



G-E-T High School Curriculum

Align, Explore, Empower

Scope and Sequence

Fundamentals of Agriculture and Natural Resources

Unit 1 - Wisconsin Agriculture

Length of Unit - 1 week

- Students will explore the size and scope of Wisconsin agriculture and have general knowledge of the major areas of production.

In this unit, students will ...

Engage in applied learning experiences that incorporate an area of agriculture, use technology to acquire, organize, and communicate information on Wisconsin Agriculture and/or natural resources.

Standards for Fundamentals of Agriculture and Natural Resources

FPP1.a.3.m: Discuss the history and describe and explain the components (e.g., processing, distribution, byproducts) of the food products and processing industry.

FPP1.a.1.e: Identify where food is produced and why it is processed.

ABS3.b.1.e: Consider items a business might own or borrow to operate.

ABS6.a.2.e: Identify agricultural products that consumers purchase.

ABS6.d.1.e: Identify the people involved in bringing agricultural products to consumers.

IMT1.d.2.e: Collect and review data and information from multiple sources.

FPP1.a.5.h: Evaluate changes and trends in the food products and processing industry and be able to predict trends and implications in the food products and processing industry.

Unit 2 - Wisconsin Land and Soils

Length of Unit - 1.5 weeks

- Students will develop a working knowledge of WI soils and their formation. Using lecture and labs students will explore principles of soil including, texture, structure, fertility, conservation and recommendations for managing,

In this unit, students will ...

Demonstrate knowledge of soil texture, fertility, structure and use. Test soil for texture, pH, N, P K and along with making recommendations for crops.

Standards for Fundamentals of Agriculture and Natural Resources

- PS2.b.3.m: Identify the major components of growing media and describe how growing media support plant growth.
- PS2.b.4.m: Compare and contrast different plant media.
- PS2.b.7.h: Identify the categories of soil water.
- PS2.c.5.m: Collect soil and plant tissue samples for testing and interpret the test results.
- PS2.b.8.h: Discuss how soil drainage and water-holding capacity can be improved.
- PS2.c.8.h: Discuss the influence of pH and cation exchange capacity on the availability of nutrients.
- ESS2.b.1.e: Describe soil and compare and contrast different soil types.
- ESS2.b.2.e: Identify the basic make-up of soil biodiversity.
- ESS2.b.3.e: Participate in a demonstration of water percolating through different soil types.
- ESS2.b.4.e: Compare and contrast land and how it is used.
- ESS2.b.7.m: Explain the process of soil formation through weathering.
- ESS2.b.9.m: Explain how the physical qualities of the soil influence the infiltration and percolation of water.
- ESS2.b.10.m: Identify land uses, capability factors and land capability classes.
- ESS2.b.15.h: Identify physical soil qualities, through testing, that determine its use for environmental service systems.
- ESS2.b.16.h: Determine land capability classes for land parcels and design a land-use management plan for a given area.
- PS2.c.10.h: Determine the nutrient content of soil using appropriate laboratory procedures and prescribe fertilization based on results.

Unit 3 - Plants and Crops

Length of Unit - 1 week

- Students will complete lessons and labs involved in exploring plant biology, uses and management.

In this unit, students will ...

Identify plant anatomy and function and apply that through labs including. Students will demonstrate skills in selection, germination, pruning, fertilizing, growing, pollinating and management.

Standards for Fundamentals of Agriculture and Natural Resources

- PS1.a.1.e: Identify how people use plants and match plant products to the appropriate plant class.
- PS1.a.6.m: Identify agriculturally important plants by common names.
- PS1.b.2.e: Match fruit to the plant structure that produces it and compare seeds of plants.
- PS1.b.4.m: Identify the components, the types and the functions of plant roots.
- PS1.b.5.m: Identify the components and the functions of plant stems.
- PS1.b.7.m: Identify the components of a flower, the functions of a flower and the functions of flower components.

PS1.b.11.h: Relate the active and passive transport of minerals into and through the vascular system to plant nutrition.

PS1.b.14.h: Identify the different types of flowers and flower forms and apply the knowledge of flower structures to plant breeding, production and use.

PS1.b.15.h: Apply the knowledge of seed and fruit structures to plant culture and use.

PS1.c.1.e: Identify plants that require all sun, partial sun or shade.

PS1.d.1.e: Observe seed and plant growth and changes in seed and plant characteristics.

PS1.d.2.e: Observe the effects of light on plant growth.

PS1.d.3.m: Compare and contrast monocot and dicot seed and plant growth characteristics.

PS1.d.5.h: Define primary growth and the role of the apical meristem.

PS2.a.1.e: Define the elements that plants need to grow successfully.

PS2.a.3.m: Describe the qualities of light that affect plant growth.

PS2.c.1.e: Describe what elements plants use for food.

PS2.c.2.e: Distinguish between healthy and unhealthy plants.

PS2.c.3.m: Identify the essential nutrients for plant growth and development and their major functions and monitor plants for signs of nutrient deficiencies.

