may be an extension of a job shadowing experience.

*c.* Mentoring experiences providing students with a formal relationship with a worksite role model who shares career insights and teaches students specific work-related skills.

*d.* Career-oriented work experiences tied to school lessons through formal or informal training agreements, formal learning plans or mentoring, by workplace personnel who may be paid or unpaid, and which may earn students credit toward graduation.

*e.* Structured on-the-job training or apprenticeships for students who are enrolled in a technical or professional program that leads to a high school diploma, advanced certificate of mastery, or associate degree.

*f.* Work experiences available to students in school and community placements directly supervised by a school district or community college staff member.

3. The board may provide workers' compensation coverage by insuring, or self-insuring as provided in section 87.4 , students participating in unpaid school-to-work programs. A school district's liability to students injured while participating in an unpaid school-to-work program is as provided in section 85.20.

[C24, 27, 31, 35, 39, § 3846; C46, 50, 54, 58, 62, 66, 71, 73, 75, 77, 79, 81, §258.10]

97 Acts, ch. 37, §6

## **AGRICULTURAL EDUCATION**

**(511 IAC 6-7-6, 511 IAC 6.1-5/1-10.1, 511 IAC 6.1-5-3.5)**

### **INTRODUCTION**

Agricultural Education is an active part of the curriculum for nearly 200 high schools in Iowa. Courses in Iowa Agricultural Science and Business Programs provide instruction daily for over 18,500 students. Iowa Agricultural Education combines the home, the school, and the community as the means of education in agriculture. The courses provide students with a solid foundation of academic knowledge and an ample opportunity to apply this knowledge through classroom activities, laboratory experiments and project applications, supervised agricultural experiences, and the FFA.

The vision of Agricultural Education: Is that all people value and understand the vital role of agriculture, food, fiber and natural resources systems in advancing personal and global well being.

Our mission of Agriculture Education is to prepare students for successful careers and a lifetime of informed choices in the global agriculture, food, fiber and natural resources systems.

The goals for our Agricultural Science and Business students focus on providing learning experiences, which will allow them to:

1. Demonstrate desirable work ethics and work habits.
2. Apply the basic agricultural competencies and the basic background knowledge in agriculture and related occupations
3. Analyze entrepreneurial, business, and management skills needed by students preparing to enter agriculture and related occupations.
4. Expand leadership and participatory skills necessary for the development of productive and contributing citizens in our democratic society.
5. Gain effective social and interpersonal communication skills.
6. Be aware of career opportunities in agriculture and set career objectives.
7. Acquire job-seeking, employability, and job-retention skills.
8. Advance in a career through a program of continuing education and life-long learning.
9. Apply the basic learning skills in reading, writing, thinking, mathematics, communicating, listening and studying.
10. Recognize the interaction of agriculture with governments and economic systems at a local, state, national and international level.
11. Recognize how new technologies impact agriculture and how agriculture impacts the environment.

It is important to understand and reaffirm that school-to-work experiences do not preclude students from going on to higher education and in fact participation actually enhances the opportunity. A growing number of students are combining both college preparation and school-to-work experiences in their high school preparation. Agricultural Science and Business and the FFA programs have demonstrated this fact for over seventy-five years through their work in preparing students for careers in the science, business and technology of agriculture. The programs combine classroom instruction and hands-on career focused learning to develop students' potential for premier leadership, personal growth, and career success.

**MIDDLE LEVEL**  
**EXPLORING AGRICULTURAL SCIENCE AND BUSINESS**  
**(GRADES 7 AND 8)**

**EIS #0496**

The Agricultural Science and Business curriculum for middle school students is locally driven allowing considerable flexibility in content. The primary objective is to introduce students to the dynamic industry of agriculture while gaining an awareness of the importance, impact and diversity of careers in agricultural science and business. The content provides a hands-on exploratory, science-based approach to agri-science as well as providing a broad-based coverage of horticulture, animal science, environmental science, and biotechnology.

**ANIMAL SCIENCE**

**5008**  
CIEP Code: 02.0201

This course is a semester with animal science I and a semester course for Animal Science II program that provides students with an overview of the field of animal science. Students participate in a large variety of activities and laboratory work, including real/simulated animal science experiences and projects. All areas, which the students study, can be applied to both large and small animals. Topics to be addressed include: anatomy and physiology, genetics, reproduction, nutrition, aquaculture, careers in animal science, common diseases and parasites, social and political issues related to the industry, and management practices for the care and maintenance of animals.

- A two credit/two semester (full year) course
- This course may fulfill Science requirement for graduation.
- A Core 40 directed elective as part of a technical career area
- Competencies and learning activities defined.
- This course is included as a component of the Agriculture and Natural Resources career cluster and may also be included as a component of the Engineering, Science, and Technologies, and Health Sciences career clusters.

**FUNDAMENTALS OF AGRICULTURAL SCIENCE AND BUSINESS**

**5056**  
CIP Code: 01.0101

Fundamentals of Agricultural Science and Business are highly recommended as a prerequisite and foundation for all other agricultural classes. The nature of this course is to provide students with an introduction to the fundamentals of agricultural science and business. Topics to be covered include: animal science, plant and soil science, food science, horticultural science, farm and agribusiness management, landscape management, natural resources management, agricultural mechanization, and supervised agricultural experience which includes units on career and leadership development. An activity and project based approach is used along with team building to enhance the effectiveness of the student learning activities.

Four-year career plans, personal and career portfolios should be developed, reviewed regularly and upgraded, utilizing a local school counselor and other school and community persons or resources.

## **HORTICULTURAL SCIENCE**

5132

CIP Code – 01.0601

Horticultural Science is a semester course designed to give students a background in the field of horticulture and its many career opportunities. It addresses the biology and technology involved in the production, processing, and marketing of horticultural plants and products. Topics covered include: reproduction and propagation of plants, plant growth, growth media, floriculture, management practices for field and greenhouse production, marketing concepts, production of herbaceous, woody, and nursery stock, fruit and vegetable production, and pest management. Students participate in a variety of activities including extensive laboratory work usually in a school greenhouse.

- This course may fulfill up to two credits of the minimum Science requirement for graduation.
- Competencies and learning activities defined
- This course is included as a component of the Agriculture and Natural Resources career cluster and may also be included as a component of the Engineering Science, and Technology career cluster.

## **PLANT AND SOIL SCIENCE (Plant and Crop Science)**

5170

CIP Code: 02.401

Plant and Soil Science is a semester course. Students participate in a variety of activities including laboratory work. Topics covered include: the taxonomy of plants, the various plant components and their functions, plant growth, plant reproduction and propagation, photosynthesis and respiration, environmental factors affecting plant growth, diseases and pests of plants and their management, biotechnology, the basic components and types of soil, calculation of fertilizer application rates and procedures for application, soil tillage and conservation, irrigation and drainage, land measurement, cropping systems, precision agriculture, principles and benefits of global positioning systems, harvesting, and career opportunities in the field of plant and soil science.

- A semester – long course
- This course may fulfill the Science requirement for graduation.
- Competencies and learning activities defined
- This course is included as a component of the Agricultural and Natural Resources career cluster and may also be included as a component of the Engineering Science and Technologies career cluster.

## **AGRIBUSINESS MANAGEMENT**

5002

CIP Code: 01.0104

Agribusiness Management is an 18-week course, which presents the concepts necessary for managing an agriculture-related business from a local/global perspective. Concepts covered in the course include: identification of careers in agribusiness, global visioning, safety management, entrepreneurship, the planning, organizing, controlling, and directing of an agribusiness, effects of government organizations of agribusiness, economic principles, credit, record keeping, budgeting, fundamentals of cash flow, taxation and the tax system, insurance, marketing, cooperatives, purchasing, the utilization of technology in agribusiness, human resource management, customer service, and employer-employee relations and responsibilities.

- Competencies and learning activities defined.
- This course is included as a component of the Agriculture and Natural Resources career cluster and may also be included as a component of the Business, Management and Finance career cluster.

## **FARM MANAGEMENT**

5022

CIP Code: 01.0104

Farm management is a semester long course that introduces students to the principles of farm organization and management, with the utilization of technology. It covers the effects of good/poor management on a farm, economic principles, decision-making, methods for organizing and planning, getting started in the farming business, farm record keeping, risk management, and career opportunities in the field of farm management.

- Competencies and learning activities defined
- This course is included as a component of the Agriculture and Natural Resources career cluster and may also be included as a component of the Business, Management and Finance career cluster.

## **LANDSCAPE MANAGEMENT**

5136

CIP Code: 01.0605

Landscape Management is a course that provides the student with an overview of the many career opportunities in the diverse field of landscape management. Students are introduced to the procedures used in the planning and design of a landscape using current technology practices, the principles and procedures involved with landscape construction, the determination of maintenance schedules, communications and management skills necessary in landscaping operation, and the care and use of equipment utilized by landscapers.

- Recommended prerequisites: None
- Competencies and learning activities defined

- This course is included as a component of the Agricultural and Natural Resources career cluster and may also be included as a component of the Art, Media and Communications and Business Management and Finance career clusters.

## **NATURAL RESOURCE MANAGEMENT**

5180

CIP CODE: 03.0299

This course is a semester long program that provides students with a background in natural resource management. Students are introduced to career opportunities in natural resource management and related industries, the history of the forest industry and forest policy, the importance and uses of forest plants, factors which influence the development of forests, forest improvement and best management practices, proper care and use of forest tools and equipment, effects of management practices of the environment, soil conservation practices water and its importance to natural resource management, hazardous waste management, native wildlife, waterfowl, fish, wetlands and pond management, surveying and map use, management of recreational areas, outdoor safety and weather. "Hands-on" learning activities encourage students to investigate areas of environmental concern including: identification and management of ecosystems, management of waste, chemicals and the environment, soil conservation, land uses, regulations, and ordinances, water quality, and air quality.

- Recommended prerequisites: None
- Competencies and learning activities defined
- This course is included as a component of the Agricultural and Natural Resources career cluster

## **SUPERVISED AGRICULTURAL EXPERIENCE (SAE) MOC**

5228

CIP Code: Cooperative Education 01.0000 CIP Code – 4 Non-Cooperative 01.4000  
MOC

Supervised Agricultural Experience (SAE) is designed to provide students the opportunity to gain experience in the agriculture field(s) in which they are interested. Students should experience and apply what is learned in the classroom lab/training site to real-life situations. Students work closely with their agricultural science and business teacher(s), parents, and/or employers to get the most out of their program. This course if offered each semester. SAE may be offered as a Cooperative Education Program.

- Competencies and learning activities defined
- This course is included as a component of the Agricultural and Natural Resources career cluster and may also be included as a component of; Engineering, Science and Technologies; Business, Management and Finance; and Health Services career cluster.

## **21<sup>st</sup> Century Skills**

As each Iowa student is provided access to essential concepts and meaningful learning experiences in the core academic content areas, it is imperative that we also look to 21<sup>st</sup> century skills to build capacity in students so they are prepared to lead productive, satisfying lives. According to Ken Kay, president of the Partnership for 21<sup>st</sup> Century Skills, the 21<sup>st</sup> century skills se “is the ticket to economic upward mobility in the new economy” (Gerwertz, 2007). Business and industry is providing a very clear message that students need the skills to “work comfortably with people from other cultures, solve problems creatively, write and speak well, think in a multidisciplinary way, and evaluate information critically. And they need to be punctual, dependable, and industrious.” (Gerwertz, 2007).

The Framework for 21<sup>st</sup> Century Learning stated, “We believe schools must move beyond a focus on basic competency in core subjects to promoting understanding of academic content at much higher levels by weaving 21<sup>st</sup> century interdisciplinary themes into core subjects” (2007). 21<sup>st</sup> century skills bridge the knowledge, skills, and dispositions of students from the core academic areas to real life application.

*“The primary aim of education is not to enable students to do well in school, but to help them do well in the lives they lead outside of the school.”*

- Ray McNulty, ICLE  
Iowa High School Summit, December 10, 2007

Descriptions of the new global reality are plentiful, and the need for new, 21<sup>st</sup> century skills in an increasingly complex environment is well documented. In one form or another, authors cite (1) the globalizations of economics; (2) the explosion of scientific and technological knowledge; (3) the increasingly international dimensions of the issues we face, i.e. global warming and pandemic diseases; and (4) changing demographic as the major trends that have resulted in a future world much different from the one that many of us faced when we graduated from high school (Friedman, 2005 and Stewart, 2007). The trends are very clear that each Iowa students will need essential 21<sup>st</sup> century skills to lead satisfying lives in this current reality.

Descriptions of what constitute essential 21<sup>st</sup> century skills are plentiful as well. In the 2007 session, the Iowa Legislature established the Iowa 21<sup>st</sup> century framework as:

1. employability skills
2. financial literacy
3. health literacy
4. technology literacy

Within this 21<sup>st</sup> century skill framework are the common strands of learning and innovation; communication, information, and technology; and, life and career skills.

