

Agriculture 2019

Prepared on a cooperative effort by
Humphrey Public Schools
Stanton Community Schools
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Acknowledgements

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District Mission Statement

The Stanton Community Schools exist to create, foster, and provide a positive learning environment in which all students can become responsible and productive members of the United States of America through academic, physical, social, vocational, technical, and emotional growth.

Goals

The students will:

1. Engage in a 21st century learning environment by
 - a. Exceeding learning standards in the core curricular areas of Language Arts, Mathematics, Science and Social Science.
 - b. Acquiring lifelong learning skills such as self-direction, adaptability, and higher-order thinking/problem solving. Also, included in these learning skills are researching information & reporting results, developing inter-personal & cross-cultural relationships, and utilizing the student's curiosity & creativity.
 - c. Utilizing learning technologies to explore & investigate concepts; access, manage, analyze, & synthesize information; and communicate & produce quality products.
2. Be prepared to compete in a global society following graduation.
3. Develop respect and a positive attitude for themselves and others.
4. Assume civic responsibility as a member of a family, community, nation, and world.
5. Develop an appreciation for the visual and performing arts.
6. Be provided with vocational and technological skills.
7. Have the knowledge and skills needed to maintain healthy and fit bodies throughout their lives.
8. Be provided an environment that stimulates emotional growth.
9. Assume responsibility and ownership for their education.

Agriculture Mission Statement

Agricultural education can be an integral part of the learning process for any elementary, middle school or high school student. Agricultural education can work to enhance and reinforce state standards for several of the core areas and give students a broad-based level of knowledge that will be invaluable in any field of endeavor. Agricultural education strives to give students essential knowledge in the field of food and fiber production, teach basic occupational and or professional skills in various areas of agriculture, improve the leadership and communications skills of agricultural education students, explore various issues concerning agriculture and natural resources in order to prepare students for successful careers and a lifetime of informed choices in the global agriculture and natural resources systems.

Agriculture Curriculum Guides

The developers of these curriculum guides recognize that agricultural education covers a broad range of subject matter from animal and plant science, to mechanics, leadership development, natural resources and many more. They also recognize that many agricultural education programs are set up differently in terms of semester-long vs. year-long courses, types of classes taught, facilities available, etc. These guides are meant to be adapted to many different settings. They can be used as semester-long or year-long courses, or parts of them may be taken out and put into various different courses as the instructor sees fit. It is also recognized that due to the abundance of material, parts of some of these areas, or in some cases even entire areas may not be covered.

Exploring Agriculture Curriculum

Purpose Statement The students will explore and gain an understanding of basic agricultural concepts.

Focus:

1. Animals
2. Plants
3. Natural Resources

Outcome Ag.EA.01: Students will identify and discuss various types and classifications of animals. (AFNR.HS.2.1, AFNR.HS.2.6, AFNR.HS.6.8)

- Ag.EA.1.1 Define and describe basic animal terminology.
- Ag.EA.1.2 Identify and provide characteristics of a breed of animal.
- Ag.EA.1.3 Create a presentation about basic animal care.
- Ag.EA.1.4 Explain how companion animals are classified according to their use.
- Ag.EA.1.5 Explain animal system opportunities in FFA.

Outcome Ag.EA.02: Students will identify and discuss various types and classifications of plants. (AFNR.HS.2.4, AFNR.HS.5.1, AFNR.HS.5.2)

- Ag.EA.2.1 Define and describe basic plant terminology.
- Ag.EA.2.2 Draw a landscape design.
- Ag.EA.2.3 Create a basic floral arrangement.
- Ag.EA.2.4 Create a presentation about a plant life cycle and uses.
- Ag.EA.2.5 Explain plant system opportunities in FFA.

Outcome Ag.MS.03: Students will identify and discuss various types of natural resources. (AFNR.HS.3.1, AFNR.HS.3.2, AFNR.HS.3.3)

- Ag.EA.3.1 Define and describe types of natural resources.
- Ag.EA.3.2 Identify habitat requirements of wildlife.
- Ag.EA.3.3 Discuss aquaculture systems and management.
- Ag.EA.3.4 Create a poster classifying natural resources.
- Ag.EA.3.5 Explain the difference between extinct and endangered species of wildlife.
- Ag.EA.3.6 Explain natural resource system opportunities in FFA.