PS2.c.6.m: Identify fertilizer sources of essential plant nutrients, explain fertilizer formulations and describe different methods of fertilizer application.

PS2.c.12.h: Calculate the amount of fertilizer to be applied and calibrate equipment to apply the prescribed amount of fertilizer.

PS3.a.1.e: Demonstrate sowing techniques and provide favorable conditions for seed germination.

PS3.a.2.e: Conduct tests associated with seed germination rates, viability and vigor.

PS3.a.3.m: Explain pollination, cross-pollination and self-pollination of flowering plants.

PS3.a.7.m: Describe optimal conditions for asexual propagation and demonstrate techniques used to propagate plants by cuttings, division, separation and layering.

PS5.a.2.m: Compare and contrast growing plants in soil versus growing plants in water.

Unit 4 - Animal Science

Length of Unit - 1 week

- Students will discover animal agriculture including, domestication, breeds, selection, training, uses and modern livestock production systems.

In this unit, students will ...

Students will learn the varying roles of different breeds and breeding systems. Students will also identify modern livestock production systems and will use livestock anatomy to make livestock selection decisions

Standards for Fundamentals of Agriculture and Natural Resources

AS1.a.3.m: Identify the origin, significance, distribution and domestication of animal species.

AS1.a.4.m: Define major components of the animal industry.

AS1.a.5.h: Evaluate and describe characteristics of animals that developed in response to the animals'

environment and led to their domestication.

AS2.b.1.e: Identify body parts of domestic food animals and pets.

AS2.c.4.h: Compare and contrast desirable anatomical and physiological characteristics of animals within and between species.

AS4.a.1.e: Understand that food and fiber can originate from animals.

AS4.a.2.m: Compare and contrast common types of feedstuffs and the roles they play in the diets of animals.

AS5.d.2.m: Explain genetic inheritance in agricultural animals.

Unit 4 Career and Leadership

Length of Unit - 0.75 of a week

- Students will identify and explore different agriculture and natural resource careers. Based on their interest will explore education, skills, and work environment. Thorough job application and job interview students will develop skills to obtain work experience while in high school. FFA leadership activities that promote 21st century skills.

In this unit, students will ...

Use personal assessments to match career goals in the area of agriculture and natural resources. Implement activities that help prepare for work and career readiness.

Standards for Fundamentals of Agriculture and Natural Resources

CD3.a.1.e: Locate, evaluate and interpret career information.

CD3.a.2.e: Discuss and explain behaviors and decisions that reflect interests, likes and dislikes.

CD3.a.4.e: Identify career opportunities of interest; match personal interests and aptitudes.

CD3.a.6.m: Build an ongoing awareness of personal abilities, skills, interests and motivation and determine how these fit with chosen career pathway.

CD3.a.7.m: Develop an individual learning plan to enhance educational achievement and attain career goals based on a career pathway.

CD3.a.8.m: Choose career opportunities that appeal to personal career goals.

CD4.b: Demonstrate skills related to seeking and applying for employment to find and obtain a desired job.

Unit 5 - Natural Resources

Length of Unit - 2 weeks

- Explore Wisconsin key natural resources including forest habitat and game species. Students will identify key species, study game management principles. Outdoor recreational opportunities in our area will be explored.

In this unit, students will ...

Identify trees and game species. Study and discuss management for a game species formulating a plan for

game management.

Standards for Fundamentals of Agriculture and Natural Resources

NR1.a.1.e: Identify natural resources.

NR1.a.2.e: Compare and contrast different ecosystems.

NR1.a.4.m: Define ecosystem and related terms.

NR1.a.5.h: Research and debate one or more current issues related to the conservation or preservation of natural resources.

NR1.b.1.e: List and describe differences in trees.

NR1.b.2.e: Match names to basic herbaceous plants.

NR1.b.3.e: Match names to wildlife species.

NR1.b.4.e: Match names to aquatic species.

NR2.c.2.e: Describe different types of forests.

NR2.c.3.e: Illustrate a healthy wildlife habitat.

Unit 6 - Food Science and Food Processing

Length of Unit - 0.75 of a week

- Students will examine food processing and food safety in relation to WI commodities. Labs will introduce food processing and safety in the areas of fermentation, USDA grading, and processing of milk products.

In this unit, students will ...

Apply grades related to food production. Using examples from the agriculture processing industry produce products using industry production principles.

Standards for Fundamentals of Agriculture and Natural Resources

FPP1.a.1.e: Identify where food is produced and why it is processed.

FPP1.a.2.e: Identify and explain environmental and safety concerns about the food supply.

FPP1.a.4.m: Identify the issues of safety and environmental concerns about foods and food processing (e.g., Genetically Modified Organisms, microorganisms, contamination, irradiation).

FPP1.b.1.e: Explain how food production is monitored and inspected.

FPP2.a.3.m: Explain the importance of developing and maintaining Sanitation Standard Operating Procedures (SSOP).

FPP2.c.9.h: Demonstrate approved food product handling techniques.