The development of the Iowa 21<sup>st</sup> century essential concepts and skills was a collaborative process engaging the expertise of p – 16 educators, business, and industry representatives. Sources used for this work included the 1991 SCANS report, What Work Requires of Schools, and Framework for 21<sup>st</sup> Century Learning, from the Partnership for 21<sup>st</sup> Century Skills. The committee surveyed the literature and endeavored to bring together the common elements of

these frameworks. The members have outlined the concepts, dispositions and habits of mind believed essential for success in the 21<sup>st</sup> century.

The reality of building capacity for the 21<sup>st</sup> century is that we do not know what the work of the future will be like (Darling-Hammond, 2007) or how technology will influence health and financial issues. The challenge is to prepare students to think critically, to engage in mental activity, or habits of mind, that "...if the complex questions of the future are to be determined ... by human beings...making one choice rather than another, we should educate youths – all of them – to join in the conversation about those choices and to influence that future..." (Meier, 2008)

**Primary Elementary Grades – Being Developed**  
**Intermediate Elementary Grades – Being Developed**  
**Middle School Level – Being Developed**

**High School**

**Financial Literacy**

- Demonstrate financial responsibility and planning skills to achieve financial goals for a lifetime of financial health
- Manage money effectively by developing spending plans and selecting appropriate financial instruments to maintain positive cash flow
- Make informed and responsible decisions about incurring and repaying debt to remain both creditworthy and financially secure
- Evaluate and identify appropriate risk management options, including types of insurance, non-insurance, and identity protection
- Assess the value, features, and planning processes associated with savings, investing, and asset building, and apply this knowledge to achieve long-term financial security with personal and entrepreneurial goals in a global market
- Understand human, cultural, and societal issues related to financial literacy, and practice legal and ethical behavior

**Health Literacy**

- Demonstrate functional health literacy skills to obtain, interpret, understand and use basic health concepts to enhance personal, family, and community health
- Synthesize interactive literacy and social skills to establish and monitor personal, family and community goals related to all aspects of health
- Apply critical literacy/thinking skills related to personal, family and community wellness
- Use media literacy skills to analyze media and other influences to effectively manage health risk situations and advocate for self and others
- Demonstrate behaviors that foster healthy, active lifestyles for individuals and the benefit of society

**Technology Literacy**

- Demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology
- Use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others
- Apply digital tools to gather, evaluate, and use information

- Demonstrate critical thinking skills using appropriate tools and resources to plan and conduct research, manage projects, solve problems and make informed decisions
- Understand human, cultural, and societal issues related to technology, and practice legal and ethical behavior
- Demonstrate a sound understanding of technology concepts, systems and operations

#### Employability

- Communicate and work productively with others, incorporating different perspectives and cross cultural understanding, to increase innovation and the quality of work
- Adapt to various roles and responsibilities and work flexibly in climates of ambiguity and changing priorities
- Demonstrate leadership skills, integrity, ethical behavior, and social responsibility while collaborating to achieve common goals
- Demonstrate initiative and self-direction through high achievement and lifelong learning while exploring the ways individual talents and skills can be used for productive outcomes in personal and professional life
- Demonstrate productivity and accountability by meeting high expectations

## Pre K-12+ Agriscience and Natural Resources Career Pathways

### Illustration of Program Possibilities

Academic	Employability	Career Area Career and Technical Programs	Occupational Production	Agriculture Production	Turf Management	Horticulture Science	Agriculture Marketing	Agriculture Business Service and Supply	Agriculture Mechanics	Agriculture Products & Processing	Natural Resources	Forestry Sciences	Natural Resource Management
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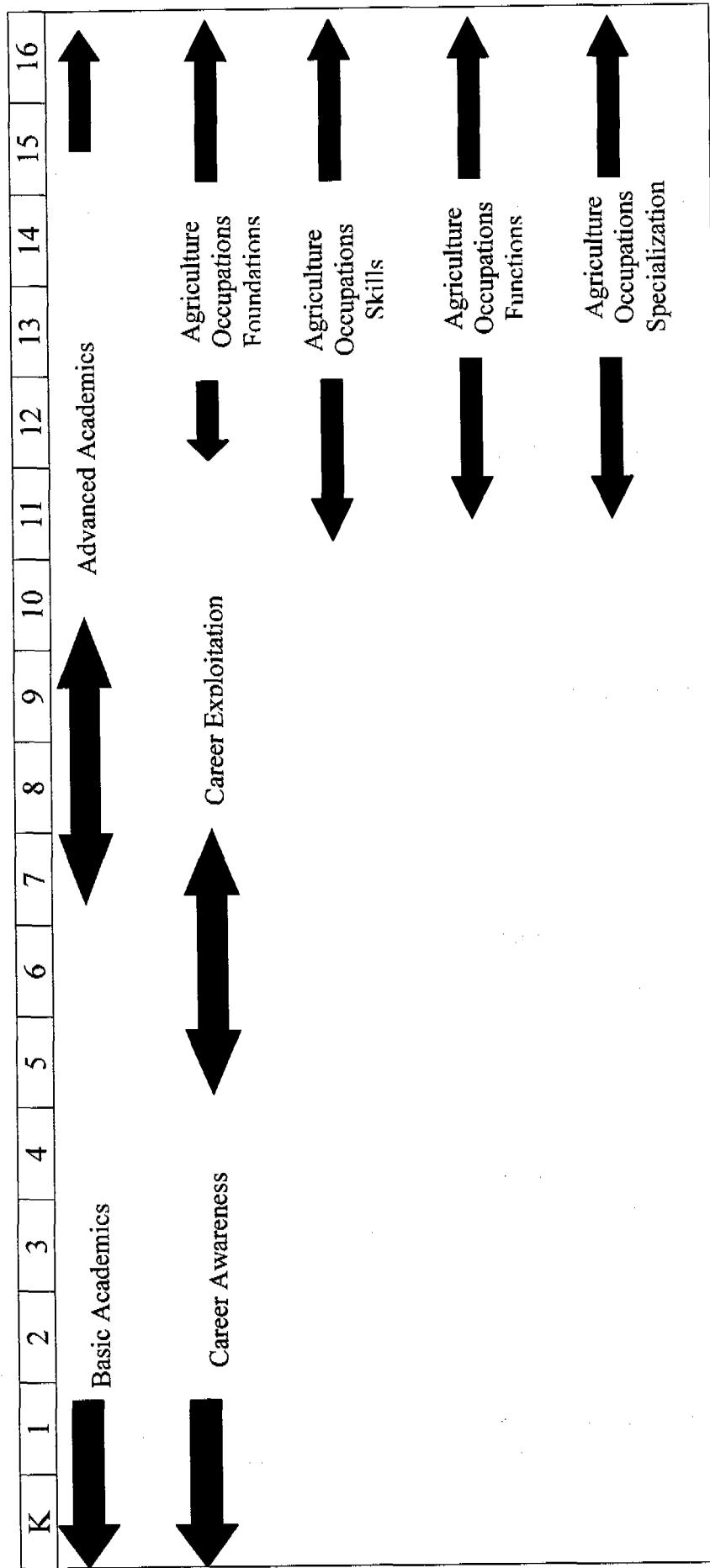
### Content and Knowledge of Career Areas – Standards and Benchmarks (K-12)

### Employability Knowledge and Skills – Standards and Benchmarks (K-12)

### Academic Knowledge and Skills (K-12)

Majors – Reflect examples from 2 & 4 year colleges  
Core – Reflects examples connecting to 2 & 4 year colleges

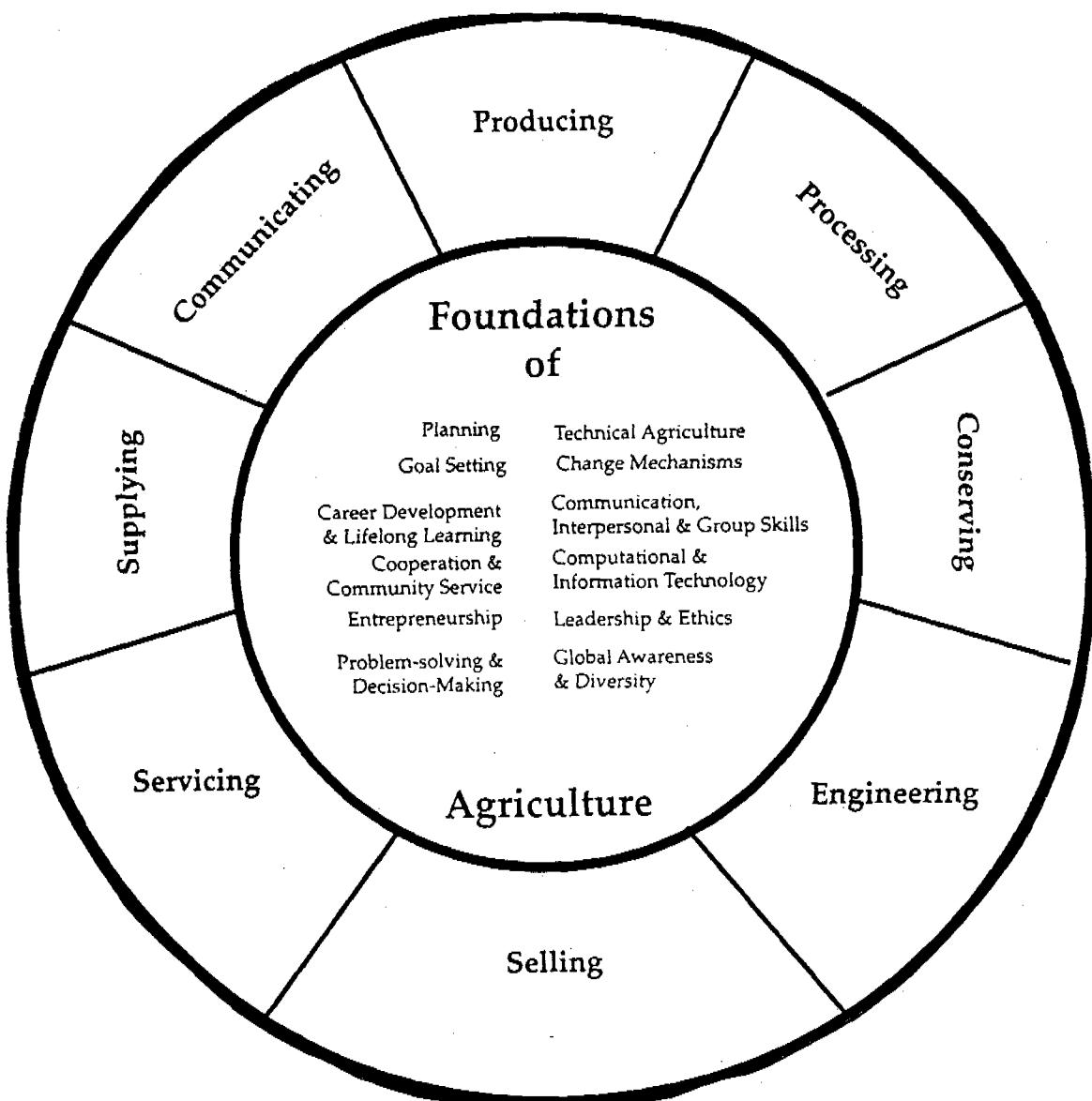
## The Agriculture Occupations Curriculum



This flow chart describes how the agriculture curriculum can be viewed as a continuum that begins in the primary grades with career awareness and exploration. The model continues through postsecondary education with the emphasis becoming more specialized to the student's individual interest in agriculture occupations.

# **Curriculum Framework for Agriculture**

## **Functions of Agriculture**



Academic concepts – Technology

## **FFA**

The FFA is the career and technical education student organization, which is an integral part of the vocational program of instruction in agricultural education. The many activities of the FFA parallel the methodology of the instruction program and are directly related to the occupational goals and objective. As an integral part of the proficiency in the knowledge, skills, and attitudes they have acquired in the agricultural science and agricultural business education program of instruction. Students shall be rewarded/recognized for their competence. Agricultural education students demonstrating a high degree of competence in the state level of the FFA are highly encouraged to represent their local communities, districts, and state by participating in national FFA activities.

Instructional activities of the FFA require participation of Agricultural Science and Agricultural Business Education students as an integral part, of an Agricultural Education course of instruction and therefore, may be considered an appropriate use of the allotted instruction time; however, vocational student organization activities may not disrupt the instructional time of other academic courses.