Intro to Agriculture Curriculum

Purpose Statement Students will be exposed to a broad range of agriculture including animal systems, plant systems, food systems, and the national FFA organization.

Focus:

1. FFA
2. Animal
3. Plant
4. Leadership

Outcome Ag. IA.01: Students will be exposed to a variety of National FFA Organizational activities and opportunities that exist within the national organization.

- Ag.IA.1.1 Recite the FFA motto, FFA creed, and the pledge of allegiance.
- Ag.IA.1.2 Identify contests, leadership, and award opportunities that exist for agricultural education students.
- Ag.IA.1.3 Construct a timeline identifying important people and dates in FFA history utilizing the official FFA student handbook.
- Ag.IA.1.4 Demonstrate proper parliamentary procedure according to Robert's Rules of Order.
- Ag.IA.1.5 Utilize Agricultural Experience Tracker (AET) to document Supervised Agricultural Experience (SAE) experiences, income and expenses, and participation in FFA.
- Ag.IA.1.6 Examine the three-circle model, official colors, official dress, and the FFA emblem.
- Ag.IA.1.7 Differentiate among different types of SAE programs.

Outcome Ag.IA.02: Students will summarize animal science concepts and principles associated with livestock and small animal health and management. (AFNR.HS.2.1, AFNR.HS.2.6, AFNR.HS.2.8)

- Ag.IA.2.1 Define and interpret common animal science terminology.
- Ag.IA.2.2 Identify major breeds of livestock.
- Ag.IA.2.3 Identify signs of good and poor animal health.
- Ag.IA.2.4 Describe approved practices in feeding and caring for small animals.
- Ag.IA.2.5 Demonstrate how to restrain and treat animal health problems.
- Ag.IA.2.6 Outline approved practices for care and management of livestock.
- Ag.IA.2.7 Explain how to prevent animal health problems.
- Ag.IA.2.8 Evaluate livestock based on their market and breeding characteristics.
- Ag.IA.2.9 Justify the ranking of livestock on market and breeding characteristics.

Outcome Ag.IA.03: Students will explore the many career opportunities in agriculture. They will also determine how to make choices concerning careers and learn how to obtain an agricultural career. (AFNR.HS.CR.1, AFNR.HS.CR.2)

- Ag.IA.3.1 Discuss the many career opportunities available in the field of agriculture.
- Ag.IA.3.2 Research one or more careers in agriculture.
- Ag.IA.3.3 Research the education needed for a particular career and colleges that offer a pathway to that degree.
- Ag.IA.3.4 Explain the various factors used in determining career choice (education, pay, benefits, etc.).
- Ag.IA.3.5 Assess their own career interests as related to agricultural careers.

Outcome Ag.IA.04: Students will examine plant science as to structures and functions of plants by focusing on fruit and vegetable production. (AFNR.HS.5.1, AFNR.HS.5.2, AFNR.HS.5.4)

- Ag.IA.4.1 Identify and describe major parts of a plant.
- Ag.IA.4.2 Identify common fruit, vegetables, and nuts.
- Ag.IA.4.3 Describe the relationship of plant parts to fruits, nuts, vegetables, and crops.
- Ag.IA.4.4 Demonstrate and differentiate asexual and sexual propagation.
- Ag.IA.4.5 Plan and manage a home garden.