## **PHILOSOPHY OF AGRICULTURAL EDUCATION AT VAN BUREN COMMUNITY SCHOOLS**

Agricultural Education is one of four vocational areas offered at Van Buren Community Schools along with business, family and consumer sciences, and industrial technology. The philosophy of the Agricultural Education program is to provide a wide variety of agriculturally related experiences for students. Seventh and eighth grade exploratory courses provide students an overview of the field of agricultural education. Specialized courses offered to 9<sup>th</sup> through 12<sup>th</sup> grade students' including: Crops and Soils, Modern Livestock Production, Farm and Ranch Management, Natural Resources, Agribusiness Management, and Landscape and Golf Course Management provide students courses that are a good link to a career in agriculture or a community college agriculture degree program.

Another component of the philosophy of the Van Buren School District's agricultural education program is a connection to the community and the world of work through work-study. Through the Van Buren School's Multi-Occupations Career program provides hands-on work-study experiences for students including placement in agriculture fields. Junior and seniors have the opportunity for hands on learning experiences on the job with a mentor in agriculture field.

Another component of the philosophy of the Van Buren School District's agricultural education program is leadership. An active National FFA Organization provides leadership experiences for students in agriculture related fields. It is affiliated at the local, state and national level.

A final component of the Van Buren School District's agricultural education program's philosophy is higher education and life-long learning. Through the connection with Indian Hills Community College students could enter the biotech-processing program with starting wages of over \$40,000 in 2002 with 100% placement. Local business like Cargill, Pioneer Seed and Water Treatment plants all need biotech processing employees. Through connections with professional agriculture organizations, students in agricultural education can receive additional education and training as an adult learner.

**Agricultural Education**  
**Standards and Benchmarks**

**Standard 1: Students will demonstrate problem-solving skills**

Benchmarks:

1. Understand problem-solving, analysis and decision-making in agriculture
2. Understand leadership and ethics development in agriculture
3. Demonstrate principles of goal setting personal and organizational
4. Understand the principles of planning

**Standard 2: Student will demonstrate effective communication skills**

Benchmarks:

1. Understand the use of communication skills in agriculture
2. Understand basic computational and informational technology

**Standard 3: Students will demonstrate knowledge and skills of subject area**

Benchmarks:

1. Understand the use of entrepreneurial knowledge and skills in agriculture
2. Understand basic technical skills and knowledge in the occupational area of agricultural business
3. Apply principles of entrepreneurship in an agriculture experiential learning experience
4. Safety

**Standard 4: Students will demonstrate knowledge of careers**

1. Careers
2. Understand the concept of cooperation and community service teamwork
3. Understand the concept of adapting to change in agriculture
4. Understand global and cultural diversity issues

# Van Buren Community Schools

## ***Agribusiness Management***

### **Course Outline**

Grade level recommended: 10, 11 or 12

<b>Week</b>	<b>Topics</b>	<b>Objectives</b>	<b>Activities</b>
1	Introduction	Course Overview	Policies, expectations, overview of agriculture business concepts
2	Careers	Awareness of careers in agribusiness	Study of business ownership, agricultural lender, farm manager
3	Safety Management	Business safety	OSHA Laws and regulations, MSDS requirements
4-5	Government Organization	Study of laws and policies	Understands effects of governmental law and organizations on agribusiness
6	Entrepreneurship	Financing	Study of small business loans
7	Business planning	Organizations of a business	Business planning, organization; controlling and directing of business
8	Economic principles	Knowledge of proper business practices	Credit applications and checks, budgeting and need for budget to meet monthly bills
9	Economic principles	Knowledge of proper business practices	Record keeping, cash flow principles
10-11	Economic principles	Knowledge of proper business practices	Tax law, tax code provisions, how do changes in tax code affect a business based upon business organizations
12	Economic principles	Needs of business	Introduction of types of insurance-licensing and bonding, liability, property
13	Marketing	Contracts with suppliers, customers	Proper contracts, legal needs, legal protection
14	Purchasing	Contracts with suppliers	Proper contracts, needs of purchasing department
15	Computers in business	Bookkeeping programs	Spreadsheets, financial records on computers
16	Human Resources	Understanding of labor needs	Interviewing skills and resume building
17	Human Resources	Management Responsibilities	Proper methods in employer/employee management and responsibilities of each.
18	Current events	Current events	Current events, issues and perceptions in business, political viewpoints

**Subject Area:** Agribusiness Management/Agrimarketing

**Instructor:** Max Dirks

**Length of Unit:** 18 weeks

**Standard: 1. Students will demonstrate problem-solving skills**

Benchmarks:

1. Understand problem-solving, analysis, and decision-making in agriculture
2. Understand leadership and ethics development in agriculture
3. Demonstrate principles of goal setting personal and organizational
4. Understand the principles of planning

<b>Standards/ Benchmarks</b>	<b>Section from Text</b>	<b>Critical Objectives</b>	<b>Assessments</b>	<b>Infusions/ Provisions</b>
1	Biotech Unit – Part I Beierlein Text	1. Compare advantages and disadvantages of biological, chemical and cultural pest controls 2. Explain relationship of land, labor and capital to management 3. Identify 3 components of management	Teacher developed questions, class discussion	HOTS, HGD, CS, LS
1	Unit 5 – Beierlein Text	1. Analyze alternatives (i.e. marketing and pricing alternatives for commodities)	Unit Quiz	GS, HOTS, CS, MCFG, LS
2	Beierlein Text – Part II	1. Delegate duties and manage conflict, facilitating group interaction (teamwork)	Various methods	CS, LS, HGD
2	FFA Materials	1. Become personally involved in professional organizations 2. Recognize relevant, ethical issues in business and take responsibility for own mistakes	Involvement in FFA opportunities	HGD, LS, CS, HOTS, MCFG, GS
3	Sales Unit	1. Define goals 2. Identify skills, physical and emotional requirements for a job	Sales plan	HOTS, HGD, LS, CS
4	Marketing plan	1. Can prioritize a series of tasks while organizing an event 2. Can work within guidelines and utilize time effectively	Commodity trading	CS, LS, HGD, MCFG, TECH

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCFG); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Agribusiness Management/Agrimarketing

**Instructor:** Max Dirks

**Length of Unit:** 18 weeks

**Standard: 2. Students will demonstrate effective communication skills**

Benchmarks:

1. Understand the use of communication skills in agriculture-interpersonal and group; written and oral.
2. Understand basic computational and informational technology.

<b>Standards/ Benchmarks</b>	<b>Section from Text</b>	<b>Critical Objectives</b>	<b>Assessments</b>	<b>Infusions/ Provisions</b>
1	Sales visit	1. Speak effectively in front of others, in person, on telephone, leading discussions 2. Listen effectively 3. Organize thoughts and write clearly 4. Demonstrate courtesy skills (tactful, clear) 5. Identify human relations factors in agribusiness (marketing, management)	Sales plan	CS, LS, HGD, MCGF
2	Current event issues	1. Operate office equipment effectively 2. Use computer hardware and software effectively (Database, word processing, spreadsheet, email, www.)	Successful web search	CS, LS, HGD, MCGF, TECH, MEDIA
2	Marketing-futures	1. Be able to calculate agriculture related statistics (payback period for an investment, time value of money, least-cost ratio, finance charges, margins and discounts for supplies) 2. Use metric system to calculate weights, measurements	Commodity trading	CS, LS, HGD, MCGF, TECH, MEDIA

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Agribusiness Management/Agrimarketing**Length of Unit:** 18 weeks**Instructor:** Max Dirks**Standard: 3. Students will demonstrate knowledge and skills of subject area****Benchmarks:**

1. Understand the use of entrepreneurial knowledge and skills in agriculture
2. Understand basic technical skills and knowledge in the occupational area of agricultural business
3. Apply principles of entrepreneurship in an agriculture experiential learning experience
4. Safety

<b>Standards/ Benchmarks</b>	<b>Section from Text</b>	<b>Critical Objectives</b>	<b>Assessments</b>	<b>Infusions/ Provisions</b>
1	Entrepreneurship Unit	1. Analyze business organizations, including skills required of owners-entrepreneurs 2. Analyze business plan components and importance of technical assistance and market analysis 3. Explain profit, competition, advantages and disadvantages of four types of agriculture business organizations	Teacher developed questions Self-evaluation (value retained AG) Class discussion	HOTS, HGD, CS, LS, MCGF, TECH, GS
1	Entrepreneurship Unit	1. Describe record-keeping systems in agriculture-interpreting graphs, charts and maps to make decisions	Teacher developed questions	HOTS, HGD, CS, LS, MCGF, TECH, GS
2	Business-entrepreneurship Current events issues	1. Demonstrate understanding if impact of state sales tax, property tax, social security, personal income tax 2. Analyze common types of financial and legal agreements in agriculture, (insurance, net worth, financial ratios, budgets discounts, marketing, pricing and grading) 3. Identify credit, budget planning and other resources 4. Identify government agencies related to agribusiness 5. Demonstrate knowledge of banking; balancing statements, daily cash receipts 6. Demonstrate knowledge of agriculture accounting (balance sheet, opportunity costs, cash flow projection worksheet, cash receipts and expenditures, fixed and variable 7. Be able to create schedules for equipment and inventory control 8. Demonstrate knowledge of business cycles (supply and demand, organized labor, advertising	Class discussion Banker visit, successful completion of samples Web Search Ag business/ ag. decision-making programs Business plan	HOTS, CS, LS, GS, MCGF, HGD, TECH, MEDIA

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Agribusiness Management/Agrimarketing

**Instructor:** Max Dirks

**Length of Unit:** 18 weeks

**Standard: 3. Students will demonstrate knowledge and skills of subject area**

**Benchmarks:**

1. Understand the use of entrepreneurial knowledge and skills in agriculture
2. Understand basic technical skills and knowledge in the occupational area of agricultural business
3. Apply principles of entrepreneurship in an agriculture experiential learning experience
4. Safety

<b>Standards/ Benchmarks</b>	<b>Section from Text</b>	<b>Critical Objectives</b>	<b>Assessments</b>	<b>Infusions/ Provisions</b>
3		<ol style="list-style-type: none"><li>1. Identify skills of a business owner, entrepreneur</li><li>2. Recognize advantages and disadvantages of different kinds of business ownership (4 types of ag. Business organizations)</li><li>3. Explain competition, profit, market analysis</li><li>4. Create a business plan, identifying financing options, purchasing fixed and variable assets, and resources for technical assistance</li></ol>	Business plan, class discussion	LS, CS, HGD, HOTS, MEDIA, TECH
4	Various sections of text Government policy OSHA	<ol style="list-style-type: none"><li>1. Follow rules and regulations</li><li>2. Comply with safety and health rules</li><li>3. Maintain safe and orderly work area</li><li>4. Utilize equipment correctly-performing routine maintenance on schedule</li></ol>	Government worksheet, class discussion	HOTS, CS, LS, HGD, MCGF

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Agribusiness Management/Agrimarketing

**Instructor:** Max Dirks

**Length of Unit:** 18 weeks

**Standard: 4. Students will demonstrate knowledge of careers**

Benchmarks:

1. Careers
2. Understand the concept of cooperation and community service teamwork
3. Understand the concept of adapting to change in agriculture
4. Understand global and cultural diversity issues

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
1	Career Unit	<ol style="list-style-type: none"><li>1. Demonstrate job skills; initiative, effective time management, personal hygiene</li><li>2. Demonstrate job application skills; write a resume and application letter</li><li>3. Identify agricultural related career opportunities in management sales, serve</li><li>4. Evaluate a job offer (benefits, time and working environment)</li></ol>	Interview process Business plan	HOTS, CS, LS, HGD, MCGF, TECH, MEDIA
2	Government policy Current events Various areas	<ol style="list-style-type: none"><li>1. Explain relationship between public and private sector</li><li>2. Exhibit dependability, responsibility, punctuality, on the job</li><li>3. Accept supervisions willingly, asking for help when needed</li><li>4. Respect property and cooperate with others</li></ol>	Class discussion Job shadowing	CS, LS, HGD, GS, HOTS, MCGF
3	Marketing Unit	<ol style="list-style-type: none"><li>1. Accept new challenges</li><li>2. Adapt to change, demonstrate flexibility, adapting to environment and situation.</li></ol>	Commodity marketing	HOTS, LS, HGD, GS, HOTS, MCGF
4	Marketing Unit Entrepreneurship Unit	<ol style="list-style-type: none"><li>1. Identify types of production systems used worldwide</li><li>2. Identify monetary and measurement systems of selected countries and impact on U.S.</li></ol>	Commodity marketing Business plan Class discussion	HOTS, CS, LS, GS, HGD, TECH, MEDIA

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

# Van Buren Community Schools

## *Plant and Crop Science*

### Course Outline

Grade Level Recommended: 10, 11

<b>Week</b>	<b>Topics</b>	<b>Objectives</b>	<b>Activities</b>
1	Introduction	Course Overview	Policies, expectations, overview of the plant and crop science industry
2	Plant and crop science careers	Career opportunity awareness	Farm manager, agronomist, soil scientist, extension specialist, entomologist, crop scout, chemical applicator
3	Soil science	Terminology	Components and formation of soils
4	Soil science	Technical knowledge	Types of soils, color and texture, internal drainage, effects of soil on water movement
5	Soil science	Evaluation of soils	Sampling and interesting soils, soil management, Universal Soil Loss Equation, site characteristics
6-7	Soil science	Accuracy in property evaluation	Evaluate 3 properties based upon soil characteristics defend choices and decisions
8	Plant health	Diseases and parasites of plants	Diseases and parasites of soybeans, prevention and treatment
9	Plant health	Diseases and parasites of plants	Diseases and parasites of corn, prevention and treatment
10	Plant technology	Biotechnology developments	Developments in crop biotechnology
11	Plant technology	Biotech advances	Bt, Roundup Ready, Liberty Link, SCN resistance
12	Plant technology	Power Point presentation	How hybrids are developed, student developed presentation
13	Input applications	Fertilizer applications	Application procedures, sprayer calibrations, manure management plans
14	Application technologies	Variable rate technologies	Determine sprayer rate and flow, application methods (banding broadcast)
15	Cropping systems	Crop management resources	No-till, reduced till, full till, rotational cropping, advantages and disadvantages
16	Harvesting systems	Crop harvest methods	Machinery and equipment needed, basic maintenance
17	Irrigation technology	Understanding of irrigation types and drainage	Flow rates, irrigation types, effects of water table
18	Seed technology	Seed testing	Germination, evaluation, selection of seed
19	GPS/GIS	Introduction to GPS/GIS	Definition of precision agriculture, precision farming, site specific management, mapping and information systems

**Standard: 1. Students will demonstrate problem-solving skills**

**Benchmarks:**

1. Understand problem-solving, analysis, and decision-making in agriculture
2. Understand leadership and ethics development in agriculture
3. Demonstrate principles of goal setting personal and organizational
4. Understand the principles of planning

<b>Benchmarks</b>	<b>Section from Text</b>	<b>Critical Objectives</b>	<b>Assessments</b>	<b>Infusions/Provisions</b>
1	Soils Handbook Teacher materials Mapping	1. Interpret results from soil test 2. Determine appropriate land use management based on soil evaluation needs	Review results received after test Soil site evaluation workbook	HOTS, TECH, LS, GS
2	FFA materials FFA Website Biotech info, current events Teacher materials	1. Delegate duties & manage conflict, facilitation group interaction (teamwork) 2. Become personally involved in professional organizations Recognize relevant, ethical issues in business and take responsibility for own mistakes	Involvement in FFA opportunities Class discussion, questions, worksheet from materials	MCGF, HGD, LS, TECH, CS
3	Problem solving (teacher material) Career materials	1. Define goals 2. Identify skills, physical and emotional requirements for a job	Teachers self-evaluation Identification worksheet	HOTS, MCGF, HGD, LS, GS
4	Various visits Unit 10 Hartman Plant Science/Biotech info/Food for Everyone Unit Mapping Unit (teacher materials) Unit 3 Callett text Current events articles	1. Can prioritize a series of tasks while organizing an event 2. Can work within guidelines and utilize time effectively 3. Explain linkage between culture, diet, production, of one country in relation to another, biotechnology, international trade 4. Be able to locate major agricultural areas and countries of the world 5. Explain political role in agriculture (commodities, price guarantees)	Group projects meeting deadlines Unit 10 self evaluation, class discussion Questions from fas.gov Current events, discussion and questions	HOTS, LS, HGD, CS, LS, MCGF, GS, MEDIA, TECH

Higher Order Thinking Skills (HOTS); Learning Skills (TAG); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

Subject Area: Plant Science (Crops and Soils)

Instructor: Max Dirks

Length of Unit: 19 weeks

**Standard: 2. Students will demonstrate effective communication skills**

Benchmarks:

1. Understand the use of communication skills in agriculture-interpersonal and group; written and oral.
2. Understand basic computational and informational technology.

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
1	Current event issues	1. Speaks effectively in front of others 2. Organize thoughts/write clearly 3. Explain growth regulating chemicals 4. Explain how to develop and use a customer file 5. Listen, organize thoughts	Group discussions Issue paper	CS, HGD, LS, CS, MCGF
2	Current events issues	1. Make change properly 2. Describe basic hardware components	Successful navigation of web search	HGD, LS, CS, GS, HOTS, TECH
	Sale/Mapping Unit	1. Use a word processing, database and spreadsheet program	Web-Mapping Software (GIS Software)	HGD, LS, CS, GS, HOTS, TECH

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Plant Science (Crops and Soils)**Length of Unit:** 19 weeks**Instructor:** Max Dirks**Standard: 3. Students will demonstrate knowledge and skills of subject area****Benchmarks:**

1. Understand the use of entrepreneurial knowledge and skills in agriculture
2. Understand basic technical skills and knowledge in the occupational area of agricultural business
3. Apply principles of entrepreneurship in an agriculture experiential learning experience
4. Safety

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1	Alternative Agricultural Unit Alternative Agricultural current events materials	1. Demonstrate the ability of market analysis 2. Analyze business organizations 3. Identify the personal characteristics of entrepreneurs	Unit Quiz, teacher developed questions, class discussion	HOTS, GS, CS, LS, MCGF
2	“Emerging Technology in Agriculture” GIS/GPS info Unit, visiting prof. program	1. Identify different production techniques and their effect on the environment 2. Perform plan propagation using sexual, asexual or tissue culture techniques 3. Demonstrate the proper procedure for planting trees and shrubs. 4. Identify opportunities for the development of diversified crop and/or livestock enterprises. 5. Explain how the selection of hybrid and certified seed affects performance and profitability. 6. Explain the principles of plant breeding. 7. Identify the types of tillage methods used in crop production 8. Describe the types of harvesting systems used in crop production. 9. Explain the role of primary and secondary nutrients used in crop production 10. Select appropriate commercial fertilizers and chemicals based on identified needs 11. Identify the types of wholesale and retail cuts of meat.	Scavenger hunt with GPS visits, Unit tests, use of receivers software	TECH, CS, LS, HGD, GS, MEDIA

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Media Information Skills (MEDIA); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Plant Science (Crops and Soils)

**Instructor:** Max Dirks

**Length of Unit:** 19 weeks

**Standard: 3. Students will demonstrate knowledge and skills of subject area**

Benchmarks:

1. Understand the use of entrepreneurial knowledge and skills in agriculture
2. Understand basic technical skills and knowledge in the occupational area of agricultural business
3. Apply principles of entrepreneurship in an agriculture experiential learning experience
4. Safety

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
3	Alternative Agriculture unit/current events articles/teacher resources Producers visiting class (Alt. Ag.)	1. Identify opportunities for diversified crop ownership 2. Identify characteristics of entrepreneurs, types of business ownership 3. Identify business plan components & technical assistance	Teacher developed questions Class discussion, group responses	HOTS, HGD, CS, LS, MCGF
3	Biotech Unit	1. Identify business cycles (supply & demand, market analysis) 2. Identify business components (finances, organized labor, profit)	Teacher developed questions	HOTS, HGD, LS, CS, GS
4	GPS/GIS Unit	1. Maintain clean and orderly work area	Care of receivers, computers	LS, HGD, TECH

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Plant Science (Crops and Soils)**Instructor:** Max Dirks**Length of Unit:** 19 weeks**Standard: 4. Students will demonstrate knowledge of careers**

Benchmarks:

1. Careers
2. Understand the concept of cooperation and community service teamwork
3. Understand the concept of adapting to change in agriculture
4. Understand global and cultural diversity issues

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
1	Careers Unit	<ol style="list-style-type: none"> <li>1. Demonstrate job skills; initiative, effective time management, quality of work, personal hygiene</li> <li>2. Demonstrate job application skills; write a resume and application letter, from completion</li> </ol>	Careers assessments Correct completion of objectives	MCGF, HOTS
2	Policy information (current events) Careers visit GPS/GIS Unit	<ol style="list-style-type: none"> <li>1. Explain relationship between public and private sector</li> <li>2. Exhibit dependability, responsibility, punctuality, on the job</li> <li>3. Accept supervisions willingly, asking for help when needed</li> <li>4. Respect property and cooperate with others</li> </ol>	Discussion of government/private impacts Various monitoring Use and care for receiver	HOTS, CS, LS, MCGF, GS, TECH, HGD
3	Biotech Unit	<ol style="list-style-type: none"> <li>1. Accept new challenges</li> <li>2. Adapt to change, demonstrate flexibility, adapting to environment and situation</li> </ol>	Identifying products to meet needs	HOTS, HGD, LS, CS, MCGF
4	Hartman Text Unit I Unit 12 Text (Hartman Text) Unit 10-Biotech Unit Unit 3- Cartlett text, current events	<ol style="list-style-type: none"> <li>1. Identify types of production systems used worldwide</li> <li>2. Identify monetary and measurement systems of selected countries and impact on U.S.</li> <li>3. Explain linkage between culture, diet, production, on one country in relation to another, biotechnology, international trade</li> <li>4. Be able to locate major agricultural areas and countries of the world</li> <li>5. Explain political role in agriculture (commodities, price guarantees)</li> </ol>	Chapter assessment, teacher developed questions Questions from fas.gov Current events Discussion questions	LS, CS, HOTS,HGD, MCGF, GS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

## Van Buren Community Schools

### *Natural Resources*

#### Course Outline

<b>Week</b>	<b>Topics</b>	<b>Objectives</b>	<b>Activities</b>
1	Introduction	Course Overview	Policies, expectations, overview of natural resources
2-3	Environment and agriculture	Impacts of environmental policy on agriculture	CAFO regulations, Gulf Zone, Hypoxia
4-5	Water quality	Importance of safe drinking water	Guest speaker, buffer initiative from Trees Forever, nutrient runoff
6	Soil erosion	Loss of resources	DNR Stream table
7	Water resources	Proper management	Wastewater plant, Red Rock Dam
8	Wetlands	Care of environment	Farmable wetlands, Project NRCS/FSA
9	Sustainable agriculture	Management of resources	Definition/background composting, nutrient analysis
10	Biotechnology and the environment	Using technology to care for environment	Bio-remediation
11	Highway greenbelts	Reasoning	Purpose, function, cost of installation, amount of care
12	Careers	Career opportunities in natural resources	DNR, Trees Forever, Sierra Club archeologist, forester
13	Wildlife conservation environmental stewardship	Understanding process of wildlife conservation	History of conservation in Iowa, archeology and environment
14	Global warming	Social and political issues	Kyoto Treaty and Carbon Sequestration
15	Aquaculture	Understanding of farming the waters	Needs of fish-temp, nutrition, light, habitat
16	Prairie habitat	Establishment and care	
17	Natural resources issues	Social and political issues	Energy exploration (ANWAR)
18	Natural resources issues	Social and political issues	Bio-diesel, ethanol use in the environment

**Subject Area:** Natural Resources**Instructor:** Max Dirks**Standard: 1. Students will demonstrate problem-solving skills****Benchmarks:**

1. Understand problem-solving, analysis, and decision-making in agriculture
2. Understand leadership and ethics development in agriculture
3. Demonstrate principles of goal setting personal and organizational
4. Understand the principles of planning

**Length of Unit:** 18 weeks

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
1	Unit 12, 13 Camp text	1. Assess and implement BMP (Best Management Practices) related to water resources wells, erosion, irrigation	Unit quiz, chapter questions Unit 12,13 Class discussion	HOTS, HGD, LS, GS, CS, MCGF
1	Publications from soy; corn associations Unit 3 Camp text	1. Evaluate alternative sources of fuel 2. Evaluate means of solving solid waste disposal system issues	Class discussion, web search class discussion, web hw, unit quiz	HOTS, HGD, LS, GS, CS, MCGF
1	Unit 22, 26 Camp text Unit 21 Burton text Current events, Unit 20, 22 Burton Text FFA materials Current events from professional journal	1. Evaluate means of solving wildlife, forest resources, native plants and animals 1. Delegate duties and manage conflict, facilitation group interaction (teamwork) 2. Become personally involved in professional organizations 3. Recognize relevant, ethical issues in business and take responsibility for own mistakes	Class discussion, web hw, unit quiz	HOTS, HGD, LS, GS, CS, MCGF
2	Unit 1, 2, Camp Text Units on careers, Camp text	1. Define goals 2. Identify skills, physical and emotional requirements for a job	Management WS Unit quiz Involvement in FFA opportunities Position paper	HOTS, HGD, CS, GS, LS, MCGF
3	Teacher materials USDA resources	1. Can prioritize a series of tasks while organizing an event 2. Can work within guidelines and utilize time effectively 3. Develop an individual resource conservation plan to include crop, pasture, woodlands, wildlife, farmstead, and urban 4. Develop wildlife management plan to sustain resources (buffer strips) identifying role geologic resources have in land use planning	Unit assessment chapter questions – PowerPoint presentation Job skills worksheet	MEDIA, HOTS, CS, LS, HGD, MCGF, HGD
4			Conservation plan development	LS, HOTS, MEDIA, GS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Natural Resources

**Instructor:** Max Dirks

**Length of Unit:** 18 weeks

**Standard: 2. Students will demonstrate effective communication skills**

Benchmarks:

1. Understand the use of communication skills in agriculture-interpersonal and group; written and oral.
2. Understand basic computational and informational technology.