Outcome Ag.IA.05: Students will evaluate Natural Resources and their importance to agriculture. (AFNR.HS.3.1, AFNR.HS.3.2, AFNR.HS.3.3)

- Ag.IA.5.1 Identify common North American wildlife species.
- Ag.IA.5.2 Identify important types of tree species.
- Ag.IA.5.3 Identify fish species native to Nebraska.
- Ag.IA.5.4 Describe the food chain in fresh water.
- Ag.IA.5.5 Discuss relationships among forest, water and wildlife resources.
- Ag.IA.5.6 Describe the physical characteristics of soil.
- Ag.IA.5.7 Describe key factors affecting soil erosion by wind and water.
- Ag.IA.5.8 Determine soil texture using ribboning and the soil texture triangle.
- Ag.IA.5.9 Determine the functions of nutrients, fertilizer, and select soil amendments.
- Ag.IA.5.10 Illustrate approved practices in wildlife management.
- Ag.IA.5.11 Examine relationships among wildlife.
- Ag.IA.5.12 Compare and contrast major aquaculture production systems.

Outcome Ag.IA.06: Students will describe, discuss and explain food science concepts from farm to table. (AFNR.HS.4.5)

- Ag.IA.6.1 Define the terminology that relates to meat science.
- Ag.IA.6.2 Identify and describe a variety of dairy products.
- Ag.IA.6.3 Relate importance to diversity in the food industry.
- Ag.IA.6.4 Determine how cheese, milk and other dairy products are made.
- Ag.IA.6.5 Examine wholesale and retail cuts of beef, pork, and lamb.

Agriculture Leadership and Career Readiness Curriculum

Purpose Statement Students will gain a basic understanding of the importance of leadership, use communications skills, develop their public speaking ability, learn parliamentary procedure, develop employment skills, and learn how to develop their potential as a leader.

Focus:

1. Communication Skills
2. Parliamentary Procedures
3. Employment Skills

Outcome Ag.L.01: Students will discuss the importance of parliamentary procedure, define motions, and demonstrate practices used in parliamentary procedure. (AFNR.HS.CR.14)

- Ag.L.1.1 Discuss the purpose for using parliamentary procedure.
- Ag.L.1.2 Demonstrate parliamentary motions and formulate discussions for specific scenarios.
- Ag.L.1.3 Demonstrate the main parliamentary motions, and whether or not they need a second, are debatable or amendable, the type of vote they require, and whether or not they can be reconsidered.
- Ag.L.1.4 Differentiate the various categories of parliamentary motions and classify each motion in the proper category.
- Ag.L.1.5 Explain and demonstrate the proper use of the gavel.

Outcome Ag.L.02: Students will define leadership and recognize characteristics of leaders. They will also evaluate their own strengths and recognize their own potential for leadership. (AFNR.HS.CR.7, AFNR.HS.CR.8, AFNR.HS.CR.12)

- Ag.L.2.1 Define what role-models are and recognize role models that have affected their lives, and how they affect others.
- Ag.L.2.2 Define the rules for proper goal-setting and set personal goals.
- Ag.L.2.3 Recognize the importance of time management in leadership and develop a time management plan for themselves.
- Ag.L.2.4 Explore great leaders and their leadership characteristics.
- Ag.L.2.5 Analyze personal ethics and values.
- Ag.L.2.6 Differentiate the relationship between leadership and power.
- Ag.L.2.7 Evaluate their own strengths and what these strengths mean for developing leadership in themselves.

Outcome Ag.L.03: Students will recognize the importance of human relations skills in leadership and evaluate how to best relate to others using personal skills. (AFNR.HS.CR.9)

- Ag.L.3.1 Recognize and appreciate the differences among people in culture, personality, and gender differences.
- Ag.L.3.2 Define and discuss motivation as it relates to teamwork and working with others.
- Ag.L.3.3 Discuss ethnocentrism, discrimination, and prejudice.
- Ag.L.3.4 Show how to recognize strengths in other people.
- Ag.L.3.5 Practice the importance of teamwork and team-building.
- Ag.L.3.6 Examine types of conflict resolution and their impacts on teamwork.
- Ag.L.3.7 Analyze the importance of problem solving in teamwork, and the role that leadership plays in solving problems.
- Ag.L.3.8 Defend the importance of teamwork in leadership.