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
1	Unit 22 Burton Text Visiting Professor Program Soils Unit 9 Camp text Chapter 22, Burton Text	1. Speak effectively in front of others, in person, on telephone, leading discussions 2. Listen effectively 3. Organize thoughts and write clearly (legal descriptions of land) 4. Demonstrate technical reading (manuals, labels) 5. Identify human relations factors in agribusiness (marketing, management)	Learning activity 2, Unit 22 Class discussion Legal descriptions Acreage calculations Learning activity 2 Class discussion	HOTS, GS, CS, MCGF, MEDIA, LS, HGD
2	Various units Soils Units (Unit 5) Soils Units (Unit 6) Unit 14, water	1. Operate office equipment effectively 2. Use computer hardware and software effectively (database, word processing, spreadsheet, email, www.) 3. Be able to calculate land area, length and percent slope 4. Estimate water needs for a community	Class discussion Teacher evaluation Mapping software GIS, HW, WS Student developed problems	MCGF, HOTS, LS, GS, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area: Natural Resources****Instructor: Max Dirks****Length of Unit: 18 weeks****Standard: 3. Students will demonstrate knowledge and skills of subject area****Benchmarks:**

1. Understand the use of entrepreneurial knowledge and skills in agriculture
2. Understand basic technical skills and knowledge in the occupational area of agricultural business
3. Apply principles of entrepreneurship in an agriculture experiential learning experience
4. Safety

<b>Benchmarks</b>	<b>Section from Text</b>	<b>Critical Objectives</b>	<b>Assessments</b>	<b>Infusions/Provisions</b>
1	Unit 9, Unit 14, Unit 17, Camp text	Soil conservation (read classification map, soil morphonology, soil survey, aerial photos, to plan wise land management	Class discussion, student developed worksheet	HOTS, LS, CS, TECH
	Unit 17, Camp text	Explain different harvesting systems	Chapter questions	HOTS, LS, CS, GS
	Unit 12, Camp text	Water conservation	Chapter questions	HGD
	Current events articles	Explain economic impact of loss of wildlife habitat, urban sprawl and navigation on the wildlife resources	Position paper	HOTS, LS, CS
	Land use units	Alternatives (grading of woodlands, reduce high grading of forests	Selection, ID of species	HOTS, LS, CS
	Woodlands materials (teacher materials)	Trees (minimum of 15 Iowa trees, proper planting, economic value, good timber practices	Videos, questions, worksheets	HOTS, LS, CS, GS, HGD
	Woodlands Units	Naming 30 Iowa wildlife, and performing wildlife habitat improvements for those species	10 of species Unit quiz	HOTS, LS, CS
	Extension publications	Identify 10 aquatic plants and animals, 50 wildlife plants and 15 Iowa trees	10 of species Unit quiz	HOTS, LS, CS
	Extension publications	Describe resource laws and regulations (hunting, DNR, current issues, state and federal regulations	Regulations WS	HOTS, LS, CS
	USDA/DNR publications	Water resources (farm ponds, erosion, hydrologic cycle, sources of contamination, protecting water resources	Teacher developed questions	HOTS, LS, CS, GS
	DNR/USDA publications	Describes integration and rotation of crops increases conservation	Teacher developed questions	HOTS, LS, CS, GS
	Current events articles	Identify BMP (Best Management Practices for disposing of wastes	Land use/restrictions	HOTS, LS, CS, GS
	USDA publications			
	DNR publications, current events articles			

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Natural Resources

**Instructor:** Max Dirks

**Length of Unit:** 18 weeks

**Standard: 3. Students will demonstrate knowledge and skills of subject area**

Benchmarks:

1. Understand the use of entrepreneurial knowledge and skills in agriculture
2. Understand basic technical skills and knowledge in the occupational area of agricultural business
3. Apply principles of entrepreneurship in an agriculture experiential learning experience
4. Safety

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
2	Landscaping (teacher materials)	Demonstrate plant propagation using different techniques and explain principles of plant breeding (hybrids)	Hands-on lab	HGD, MCGF, LS, HOTS, CS
	Camp Unit 16	Demonstrate proper procedure for planting (trees, seeds, shrubs) tillage	Hands-on lab	HGD, MCGF, LS, HOTS, CS
3	Fertilizer/chemical Unit (teacher materials)	Demonstrate understanding of nutrients, primary, secondary, fertilizers, chemicals	Fertilizer/chemical worksheets	HGD, MCGF, LS, HOTS, CS
4	Unit 16, Camp Text Unit 6, Camp Text	Identify skills of a business owner, entrepreneur	Unit questions, skills worksheet	HGD, MCGF, LS, HOTS, CS
	Unit 20 Burton	Explain competition, profit, market analysis Create a business plan, identifying financing options, purchasing fixed and variable assets, and resources for technical assistance	Class discussion Unit questions	HOTS, CS, LS, HGD, GS, MCGF
4	Unit 22, Burton	Understanding and explain of safety in hunting/trapping/boating	Safety unit development for camp	HOTS, LS, CS, HGD, MCGF

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Natural Resources**Instructor:** Max Dirks**Length of Unit:** 18 weeks**Standard: 4. Students will demonstrate knowledge of careers**

Benchmarks:

1. Careers
2. Understand the concept of cooperation and community service teamwork
3. Understand the concept of adapting to change in agriculture
4. Understand global and cultural diversity issues

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
1	Careers Units, Camp Text	1. Demonstrate job skills; initiative, effective time management, quality of work, personal hygiene 2. Demonstrate job application skills; write a resume and application letter, form completion 3. Identify at least 5 environment natural resource including activities, location, availability 4. Evaluate a job offer (benefits, time and working environment) 5. Evaluate skills, physical and emotional requirements for job 6. Explain connection between natural resources, agribusiness, technology careers	Class discussion Write resume, application letters Job search and application Skills worksheets Skills search	HOTS, LS, CS, HGD, MCGF, HGD, TECH
2	Governments/private sector Units, current events Careers Unit	1. Explain relationship between public and private sector 2. Exhibit dependability, responsibility, punctuality on the job 3. Accept supervision willingly, asking for help when needed 4. Respect property and cooperate with others	Class discussion Position paper Skills worksheet Teacher, self-evaluation	HOTS, LS, CS, HGD, MCGF
3	Current events GPS/GIS Unit Various units	1. Accept new challenges 2. Adapt to change, demonstrate flexibility, adapting to environment and situation 3. Identify contemporary natural resources issues, concerns relating to agriculture	Ability to use technology Teacher, self-evaluation Issue paper	HOTS, HGD, CS, LS, MCGF, TECH

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Natural Resources

**Instructor:** Max Dirks

**Length of Unit:** 18 weeks

**Standard: 4. Students will demonstrate knowledge of careers**

Benchmarks:

1. Careers
2. Understand the concept of cooperation and community service teamwork
3. Understand the concept of adapting to change in agriculture
4. Understand global and cultural diversity issues

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
4	Current events GPS/GIS Unit Various units	1. Describe global environment impact 2. Explain global positioning systems and graphic info systems and understand practical applications 3. Explain linkage between culture, international trade 4. Accept individual differences	Issue paper Mapping activity Teacher, self-evaluation	HOTS, GS, MCGF, CS, LS, TECH

46 Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

## Van Buren Community Schools

### *Farm Management*

#### Course Outline

Grade Level Recommended 10, 11 and 12

<b>Weeks</b>	<b>Topics</b>	<b>Objectives</b>	<b>Activities</b>
1	Introduction	Course overview	Policies, expectations, introduce yourself to me, why did you sign up for this class?
2	Goals	What are goals?	Set goals for yourself-written; set goals for the chapter
3	Goals	Goals in farm management	Farm management game set goals before and evaluate after
4	Record-keeping	Introduce the topics of records	Why keep records, cash flow, net worth statement, income statement.
5	Records	Inventory items	7 different inventory item categories; 7 different inventory values methods, speaker from the bank on the need for records.
6	Income and expense	Types: Cash and accrual	13 different business incomes, 21 different business expenses
7	Accounting systems	Types: single and double entry	Reasons behind both-advantages and disadvantages
8	Financial analysis	Net worth	Net worth statement
9	Business solvency	Income ratios	Net capital ratio/debt-to-equity ratio
10	Exam	Exam	Records and financial analysis
10	Budget analysis	Budget planning	How much money do you spend in a week and what do you spend it on?
11	Current events	Current event farm business issues	Internet search, offer your opinion-what is your opinion on the issue and why? If you don't like the position what can be done differently?
12	Methods for organization and planning	Business organizations	Sole proprietorship, partnerships
13	Methods for organization and planning	Business organizations	Coops and cooperation
14	Getting started in farming	Opportunities in business	Beginning farmer loan program
15	Risk management	Methods in managing risk	Diversified production options
16	Risk management	Methods in managing risk	Marketing options-futures, options, grid marking, retained ownership, specialized production
17	Ag Law	Legal issue awareness	Torts, fence law
18	Ag Law	Legal issues	Chapter 12 Bankruptcy Law

**Subject Area:** Farm/Ranch Business Management

**Instructor:** Max Dirks

**Length of Unit:** 18 weeks

**Standard: 1. Students will demonstrate problem-solving skills**

**Benchmarks:**

1. Understand problem-solving, analysis, and decision-making in agriculture
2. Understand leadership and ethics development in agriculture
3. Demonstrate principles of goal setting personal and organizational
4. Understand the principles of planning

<b>Benchmarks</b>	<b>Section from Text</b>	<b>Critical Objectives</b>	<b>Assessments</b>	<b>Infusions/Provisions</b>
1	Unit 4 Budget Analysis	1. Identify the three components of management. 2. Explain the relationship of land, labor, and capital to management	Quiz, input worksheet	HOTS, HGD, LS, MCGF, GS
2	Various Units FFS materials Current events from professional journals	1. Delegate duties and manage conflict, facilitation group interaction (teamwork) 2. Become personally involved in professional organizations 3. Recognize relevant, ethical issues in business and take responsibility for own mistakes	Group interaction, self-evaluation, teacher and group evaluation Discussion, involvement in FFA opportunities Classroom discussion Written summary	HOTS, HGD, LS, MCGF, GS
3	Unit 1 Career information (teacher materials)	1. Define goals, objectives 2. Identify skills, physical and emotional requirements for a job	Set own goals and objectives for semester, year, explain job skills worksheet Unit quiz	HOTS, LS, HGD, MCGF, GS
4	Unit 4, 5, 6	1. Can prioritize a series of tasks while organizing an event 2. Can work within guidelines and utilize time effectively	The Farming Game	HOTS, LS, HGD, MCGF, GS

Higher Order Thinking Skills (HOTS); Special Education (TECH); Technology (MEDIA); Media Information Skills (SPECIAL); Global Studies (GS); Communication Skills (CS); Learning Skills (LS); Human Growth and Development (HGD); Career Education (CE) and Gifted (TAG); Guidance (GUID); Multi-Cultural Gender Fair (MCGF); Talented

**Subject Area:** Farm/Ranch Business Management

**Instructor:** Max Dirks

**Length of Unit:** 18 weeks

**Standard: 2. Students will demonstrate effective communication skills**

Benchmarks:

1. Understand the use of communication skills in agriculture-interpersonal and group; written and oral.
2. Understand basic computational and informational technology.

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
1	Unit 11-Ag Law, current events issues Visiting professor program Careers Unit Various units Unit 10 Business Ag.	1. Speak effectively in front of others, in person, on telephone, leading discussions 2. Listen effectively 3. Organize thoughts and write clearly 4. Demonstrate courtesy skills (tactful, clear) 5. Identify human relations factors in agribusiness (marketing, management)	Class discussion Unit quiz Class participation Resume Unit quiz	HOTS, LS, HGD, MCGF, TECH, MEDIA
2	Stake your acres	1. Use of hardware components, operating systems	Budget sheets, yearly statements	HOTS, LS, CS, TECH, MEDIA

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Farm/Ranch Business Management**Instructor:** Max Dirks**Length of Unit:** 18 weeks**Standard: 3. Students will demonstrate knowledge and skills of subject area**

Benchmarks:

1. Understand the use of entrepreneurial knowledge and skills in agriculture
2. Understand basic technical skills and knowledge in the occupational area of agricultural business
3. Apply principles of entrepreneurship in an agriculture experiential learning experience
4. Safety

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1	Unit 4, 6, 10 Budget analysis Business organizations	1. Analyze the contents of a business plan 2. Explain types of business ownership	Lab book chapter Assessments (#4, 10)	HOTS, LS, CS
2	Unit 9	1. Complete a personal income tax form. 2. Explain the components of a local property tax. 3. Explain social security taxes and their benefit related to types of employment. 4. Demonstrate the impact of the state sales tax on purchases	Complete required tax for from ?? (#2)	HOTS, GS, CS, MCGF, LS, MEDIA
3	Unit 10 business organizations Visiting professor program Unit 7 marketing	1. Identify skills of a business owner, entrepreneur 2. Recognize advantage and disadvantage of different kinds of business ownership (4 types of ag. Business organizations) 3. Explain competition, profit, market analysis	Class discussion, lab assessment HW Unit 7 Careers assessment Lab assessment Unit 7	HOTS, LS, HGD, TECH, MEDIA, MCGF
3	Farming Game	1. Create a business plan, identifying financing options, purchasing fixed and variable assets, and resources for technical assistance 2. Complete business forms (invoices, sales slips, charge card forms) correctly	Completion of all needed forms	HOTS, LS, GS
4	Unit II Ag Law	1. Identify government regulatory agencies related to agriculture 2. Determine the types of insurance available for both personal business needs. 3. Work within guidelines 4. Develop positive community relations 5. Comply with safety and health rules	Unit quiz Worksheet on insurance, discussion on liability	HOTS, LS, HGD, GS, MEDIA

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Standard: 4. Students will demonstrate knowledge of careers**

**Benchmarks:**

1. Careers
2. Understand the concept of cooperation and community service teamwork
3. Understand the concept of adapting to change in agriculture
4. Understand global and cultural diversity issues

<b>Standards/ Benchmarks</b>	<b>Section from Text</b>	<b>Critical Objectives</b>	<b>Assessments</b>	<b>Infusions/ Provisions</b>
1	Careers materials (teacher resources)	1. Awareness and understanding of career in Ag. Business and skills/education needed	Unit quiz	HOTS, LS, GS, MCGF, MEDIA
2	Ag Law Unit 11 Unit 10 (business organizations) Unit 11	1. Explain relationship between public and private sector 2. Exhibit dependability, responsibility and punctuality on the job 3. Accept supervisions willingly, asking for help when needed 4. Respect property and cooperate with others	Government regulation HW Class discussion Job needs worksheet Property rights discussion	HOTS, LS, GS, MCGF, CS
3	Ag Law Unit 11	1. Accept new challenges 2. Adapt to change, demonstrate flexibility, adapting to environment and situation	Government regulation HW Pesticide regulation HW	HOTS, LS, GS, CS
4	Unit 14, International Agriculture Food for America Teacher materials, current articles in professional journals	1. Identify types of production systems used worldwide 2. Identify monetary and measurement systems of selected countries and impact on U.S. 3. Explain linkage between culture, diet, production, of one country in relation to another, biotechnology, international trade 4. Be able to locate major agricultural areas and countries of the world 5. Explain political role in agriculture (commodities, price guarantees)	Unit quiz Exchange worksheet Government policy discussion Diet/consumption HW Video HW Mapping HW, Web search Discussion Policy quiz	HOTS, GS, MCGF, MEDIA

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

## Van Buren Community Schools

### ***Modern Livestock Production***

#### **Course Outline**

Grade Level Recommended 10, 11

<b>Week</b>	<b>Topics</b>	<b>Objectives</b>	<b>Activities</b>
1	Introduction	Course Overview	Policies, expectations, overview of the animal science industry
2	Animal Science careers	Career opportunities in animal science	Swine breeder, veterinarian, vet tech, rancher, researcher, nutritionist
3	Anatomy	Understanding skeletal systems	Review of bone structures, bone formation and development
4	Physiology	Hormone and enzyme regulation and control	Reproductive hormones, male and female and mode of action
5	Genetics	Understanding of genetics	Chromosomes and genes, Punnet Square
6	Genetics	Genetics	Need for genetic improvement, methods of improvement
7	Animal breeding	Reproduction	Development of puberty, estrous cycle length, review reproductive structures (male and female)
8	Animal breeding	Reproduction	Conception, gestation
9	Animal breeding	Reproduction	Parturition, poultry reproductive systems, dissections
10	Nutrition	Digestive enzymes	Digestive enzymes and functions, mode of action and location
11	Nutrition	Digestive enzymes	Monogastric, ruminant, how they work
12	Nutrition	Nutrient needs	6 basic nutrients, functions, meeting nutrient needs, sources of nutrients, and information on nutrient requirements
13	Aquaculture	Understanding of farming the waters	Fish anatomy, nutritional needs, water quality
14	Animal health	Diseases and parasites	Common parasites, mode of action, methods of control
15	Management practices	Care of domestic animals	Care and maintenance of pets, domestic food animals
16	Ag. Issues	Social and political issues	Animal rights and welfare
17	Ag. Issues	Social and political issues	Cloning, genetic engineering
18	Precision animal management	Animal identification and management	Computerized ear tags, barcodes, thermo imaging in animal health, computer regulated feeding

**Subject Area:** Modern Livestock Production

**Instructor:** Max Dirks

**Length of Unit:** 18 weeks

**Standard: 1. Students will demonstrate problem-solving skills**

Benchmarks:

1. Understand problem-solving, analysis, and decision-making in agriculture
2. Understand leadership and ethics development in agriculture
3. Demonstrate principles of goal setting personal and organizational
4. Understand the principles of planning

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
1	Reproduction units Gillespie Text	1. Interpret the results for a tissue text	Dissection lab worksheet	HOTS, LS, CS
2	Careers, labs Current events, professional journals	1. Delegate duties and manage conflict, facilitation group interaction (teamwork) 2. Become personally involved in professional organizations 3. Recognize relevant, ethical issues in business and take responsibility for own mistakes	Self/teacher evaluation Current events discussion	CS, MCGF, LS, HGD, HOTS, GS, HGD
3	Careers Unit – Gillespie Gillespie 2 – Careers	1. Define goals, objectives 2. Identify skills, physical and emotional requirements for a job	Successful completion of goals worksheet, Careers survey	HGD, TECH, MEDIA, GS, CS, LS,
4	Safety Unit	1. Can prioritize a series of tasks while organizing an event 2. Can work within guidelines and utilize time effectively	Development of safety visit for safety camp, successful presentation	CS, MEDIA, LS, HGD, MCGF

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Modern Livestock Production**Length of Unit:** 18 weeks**Instructor:** Max Dirks**Standard: 2. Students will demonstrate effective communication skills**

## Benchmarks:

1. Understand the use of communication skills in agriculture-interpersonal and group; written and oral.
2. Understand basic computational and informational technology.

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
1	Selection judging (14, 21, 40) Articles on employee management	1. Speak effectively in front of others, in person, on telephone, leading discussions 2. Listen effectively 3. Organize thoughts and write clearly 4. Demonstrate courtesy skills (tactful, clear) 5. Identify human relations factors in agribusiness (marketing, management)	Oral reasons on livestock Written notes for oral reasons Class discussions, unit quiz	HOTS, CS, LS, HGD, MCGF
2	Teacher materials Precision ag technology	1. Explain and discuss electronic identification, thermal imaging in animal management and disease prevention	Web search, class discussion	HOTS, CS, LS, MCGF, TECH, MEDIA

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MCGF); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area: Modern Livestock Production****Instructor: Max Dirks****Length of Unit: 18 weeks****Standard: 3. Students will demonstrate knowledge and skills of subject area****Benchmarks:**

1. Understand the use of entrepreneurial knowledge and skills in agriculture
2. Understand basic technical skills and knowledge in the occupational area of agricultural business
3. Apply principles of entrepreneurship in an agriculture experiential learning experience
4. Safety

<b>Benchmarks</b>	<b>Section from Text</b>	<b>Critical Objectives</b>	<b>Assessments</b>	<b>Infusions/Provisions</b>
1	Gillespie Unit 8	1. Balance livestock rations 2. Classify feed as roughages or concentrates 3. Explain characteristics of a good ratio	Completion of ration mixes, ID of feed stuffs	HOTS, CS, LS
2	Parker Text, teacher materials Unit 24 Parker Text Unit 4 Gillespie Text Gillespie Unit 7, teacher material Gillespie Text	1. Identify types of wholesale and retail cuts of meat 2. Explain methods for the proper handling and disposal of animal waste 3. Demonstrate proper procedures for administering animal health and nutritional (feedstuff and additives) products 4. Explain functions of monogastric and ruminant digestive system 5. Identify procedures for developing a quality livestock disease prevention in relation to facilities etc.	ID quiz of cuts, muscles Student activities and of unit, unit quiz Unit 7 quiz Administration worksheet Dissection of digestive system, ID and explain parts Unit quiz	HOTS, CS, HGD, GS, MEDIA, LS, MCGF
3	Teacher materials	1. Identify opportunities for the development of diversified livestock enterprises	Ethics discussion Unit quiz Power Point presentation on Biotech applications	HOTS, MCGF, LS, CS, HGD, GS, TECH, MEDIA
4	Dissection/Nutrition Unit	1. Proper use of equipment and safety procedures after demonstration	Lab	HOTS, LS, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Modern Livestock Production**Instructor:** Max Dirks**Length of Unit:** 18 weeks**Standard: 4. Students will demonstrate knowledge of careers**

Benchmarks:

1. Careers
2. Understand the concept of cooperation and community service teamwork
3. Understand the concept of adapting to change in agriculture
4. Understand global and cultural diversity issues

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
1	Careers Unit (teacher material Unit 1, 48 Unit 2 FFA materials FFA Website	1. Awareness of careers in Animal Science skills needed, opportunities 2. List employment opportunities that require a knowledge of animal science 3. Identify agricultural career opportunities in management, sales and service 4. Evaluate a job offer, benefits, time, and working environment	Resume, cover letter Career search worksheet Skills worksheet Complete jobs requirement activity Knowledge/understanding of FFA opportunities Unit quiz	HOTS, LS, HGD, GS, MCGF, CS
2	Personnel management employee management articles Bone Unit	1. Explain relationship between public and private sector 2. Exhibit dependability, responsibility and punctuality, on the job 3. Accept supervisions willingly, asking for help when needed 4. Respect property and cooperate with others	Unit quiz	HOTS, CS, LS, HGD, MCGF
3	Reproduction Unit FFA materials FFA Website Biotechnology information	1. Accept new challenges 2. Adapt to change, demonstrate flexibility, adapting to environment and situations	Dissection lab Successful participation in FFA skills contest Knowledge/understanding of FFA opportunities Unit quiz	HOTS, HGD, CS, MCGF

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Modern Livestock Production**Length of Unit:** 18 weeks**Instructor:** Max Dirks**Standard: 4. Students will demonstrate knowledge of careers**

## Benchmarks:

1. Careers
2. Understand the concept of cooperation and community service teamwork
3. Understand the concept of adapting to change in agriculture
4. Understand global and cultural diversity issues

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
4	Unit 27 Parker Text Teacher materials Current events articles Unit 26, 27, Parker Text World Food Prize info. Food for America info.	1. Identify types of production systems used worldwide 2. Identify monetary and measurement systems of selected countries and impact on U.S. 3. Explain linkage between culture, diet, production, of one country in relation to another, biotechnology, international trade 4. Be able to locate major agricultural areas and countries of the world 5. Explain political role in agriculture (commodities, price guarantees)	Production worksheet Exchange rate worksheet Internet search (current events) Consumption worksheet Class discussion Production worksheet  <b>Map ID's</b> Production worksheet  <b>Unit test</b>	MCGF, GS, LS, CS, HGD

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Van Buren Community Schools**  
**Turf Management (Landscape Management)**  
**CIP Code 01.0605 (5136)**