Outcome Ag.L.04: Students will demonstrate the importance of communication skills. (AFNR.HS.CR.10, AFNR.HS.CR.11)

- Ag.L.4.1 Define non-verbal communication and its impact on the intended message.
- Ag.L.4.2 Recognize the importance of communication and the necessity of good communication in leadership.
- Ag.L.4.3 Recognize the various types of communication and examine the strengths and limitations of each.
- Ag.L.4.4 Practice communication skills as shown by preparing and presenting a speech, in writing, with listening, and as non-verbally.
- Ag.L.4.5 Conduct a community service activity.
- Ag.L.4.6 Analyze the process of communication.
- Ag.L.4.7 Differentiate hearing vs. listening.
- Ag.L.4.8 Conclude that not all communication is universal. (Some things mean different things in different cultures.)

Outcome Ag.L.05: Students will develop employment skills in preparation for securing a job or employment. (AFNR.HS.CR.1, AFNR.HS.CR.2, AFNR.HS.CR.6, AFNR.HS.CR.13)

- Ag.L.5.1 Give examples of how to search for job openings.
- Ag.L.5.2 Demonstrate completing a job application and a follow-up letter.
- Ag.L.5.3 Demonstrate proper conduct needed for a job interview.
- Ag.L.5.4 Demonstrate workplace etiquette.
- Ag.L.5.5 Explain the proper procedure for leaving a job.
- Ag.L.5.6 Generate cover letter, resume, and reference list.
- Ag.L.5.7 Portray acceptable workplace attire.
- Ag.L.5.8 Critique characteristics of good employees.

Plant Science Curriculum

Purpose Statement: Students will have a basic understanding of uses and factors needed to efficiently raise plants.

Focus:

1. Soil
2. Plant Growth and Development
3. Nutrients
4. Careers

Outcome Ag.PS.01: Students will summarize the importance of soil in the raising of plants and describe various soil factors that affect plant growth. (AFNR.HS.5.2)

- Ag.PS.1.1 Identify the various land classifications and their characteristics.
- Ag.PS.1.2 Define soil texture and classify soils based on particle size using the soil texture triangle.
- Ag.PS.1.3 Describe the various layers of the soil profile.
- Ag.PS.1.4 Describe the water holding capacity of various soil types and analyze how this relates to crop production.
- Ag.PS.1.5 Interpret a soil survey.

Outcome Ag.PS.02: Students will identify and outline the various stages of plant growth, development, and reproduction. (AFNR.HS.5.5, AFNR.HS.5.4)

- Ag.PS.2.1 Define DNA, genes, and chromosomes and how they relate to heredity.
- Ag.PS.2.2 Define dominant and recessive traits and how they impact plant selection.
- Ag.PS.2.3 Identify parts of seeds and plants.
- Ag.PS.2.4 Identify the factors necessary for plant growth and development.
- Ag.PS.2.5 Describe the various stages of plant growth and development.
- Ag.PS.2.6 Distinguish between sexual and asexual reproduction and give examples of each.
- Ag.PS.2.7 Examine the role of biotechnology in plant reproduction and genetics.
- Ag.PS.2.8 Discuss and critique the uses of biotechnology in agriculture.

Outcome Ag.PS.03: Students will analyze the factors necessary to provide an adequate nutritional environment for proper plant growth, development, and reproduction. (AFNR.HS.5.4)

- Ag.PS.3.1 Define terms related to soil fertility and identify the essential nutrients needed for efficient plant production.
- Ag.PS.3.2 Identify the nutrient needs of various common crops.
- Ag.PS.3.3 Identify the various types of fertilizers and analyze the characteristics of each.
- Ag.PS.3.4 Describe what each number in a fertilizer analysis means.
- Ag.PS.3.5 Match each nutrient to its function in the plant.
- Ag.PS.3.6 Establish the importance of soil testing and demonstrate how to properly collect a soil sample.
- Ag.PS.3.7 Calculate a fertilizer program for various crops.
- Ag.PS.3.8 Compare and contrast various fertilizer programs according to cost.

Outcome Ag.PS.04: Students will discuss and evaluate the importance and proper use of agricultural chemicals. (AFNR.HS.5.1, AFNR.HS.5.3)

- Ag.PS.4.1 Discuss the importance of chemicals in modern agricultural production.
- Ag.PS.4.2 Recognize the parts of the chemical label, and interpret the information presented on it (hazards, proper clean-up, and bystander safety).
- Ag.PS.4.3 Recognize different modes of action of chemicals and analyze the role this plays in chemical interaction and resistance.
- Ag.PS.4.4 Classify chemicals according to type (herbicide, fungicide, insecticide, etc.).
- Ag.PS.4.5 Compare and contrast various formulations of chemicals and the application and handling differences between them.
- Ag.PS.4.6 Analyze the various methods of chemical application and their relative merits and concerns.
- Ag.PS.4.7 Define integrated pest management and the role that agricultural chemicals play in it and evaluate methods of pest control other than with chemicals.

Outcome Ag.PS.05: Students will discover and distinguish the proper irrigation practices and methods to be used on various types of vegetation, landscapes, soil types and topography. (AFNR.HS.5.2)

- Ag.PS.5.1 Define the water needs of various common crops.
- Ag.PS.5.2 Discuss the advantages and disadvantages of applying fertilizer (fertigation) and chemicals (chemigation) by irrigation.
- Ag.PS.5.3 Analyze the climactic and soil conditions that affect irrigation.
- Ag.PS.5.4 Compare and contrast various methods of applying irrigation water.
- Ag.PS.5.5 Evaluate the amount and timing of water needed for various crops.

Outcome Ag.PS.06: Students will evaluate the horticulture/floriculture industries and the differences between them and crop production. (AFNR.HS.5.7)

- Ag.PS.6.1 Define methods of horticulture plant propagation.
- Ag.PS.6.2 Discuss various types of growing media used in horticulture.
- Ag.PS.6.3 Discuss common uses and methods of raising horticultural plants.
- Ag.PS.6.4 Evaluate light, humidity, and temperature control in horticulture.
- Ag.PS.6.5 Evaluate differences in raising horticulture plants as compared to crops with regards to fertilization, irrigation, pest control, etc.

Animal Science Curriculum

Purpose Statement Students will have a basic understanding of animal agriculture. The topics covered may include the physiology, nutrition, selection, breeding and reproduction, and management of livestock.

Focus:

1. Evaluation
2. Nutrition
3. Reproduction
4. Diseases
5. Careers

Outcome Ag.AS.01: Students will select and evaluate livestock using methods commonly used in agriculture. Species to be covered may include dairy, beef, swine, sheep, equine, and poultry. (AFNR.HS.2.6)

- Ag.AS.1.1 Identify the parts of different species of livestock.
- Ag.AS.1.2 Define terms used in livestock selection and evaluation.
- Ag.AS.1.3 Identify common breeds of livestock in agriculture.
- Ag.AS.1.4 Define and calculate carcass factors such as swine grades, quality grades for beef and sheep, and yield grades.
- Ag.AS.1.5 Define and calculate production efficiency factors.
- Ag.AS.1.6 Describe and differentiate ideal market and breeding animals.
- Ag.AS.1.7 Visually analyze animals by comparing and contrasting them to evaluate which one(s) are closest to the ideal.
- Ag.AS.1.8 Analyze and evaluate classes based on various production and efficiency factors alone and in combination with visual appraisal.
- Ag.AS.1.9 Formulate and present oral reasons on various classes of livestock.

Outcome Ag.AS.02: Students will define and analyze various nutritional principles necessary for the efficient production of livestock. Species to be covered may include dairy, beef, swine, sheep, equine, and poultry.

- Ag.AS.2.1 Identify and describe the internal anatomy, especially the digestive systems, of various species of animals.
- Ag.AS.2.2 Describe the six essential nutrient classes and explain functions in the body.
- Ag.AS.2.3 Recognize various nutritional deficiencies and nutritional diseases.
- Ag.AS.2.4 Classify various feeds into roughages, concentrates or supplements.
- Ag.AS.2.5 Analyze the nutritional content of various feedstuffs.
- Ag.AS.2.6 Analyze the nutritional requirements of various species and distinguish the different life stages of animals.
- Ag.AS.2.7 Compare and contrast ruminant, monogastric, avian, and pseudo-ruminant digestive systems.
- Ag.AS.2.8 Formulate rations for various classes of animals.