<b>Week</b>	<b>Topics</b>	<b>Objectives</b>	<b>Activities</b>
1	Introduction		
2	Identification of grass types	Turf selection	Grass identification practice and quiz Vegetative parts and plant structure study and worksheet
3	Grass selection	Grass management	Field trip to golf courses
4	Soils	Learn soil types, nutrients	Guest speaker from ISU Extension, soil samples from DNR and science labs
5	Soils	Treatments	Chemicals, fertilizer, manufacturers, guest speakers, read fertilizers, safety in using chemicals
6	Water	Research water, irrigation	Plant location, turf management, guest speakers
7	Water	Water conservation	Discuss conservation, problem solve ways to increase conservation with recycled water
8	Technology	Explore resources	Identify and explore websites for weather, grasses, professional organizations for turf management
9	Safety	Safety	Pesticides, water quality assessments
10	Design	Teach golf course designs	Study golf courses locally and through the web
11	Design	Implement golf course design	Design own golf course, 2D and 3D design model
12	Timelines	Implement schedules	Research and implement turf management schedule
13	Current events	Current events	Identify types of production systems used worldwide environmental policies, water, irrigation programs
14	Human relations	People skills	Role play handling customer questions and complaints, guest speakers
15	Careers unit	Explore career possibilities	Identify skills of an entrepreneur, turf manager. Glass discussion, skills worksheets, guest speakers
16	Business	Apply business principles	Research and write business plan
17	Professional skills	Communication	Communication skills to different audiences, customers, golf course boards, landowners, present golf course design, turf management plan or business plan
18	Professional organizations		

**Subject Area:** Turf Management (Landscape Management)**Length of Unit:** 1 weeks**Instructor:** Max Dirks**Standard: 1. Students will demonstrate problem-solving skills****Benchmarks:**

1. Understand problem-solving, analysis, and decision-making in agriculture
2. Understand leadership and ethics development in agriculture
3. Demonstrate principles of goal setting personal and organizational
4. Understand the principles of planning

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
1	Teacher materials Visiting Unit 5-8 Golf Course Design Career Unit, professional publication	1. Identify and differentiate disease, pest, insect, chemical, environmental damage in plants compared to observing healthy quality plants, lawns 2. Interpret soil sample data 3. Interpret landscape plans 4. Demonstrate handling customer complaints	Complete weed/grass identification (pest) IPM test Completed quiz, worksheets Soil samples, unit test 2D Plan, completed Class discussion/role play	TECH, MEDIA, HOTS, LS, GS
2	Golf course design Teacher materials Professional associations Recent professional publications, Career Unit	1. Delegate duties and manage conflict, facilitating group interaction (teamwork) 2. Become personally involved in professional organizations 3. Recognize relevant, ethical issues in business and take responsibility for own mistakes	Group interaction/self-evaluation Discussion/knowledge of relevant turf Associations/opportunities Class discussion/role play	LS, CS, MCGF, HGD, HOTS
3	Careers Unit Design	1. Define goals 2. Identify skills, physical and emotional requirements for a job	Career goal worksheet Design completion Web search Complete career sheets (worksheets)	HGD, MCGF, HOTS, CS, GS, MEDIA
4	Golf course design (teacher materials)	1. Can prioritize a series of tasks while organizing an event 2. Can work within guidelines and utilize time effectively	2D plan, 3D plan	MEDIA, CS, GS, HOTS, TECH
4 (Safety)	Teacher materials			

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Turf Management (Landscape Management)

**Instructor:** Max Dirks

**Length of Unit:** 18 weeks

**Standard: 2. Students will demonstrate effective communication skills**

Benchmarks:

1. Understand the use of communication skills in agriculture-interpersonal and group; written and oral.
2. Understand basic computational and informational technology.

Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/Provisions
1	Career Unit Irrigation Unit (teacher materials) Design Unit Unit 8, Teacher materials Unit 22, turf grass text Design Unit Unit 7, teacher materials Unit 18 turf grass text, Unit 19	1. Speak effectively in front of others, in person, on telephone, leading discussions, demonstrates interaction with customers 2. Listen effectively 3. Organize thoughts and write clearly 4. Demonstrate courtesy skills (tactful, clear) 5. Identify human relations factors in agribusiness (marketing, management) 6. Develop promotional display 7. Be able to explain processes using terminology (pasteurization and fumigation of soil mixes)	Promotional display Student led unit teaching Group interaction Promotional brochure Resume, interview worksheets, unit text Promotion brochure Unit test, problem-solving worksheet	HOTS, CS, MCGF, TECH, MEDIA, HGD, GS,
2	Infused throughout	1. Successful knowledge and ability to use technology	Word processing, power point, internet search	TECH, MEDIA, HOTS, CS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Turf Management (Landscape Management)**Length of Unit:** 18 weeks**Instructor:** Max Dirks**Standard: 3. Students will demonstrate knowledge and skills of subject area****Benchmarks:**

1. Understand the use of entrepreneurial knowledge and skills in agriculture
2. Understand basic technical skills and knowledge in the occupational area of agricultural business
3. Apply principles of entrepreneurship in an agriculture experiential learning experience
4. Safety

Standards/ Benchmarks	Section from Text	Critical Objectives	Assessments	Infusions/ Provisions
1	Unit 2, 3, 4 teacher materials	1. Identification of grass types, knowledge of growing soils, growing periods, turf selection	Grass ID quiz Vegetative parts worksheets Plant structure worksheet Unit text	HOTS, CS, GS, TECH
3	Careers Unit Visiting professor program	1. Identify skills of a business owner, entrepreneur	Class discussion, skill/careers worksheet	HOTS, LS, CS, TECH,
		2. Recognize advantage & disadvantage of different kinds of business ownership (4 types of ag. Business organizations)	Unit test	MCGF
		3. Explain competition, profit, market analysis	Business plan worksheet	
		4. Create a business plan, identifying financing options, purchasing fixed and variable assets, and resources for technical assistance	Business plan	

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

## Van Buren Community Schools

### *Ag. Sales and Marketing*

#### Course Outline

<b>Week</b>	<b>Topics</b>	<b>Objectives</b>	<b>Activities</b>
1	Introduction	Course Overview	Policies, expectations, overview of ag marketing concepts
2	Budgeting	Crop production cost budgets	Sample budget construction, custom hire rates, crop decisions
3	Marketing	Insurance and loan payments	Types and options for market loans, LDP program, crop insurance dates and multiple peril crop insurance
4	Costs	Grain storage	On farm and elevator storage costs, shrink, interest charge
4, 5	Using futures	Futures contracts basics	Understand the principles of hedging, learn the mechanics of short and long hedges, futures to protect against price risk
6, 7, 8	Futures	Basis	Basis terminology, market terms, grain and livestock hedging
9, 10	Futures	Hedging	Marketing examples, comparing to forward
11, 12	Using options	Options contract basics	contracting understand the principles of options, learn the mechanics of option basics, options terminology
13, 14, 15	Options	Options tools	Using options to reduce price risk, strike price, exercising options
16	Specialty markets	Specialty grain basics	Understand principles of specialty grain terminology and markets
17	Budgeting	Livestock production budgets	Investment costs, production decisions, enterprise analysis
17	Pricing	Seasonal price patterns	Hog and cattle price patterns, price forecasting, evaluate price forecasting, evaluate price alternatives
18	Networking	Networking overview	Definitions, basic types, benefits, limitations
18	Land ownership	Leasing and ownership	Definitions, basics, examples

**Subject Area:** Agricultural Marketing

**Instructor:** Max Dirks

**Length:** 18 weeks

**Standard 1: Students will demonstrate problem solving skills**

Benchmarks:

1. Understand problem solving, analysis, and decision making in agriculture
2. Understand leadership and ethics development in agriculture
3. Demonstrate principles of goal setting personal and organizational
4. Understand the principles of planning

Benchmarks	Materials/Activities	Critical Objectives	Assessments	Infusions/Provisions
1	Crop production cost budgets	1. Construct cost budgets for corn and soybean production	File A1-20/File A3-10 Ag Decision Maker	HOTS, HGD, CS, LS, CE
	Crop insurance, storage costs	1.Determining optimal coverage, calculating costs/benefits to storing grain	File A1-52; file A2-33	HOTS, LS, CS
	Hedging unit	1.Define hedging, analyze alternatives (marketing and pricing alternatives for commodities)	Various methods	HOTS, HGD, LS, CS, MCGF, TECH, CE
2	Livestock budgeting, enterprise budgets	1.Delegation of duties and manage conflict, facilitate group interaction	Various methods	CS, LS, HGD
	FFA Materials	1.Recognize relevant, ethical issues in business and take responsibility for own mistakes	Involvement in FFA Opportunities	HGD, LS, CS, HOTS, MCGF, GS, CE
3	Costs and returns, whole farm decisions, Options strategies	1.Define goals, Identify skills and requirements for a job	Daily homework, quizzes, classroom monitoring	HGD, LS, TECH, CS, CE
4	Option strategies, hedging strategies	1. Can prioritize a series of tasks while organizing an event 2. can work within guidelines & utilize time effectively	Commodity trading, daily homework	TECH, HGD, CS, MEDIA, MCGF

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Agricultural Marketing

**Instructor:** Max Dirks

**Length:** 18 weeks

**Standard 2: Students will demonstrate effective communication skills**

Benchmarks:

1. Understand the use of communication skills in agriculture-interpersonal and group; written and oral
2. Understand basic computational and informational technology

Benchmarks	Materials/Activities	Critical Objectives	Assessments	Infusions/Provisions
1	Futures and options, enterprise budgets	1. speak effectively in front of others, leading discussions 2. listen effectively 3. organize thoughts and write clearly 4. Demonstrate courtesy skills 5. identify human relations factors in agribusiness	Daily homework, class discussion, teacher developed questions	CS, LS, HGD, MCGF, CE
2	Marketing- futures and options	1. Be able to calculate agricultural related statistics (margins, time value of money, finance charges) 2. use metric system to calculate weights and measurements	Commodity trading	CS, LS, HGD, MCGF, TECH MEDIA, CE

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Standard 3: Students will demonstrate knowledge and skills of subject area**

Benchmark:

1. Understand the use of entrepreneurial knowledge and skills in agriculture
2. Understand basic technical skills& knowledge in occupational area of agricultural business
3. Apply principles of entrepreneurship in an agriculture experiential learning experience
4. safety

Benchmarks	Materials/Activities	Critical Objectives	Assessments	Infusions/Provisions
1	Crop, livestock production budgeting units, Hedging unit	1. Analyze business organizations, including skills required by owners/entrepreneurs 2. Explain profit, competition, advantages & disadvantages of different hedging methods 3. describe record keeping systems in agriculture- interpret graphs, charts, maps to make complex decisions	Commodity marketing, teacher developed questions, class discussion, daily homework	HOTS, HGD, CS, LS, MCGF, tech, GS, CE
2	Hedging unit, production units	1. Identify credit, budget planning and other resources required by government agencies related to agribusiness 2. demonstrate knowledge of banking and accounting principles; balance sheets, cash receipts, fixed and variable costs, cash flow projection worksheets, opportunity costs	Successful completion of samples, ag decision maker assignments, class discussion, web search	Media, tech, HGD, CS, LS, HOTS, CE
3	Hedging unit	1. Recognize advantages and disadvantages of different hedging methods 2. Explain competition, profit, market analysis, technical analysis 3. Identify financial/financing options 4. Understand leasing and ownership fundamentals	Class discussion, daily homework, ag decision making programs	LS, CS, HGD, HOTS, Media, Tech, CE
4	Various sections of text Governmental policy OSHA	1. Follow rules and regulations 2. Comply with safety and health rules 3. Maintain safe and orderly work area 4. Utilize equipment correctly	Government worksheet, class discussion	HOTS, CS, CE, LS, MCGF, HGD

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area: Agricultural Marketing****Instructor: Max Dirks****Length: 18 weeks****Standard 4: Students will demonstrate knowledge of careers****Benchmarks:**

1. Careers
2. understand the concept of cooperation and community service teamwork
3. understand the concept of adapting to change in agriculture
4. understand global and cultural diversity issues

<b>Benchmarks</b>	<b>Section from Text</b>	<b>Critical Objectives</b>	<b>Assessments</b>	<b>Infusions/ Provisions</b>
1	Career unit	<ol style="list-style-type: none"><li>1. Demonstrate job skills initiative, effective time management, personal hygiene</li><li>2. Demonstrate job application skills; write a resume and a cover letter</li><li>3. Identify agricultural related career opportunities in management &amp; sales</li></ol>	Interview process, classroom discussion	HOTS, CS, LS, HGD, MCGF, tech, media
2	Current events, various areas	<ol style="list-style-type: none"><li>1. Explain relationship between public and private sector exhibit dependability, responsibility, punctuality on the job</li><li>2. Accept supervisions willingly, asking for help when needed</li><li>3. Respect property and cooperate with others</li></ol>	Class discussion, job shadowing	CS, LS, HGD, GS, CE, HGD, HOTS, MCGF
3	Hedging unit	<ol style="list-style-type: none"><li>1. Accept new challenges</li><li>2. Adapt to change, demonstrate flexibility, adapting to environment and situation</li></ol>	Commodity marketing	HOTS, CS, LS, CE, HGD, Media, Tech, GS
4	Hedging unit, production units	<ol style="list-style-type: none"><li>1. Identify types of production systems used worldwide</li><li>2. Identify monetary &amp; measurement systems of selected countries and impact on the USA</li></ol>	Class discussion, commodity marketing, daily homework	HOTS, CS, LS, CE, GS, HGD, Tech, Media