Outcome Ag.AS.03: Students will describe the reproduction process (es) of animals and how the process (es) relates to the efficient production of livestock. Species to be covered may include dairy, beef, swine, sheep, equine, and poultry.

- Ag.AS.3.1 Identify and describe the anatomy of the male and female reproductive systems.
- Ag.AS.3.2 Identify possible reproductive problems and diseases.
- Ag.AS.3.3 Explain the function of the various reproductive parts.
- Ag.AS.3.4 Describe the estrus cycle and summarize the reproductive process.
- Ag.AS.3.5 Examine the gestation period for various animals and evaluate how that would be used in reproduction management.
- Ag.AS.3.6 Explain the various breeding methods used today (natural, artificial insemination, embryo transfer, cloning) and evaluate the process used for each one.

Outcome Ag.AS.04: Students will classify and give examples of various animal diseases. Species to be covered may include dairy, beef, swine, sheep, equine, and poultry.

- Ag.AS.4.1 Discuss treatment methods for various common diseases.
- Ag.AS.4.2 List and analyze various methods of disease prevention.
- Ag.AS.4.3 Classify diseases into the common categories of disease (infectious, non-infectious, internal parasites, and external parasites).
- Ag.AS.4.4 Analyze the causes of, and give examples of, common diseases in each category.
- Ag.AS.4.5 Evaluate the role of hygiene and sanitation in disease prevention for agricultural animals.
- Ag.AS.4.6 Analyze the role of vaccines in preventing disease.

Outcome Ag.AS.05: Students will recognize the influence of history, government and societal issues on the systems of animal production and employment opportunities. (AFNR.HS.2.1, (AFNR.HS.2.2)

- Ag.AS.5.1 Identify and discuss the governmental and legal issues that concern livestock production systems.
- Ag.AS.5.2 Recognize and discuss livestock uses and production practices of the past and present.
- Ag.AS.5.3 Examine the significance of livestock production to the state and national economies.
- Ag.AS.5.4 Analyze procedures to ensure animal products are safe for consumption.
- Ag.AS.5.5 Discuss, research, and investigate animal rights and welfare issues.
- Ag.AS.5.6 Identify and connect to employment opportunities within the livestock industries.

Outcome Ag.AS.06: Students will classify and give examples of various livestock management practices. Species to be covered may include dairy, beef, swine, sheep, equine, and poultry. (AFNR.HS.2.6, AFNR.HS.2.8)

- Ag.AS.6.1 Select breeds for specific operations and conditions.
- Ag.AS.6.2 Compare and contrast characteristics of livestock breeds.
- Ag.AS.6.3 Compare and contrast different facilities needed according to livestock production.
- Ag.AS.6.4 Differentiate among different feeding practices.
- Ag.AS.6.5 Outline the benefits of maintaining healthy livestock.
- Ag.AS.6.6 Propose an example of an animal health program.

Outcome Ag.AS.07: Students will analyze practices associated with the meat science industry. Species to be covered may include beef, swine, and sheep.

- Ag.AS.7.1 Identify wholesale and retail cuts.
- Ag.AS.7.2 Describe how to properly store meats to maintain their quality.
- Ag.AS.7.3 Explain how to prepare and cook meats using food safety guidelines.
- Ag.AS.7.4 Practice how to calculate yield grades and analyze factors that affect quality and yield grading.
- Ag.AS.7.5 Outline the major steps in the processing of livestock carcasses.

Food Science Curriculum

Purpose Statement By taking courses incorporating food science, the students will learn various aspects of the food processing industry from production to consumption. These topics will include food handling and safety, meat science, and various nutrition factors of food as they relate to the processing and consumption of food products.

Focus:

1. Safety and Sanitation
2. Preparation of Food
3. Nutrition

Outcome Ag.FS.01: Students will discuss the meat industry in the U.S. They will evaluate and recognize the differences in the species' cuts of meat and identify the wholesale and retail cuts of meat. They will also evaluate cuts of meat for quality.

- Ag.FS.1.1 Identify the major species of animals used for meat production.
- Ag.FS.1.2 Recognize and classify retail cuts of meat according to species and wholesale cuts.
- Ag.FS.1.3 Discuss the importance of the meat industry in the U.S.
- Ag.FS.1.4 Explain how the various species of meat animals are butchered and processed.
- Ag.FS.1.5 Evaluate the quality of meat carcasses, wholesale cuts, and retail cuts.

Outcome Ag.FS.02: Students will discuss and evaluate the importance of food safety, discuss various problems in food safety, and recognize safe handling practices for food at the processing and consumer levels. (AFNR.HS.4.1, AFNR.HS.4.2)

- Ag.FS.2.1 Discuss the importance of food safety to the producer, processor, retailer, and consumer.
- Ag.FS.2.2 Discuss causes, common symptoms, and the treatment of common foodborne illnesses.
- Ag.FS.2.3 Analyze handling practices at the producer, processor, retailer, and consumer levels for safety.
- Ag.FS.2.4 Differentiate between cleaning and sanitizing.
- Ag.FS.2.5 Evaluate problems in food safety at the producer, processor, retailer, and consumer levels.

Outcome Ag.FS.03: Students will interpret recipes and incorporate food preparation skills to utilize in the making of a recipe.

- Ag.FS.3.1 Identify abbreviations and define cooking terms used in recipes.
- Ag.FS.3.2 Demonstrate how to change the yield of a recipe.
- Ag.FS.3.3 Determine the cost of a serving of a recipe.
- Ag.FS.3.4 Perform basic knife skills following a demonstration as to how they are selected and used.
- Ag.FS.3.5 Measure liquid, dry, and moist ingredients for use in recipes.
- Ag.FS.3.6 Explain how to select and care for cookware and bakeware.

Outcome Ag.FS.04: Students will discuss and apply concepts based on the process of selecting and preparing food products.

- Ag.FS.4.1 Identify methods for preparing and/or cooking food products.
- Ag.FS.4.2 Discuss the factors that influence product selection and storage.
- Ag.FS.4.3 Utilize food safety and preparation rules when preparing food products.
- Ag.FS.4.4 Compare and contrast nutrients found in different food products.
- Ag.FS.4.5 Criticize and critique final food products.

Outcome Ag.FS.05: Students will analyze the nutritional needs of humans using MyPlate and discuss how various food products meet those needs. They will also practice reading and interpreting food labels.

- Ag.FS.5.1 Name the energy nutrients, describe their functions, and list important food sources of each.
- Ag.FS.5.2 Discuss MyPlate and recognize the nutritional needs of humans according to MyPlate.gov.
- Ag.FS.5.3 Interpret the nutritional content of various foods by reading the labels.
- Ag.FS.5.4 Classify various foods according to their placement on MyPlate.
- Ag.FS.5.5 Develop a meal log and analyze it according to MyPlate recommendations.

Welding Curriculum

Purpose Statement By taking courses in various aspects of welding, students will learn welding skills and safety.

Focus:

1. Safety
2. SMAW
3. GMAW
4. GTAW
5. Oxyacetylene

Outcome Ag.W.01: Students will demonstrate the safe use of various welding tools and equipment, and properly use the equipment to weld metal.
(AFNR.HS.6.1, AFNR.HS.6.2, AFNR.HS.CR.4)

- Ag.W.1.1 Identify the proper clothing and equipment necessary to safely weld.
- Ag.W.1.2 Discuss the welding process and its uses.
- Ag.W.1.3 Describe the steps to take in an emergency.
- Ag.W.1.4 Demonstrate proper technique to start, operate, and shut down the types of welding equipment they will be using.
- Ag.W.1.5 Analyze safety concerns with welding.
- Ag.W.1.6 Collect metal materials in order to draw, design and construct an approved metal project.