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Van Buren Community Schools**  
***Fundamentals of Agriculture (Biotechnology)***  
**Course Outline**

<b>Weeks</b>	<b>Topics</b>	<b>Objectives</b>	<b>Activities</b>
1	Introduction	Course overview	Policies, expectations, overview of ag biotechnology concepts
2	Biotechnology basics	History	Definitions, global uses of biotechnology, importance
3	Scientific principles	Research	Analyze data, scientific method, draw conclusions
4, 5, 6	Forensics	Forensic entomology	Identify insects, calculate post mortem interval, gather information document and process area for entomological evidence
7	Genes	Genetic transfer	Sequencing, gene mapping, transcription/translation
8	Genetics	Producing GMO's	BST, recombinant DNA, DNA splicing, electrophoresis restriction fragment length polymorphism
9	Cloning	Plant cloning	Asexual reproduction, vegetative propagation, other means of propagation, advantages, examples
10	Cloning	Animal cloning	Why create clones, cloning process, sex selection
11, 12	Applications	Biotech in animals	Artificial insemination, estrus synchronization, embryo transfer
13, 14	Applications	Biotech in medicine	Biopharming in plants and animals, PHAGE work
15	Applications	Biotech in food industry and ecology	Food preservation methods, golden rice, bioremediation, biodiesel
16	Concerns	Consumer concerns, government regulations	GMO transfer, food issues, biopiracy, patents on life
17, 18	Bioethics	Ethical dilemmas	Ethics in stem cell research, genetic discrimination Ethics in cloning, xenotransplantation

**Subject Area:** Fundamentals of Agricultural Biotechnology**Instructor:** Max Dirks**Length:** 18 weeks**Standard 1: Students will demonstrate problem solving skills****Benchmarks:**

1. Understand problem solving, analysis, and decision making in agriculture
2. Understand leadership and ethics development in agriculture
3. Demonstrate principles of goal setting personal and organizational
4. Understand the principles of planning

Benchmarks	Materials/Activities	Critical Objectives	Assessments	Infusions/Provisions
1	Forensic entomology unit	1. Using dichotomous key to identify insects 2. Calculate postmortem interval 3. identify & gather relevant information	Fly life cycle & species ID Case Reviews Field Study Exercise	HOTS, CS, CE, LS, HGD, MCGF, TECH
	Biotech applications	1. Explain the process of developing biopharmaceuticals 2. Research & determine new technologies 3. Understand why/how biotechnology is used in animal breeding	PHAGE exercise Class discussion, teacher developed scenarios Self evaluations	HOTS, CS, CE, Tech, MCGF, MEDIA, LS, HGD
2	Bioethics unit	1. Discuss benefits & concerns of stem cell research & cloning 2. understand controversy of life patenting 3. determine benefits/concerns of xenotransplantation	Class discussion, teacher developed questions, self evaluations, current events	HOTS, CS, CE, LS, MCGF, TECH, MEDIA, HGD
3	Cloning, forensics, bioethics, applications	1. Explain and understand advances in medicine 2. Recognize relevant ethical issues in business 3. Identify factors important to human relations in agribusiness 4. Describe and discuss role of government and activists in agricultural advances/changes	Role of government in biotech issues and regulation, class discussion, unit quiz	TECH, MEDIA, CS, CE, HOTS, HGD, GS, LS
4	Forensics, biotech applications	1. Can prioritize a series of tasks while organizing an event 2. Can work within guidelines & utilize time effectively	Field study exercise, PHAGE exercise	MEDIA, TECH, HGD, HOTS, CS, CE, GS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Fundamentals of Agricultural Biotechnology

**Instructor:** Max Dirks

**Length:** 18 weeks

**Standard 2: Students will demonstrate effective communication skills**

**Benchmarks:**

1. Understand the use of communication skills in agriculture-interpersonal and group; written and oral
2. Understand basic computational and informational technology

Benchmarks	Materials/Activities	Critical Objectives	Assessments	Infusions/Provisions
1	Bioethics unit	1. Speak effectively in front of others, in person, lead discussion, demonstrates interaction 2. Listen effectively 3. Organize thoughts and write clearly 4. Demonstrate courtesy skills (tactful, clear)	Oral discussion of issues Written evaluations on scenarios Current events discussion	HOTS, MCGF, LS, GS, CE, CS, TECH, MEDIA
	Applications units	1. Organize thoughts and write clearly	PHAGE assignment, written scenario evaluations	TECH, MEDIA, CE, HOTS
2	Infused throughout	1. Successful knowledge and ability to use technology	Word processing, power point, internet search, microscope applications	TECH, MEDIA, CS, CE, HOTS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Fundamentals of Agricultural Biotechnology**Instructor:** Max Dirks**Length:** 18 weeks**Standard 3: Students will demonstrate knowledge and skills of subject area****Benchmarks:**

1. Understand the use of entrepreneurial knowledge and skills in agriculture
2. Understand basic technical skills& knowledge in occupational area of agricultural business
3. Apply principles of entrepreneurship in an agriculture experiential learning experience
4. Safety

<b>Benchmarks</b>	<b>Materials/Activities</b>	<b>Critical Objectives</b>	<b>Assessments</b>	<b>Infusions/ Provisions</b>
1	Forensics unit, applications units	1. Identify & gather relevant information 2. Analyze data & draw conclusions 3. Knowledge of various applications in biotech	Case studies, lab protocol, skills worksheets, unit test	HOTS, CS, CE, GS, TECH
2	Scientific principles	1. Discuss how experiments are conducted 2. Explain how data is analyzed 3. Explain how research results are reported	Review of research reports Research project for science fair	MEDIA, TECH, HGD, HOTS, CE, LS, MCGF, GS
	Principles of genetic transfer	1. Discuss mapping of the human genome 2. Explain the role of genetics in the transfer of characteristics 3. Discuss nucleotide sequencing, transcription, translation	Polymerase chain reaction/Restriction fragment length polymorphism Lab	TECH, HGD, HOTS, CE, CS, LS, MCGF
	Applications units	1. Explain the process of embryo transfer 2. Explain the process of estrus synchronization 3. Explain how plant pharming may reduce the cost of drug production	PHAGE assignment, case studies, lab protocol	TECH, MEDIA, HGD, HOTS, CS, CE, LS, MCGF
3	Careers unit Visiting professor program	1. Identify skills of a business owner, entrepreneur 2. Recognize advantage & disadvantage of different kinds of business ownership	Class discussion, skills/careers worksheet, unit test	HOTS, LS, CE, CS, MCGF, TECH, HGD
4	Infused throughout	1. Ask for help when needed 2. Comply with safety and health rules 3. Accept supervision willingly 4. Cooperate with others and respect their property	Unit quiz, class discussions, lab protocols, skills worksheets/applications	HOTS, LS, CE, CS, TECH, HGD, GS

Higher Order Thinking Skills (HOTS); Special Education (SPECIAL); Media Information Skills (MEDIA); Technology (TECH); Multi-Cultural Gender Fair (MCGF); Guidance (GUID); Talented and Gifted (TAG); Learning Skills (LS); Communication Skills (CS); Global Studies (GS); Human Growth and Development (HGD); Career Education (CE)

**Subject Area:** Fundamentals of Agricultural Biotechnology**Instructor:** Max Dirks**Length:** 18 weeks**Standard 4: Students will demonstrate knowledge of careers**

Benchmarks:

1. Careers
  2. understand the concept of cooperation and community service teamwork
  3. understand the concept of adapting to change in agriculture
  4. understand global and cultural diversity issues

Benchmarks	Materials/Activities	Critical Objectives	Assessments	Infusions/Provisions
1	Careers unit, visiting professor program	1. Knowledge of and understanding of careers/skills/education needed	Web search, careers worksheet	TECH, HOTS, HGD, CE, CS, LS
2	Concerns unit	1. explain relationship between public & private sector	Current events discussion, government regulations websearch, unit quiz	TECH, MEDIA, HOTS, HGD, CE, CS, LS, MCGF
3	Applications units	1. Accept new challenges 2. Adapt to change, demonstrate flexibility, adapting to environment and situation	Self/teacher monitoring & evaluation; class discussion; labwork and protocol; teacher developed scenarios	TECH, MEDIA, HGD, HOTS, CE, CS, LS, MCGF, GS
4	Applications units	1. Identify food needs and concerns worldwide 2. Explain linkage between culture, diet, production of one country in relation to another, international trade 3. Be able to explain current events issues relative to food security and country stability	Golden Rice Activity World Food Prize lessons Current events discussion	GS, HOTS, HGD, CS, TECH, MEDIA, MCGF
	Cloning unit, bioethics unit	4. Explain political & ethical (moral) role in agriculture (regulations, genetic preservation, patents on life)	Biopharm research, government regulation web search	TECH, MEDIA, MCGF, GS, HOTS, HGD

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**Van Buren Community Schools**  
***Fundamentals of Agricultural/Horticultural Science and Business***  
**Course Outline**

Week	Topics	Objectives	Activities
1	Introduction	Course Overview	Policies, expectations, overview of agriculture industry by subject areas
2	Ag Careers	Awareness of careers in ag industry	Study of ag business, engineering, aquaculture, technology, soil and crop science, horticulture, entomology
3	Ag Careers		Study of ag education, biotech research, animal science, veterinarian
4	Introduction to FFA	Overview of FFA organizations	History of FFA, logo, organization, aim and purposes of FFA, creed and motto
5	FFA	Opportunities	Travel, contests, awards, achievements
6	FFA	Officers, SAE	Job responsibilities, station emblems, record keeping
7	Leadership	Goal setting, self motivation	Set goals for semester, year, understand importance of goal setting
8	Parliamentary procedure	Awareness of proper procedure for meetings	Main motions, subsidiary motions, table motions, proper parliamentary procedure
9	Soil Science	Terminology	Origins of soils, classifications, physical, chemical biological characteristics, hydroponics
10	Soil Science	Amendments	Fertilizers and their ingredients, reading a label, ways to raise and lower pH
11	Soil Science	Water and soil conservation	Relation between land characteristics and water quality
12	Soil Science	Soil/Land Judging	Landscape positions, slope calculations, color/drainage of soil, soil mixes, soils triangles, texture comparisons
13	Plant Science	Terminology	Introduction to plant taxonomy
14	Plant Science	Plant components	Plant structures, functions
15	Plant Science	Photosynthesis	Photosynthetic formula, transpiration, respiration
16	Plant Science	Reproduction	Cloning, reproduction, propagation, plant development
17	Ag History	History of Agriculture	Historical developments, important research, population trends, practices used to increase ag productivity
18	Animal Science	Animal reproduction	Parts of an functions of male and female reproductive systems
19	Animal Science	Physiology	Male and female reproductive hormones, role of hormones
20	Animal Science	Anatomy	Skeletal systems of bovine, porcine, ovine, canine, feline
21	Animal Science	Nutrition	Introduce monogastric digestive system, ruminant digestive system

<b>Week</b>	<b>Topics</b>	<b>Objectives</b>	<b>Activities</b>
22	Animal Science	Nutrition	Meeting nutritional needs, identify nutritional requirements, balance rations with Pearson Square method
23	Meat Science	Meat Classification	Introduction to meat classifications, meat grades, terms, careers
23	Meat Science	Meat Classification	Identification of wholesale, retail cuts of beef, pork, lamb, referring to species charts, whole cut and bone structure
24	Meat Science	Meat grinding	Describe USDA grading system review grades for meat and meat terms, study meat quality factors
25	Meat Science	Meat inspection	Understand laws governing meat inspection, basic elements involved in meat inspection
26	Meat Science	Meat evaluation and judging	Describe and study how meat is evaluated and judged
27	Farm and Agribusiness Management	Record keeping	Incorporate with SAE projects methods of keeping records
28	Farm and Agribusiness Management	Decision making, risk management	What makes a good decision, methods of managing risks, (marketing and production methods)
29	Ag Marketing	Introduction to Marketing	Terminology, introduction to industry
30	Ag Marketing	Marketing Process	Contracting, basis, grid, Mercantile Exchange, Board of Trade
31	Animal Science	Livestock evaluation and judging	Describe and study how livestock are evaluated and judged, bovine, porcine, ovine
32	Animal Science	Livestock Judging	Terminology, oral reasons
33	Horticultural Science	Industry Overview	Plant propagation, fruit, nut, vegetable production
34	Landscape Science	Industry Overview	Landscape plan and design
35	Natural	Awareness of Ag	Forestry, agroforestry, aquaculture hazardous material disposal
36	Current events	Ag issues	Current ag issues, and perceptions, personal viewpoints