Outcome Ag.W.02: Students will demonstrate the proper and safe use of shielded metal arc welding (SMAW) equipment. They will also evaluate and critique SMAW welding skills. (AFNR.HS.6.1, AFNR.HS.6.2)

- Ag.W.2.1 Select proper amperage settings for metal thickness and electrode size.
- Ag.W.2.2 Demonstrate an ability to control undercut, overlap, porosity, and slag inclusions when welding.
- Ag.W.2.3 Construct various welds, such as: lap joints, t-welds, flat beads, butt welds, and round/square tubing welds using E6011, E6013, E7014, and E7018.
- Ag.W.2.4 Control weld bead contour during welding by using an improper weave pattern.
- Ag.W.2.5 Differentiate between alternating current and direct current.
- Ag.W.2.6 Explain the SMAW process and terms.
- Ag.W.2.7 Explain the effect of changing arc length and electrode angle on the weld.

Outcome Ag.W.03: Students will demonstrate the proper and safe use of gas metal arc welding equipment. They will also evaluate and critique gas metal arc welding (GMAW) skills. (AFNR.HS.6.1, AFNR.HS.6.2)

- Ag.W.3.1 Select proper voltage and wire speed settings for metal thickness and wire size.
- Ag.W.3.2 Demonstrate an ability to control undercut, overlap, and porosity.
- Ag.W.3.3 Construct various welds, such as: lap joints, t-welds, flat beads, butt welds, and round/square tubing welds in flat, horizontal, and vertical welding positions.
- Ag.W.3.4 Control weld bead contour during welding by using proper weave pattern.
- Ag.W.3.5 Compare and contrast GMAW and SMAW processes.
- Ag.W.3.6 Explain the GMAW process and terms.
- Ag.W.3.7 Explain the effect of changing wire stick out and gun angle on the weld.

Outcome Ag.W.04: Students will demonstrate the proper and safe use of oxyacetylene welding and cutting equipment. They will also evaluate and critique oxyacetylene welding and cutting welding skills. (AFNR.HS.6.1, AFNR.HS.6.2)

- Ag.W.4.1 Identify the safety features and parts of an oxyacetylene cutting or welding outfit.
- Ag.W.4.2 List safety precautions that must be taken when using oxyfuel equipment.
- Ag.W.4.3 Recognize and define the difference between carburizing, neutral, and oxidizing flames.
- Ag.W.4.4 Demonstrate oxyacetylene cutting on 1/8-inch and 1/4-inch metal – straight and circle cuts.
- Ag.W.4.5 Construct various oxyacetylene welds, such as: lap joints, t-welds, beads, butt welds, and round/square tubing welds.
- Ag.W.4.6 Construct various braze welds, such as: lap joints, t-welds, flat beads, butt welds, and round/square tubing welds.
- Ag.W.4.7 Explain and demonstrate how to setup and shutdown oxyfuel equipment.

Outcome Ag.W.05: Students will demonstrate the proper and safe use of gas tungsten arc welding (GTAW) equipment. They will also evaluate and critique GTAW welding skills. (AFNR.HS.6.1, AFNR.HS.6.2)

- Ag.W.5.1 Select proper amperage and tungsten for metal selection.
- Ag.W.5.2 Demonstrate an ability to control undercut, overlap, and porosity.
- Ag.W.5.3 Construct various welds, such as: lap joints, t-welds, flat beads, butt welds, and round/square tubing welds on mild steel.
- Ag.W.5.4 Control weld bead contour during welding by using proper weave pattern.
- Ag.W.5.5 Compare and contrast GTAW to other welding processes.
- Ag.W.5.6 Explain the GTAW process and terms.
- Ag.W.5.7 Explain how to select and prepare tungsten.

Outcome Ag.W.06: Students will select a welding project, construct a plan, and create a bill of materials for the project. They will also choose welding processes to utilize in the building of their welding projects. (AFNR.HS.6.4)

- Ag.W.6.1 Identify personal or home needs/wants for potential welding projects.
- Ag.W.6.2 Choose and defend a welding process for the welding project.
- Ag.W.6.3 Construct a written plan, to scale, for the project.
- Ag.W.6.4 Create a bill of materials for the project and secure supplies.
- Ag.W.6.5 Criticize and critique the final project against plan and building materials.