

AGRI-SCIENCE IV

Animal Science

Overview

Agri-Science IV students will focus on those areas of interest they have developed over the previous three years and concentrate on developing skills more specific to those areas of interest. All Agri-Science curricula are aligned with the national Agriculture, Food, and Natural Resources (AFNR) standards.

Agribusiness Systems (ABS) —the study of business principles, including management, marketing and finance, and their application to enterprises engaged in Agriculture, Food and Natural Resources

Agricultural Mechanics/Power, Structural and Technical Systems (PST)—the study of agricultural equipment, power systems, alternative fuel sources and precision technology, as well as woodworking, metalworking, welding and project planning for agricultural structures

Animal Science/Animal Systems (AS)—the study of animal systems, including life processes, health, nutrition, genetics, management and processing, through the study of small animals, aquaculture, livestock, dairy, horses and/or poultry

Environmental Service Systems (ESS)—the study of systems, instruments and technology used in waste management and their influence on the environment

Food Products and Processing Systems (FPP)—the study of product development, quality assurance, food safety, production, sales and service, regulation and compliance, and food service within the food science industry

Natural Resource Systems (NRS)—the study of the management of soil, water, wildlife, forests and air as natural resources

Horticulture/Plant Systems (PS)—the study of plant life cycles, classifications, functions, structures, reproduction, media and nutrients, as well as growth and cultural practices, through the study of crops, turf grass, trees and shrubs and/or ornamental plants

Students are expected to complete the specific course of study related to their career interests and goals that they began in Agri-Science II that will define students as “completers”. An Agri-Science completer is an Agri-Science IV student who has successfully completed three or four years of study in agriculture, math, and English. Course selection is developed with the assistance of the SAE advisors and classroom teachers.

Agri-Science IV students will continue to have opportunities to further develop leadership skills through participation the in the FFA. Students at this stage are encouraged to participate in FFA Career Development Events (CDEs) in order to further develop skills. Although participation in Agri-Science is limited to those who complete applications, when space allows, ECE classes may be open to other juniors and seniors within Ledyard High School. Course enrollment opportunities by other LHS students will change from year to year based on space availability. Interested students should contact the Agri-Science Instructional Leader or their School Counselor for further information.

Agri-Science IV Animal Science students will further develop abilities and competencies relative to animal related careers whereby the student receives not only theory but actual practice in the care, maintenance and health care of a variety of animals. Students have the opportunity to study in depth veterinary science, equine management, livestock management and agricultural research projects. There will be ample opportunities for practical work where students will apply classroom instruction to real-world situations in the animal lab and barn.

The culmination of Agri-Science IV is the Senior Projects unit. All Agri-Science IV students will have the opportunity to research, design, and conduct an independent project. For those students in Levels 1 & 2 there exists an option to take a more traditional unit in Agricultural Products.

Units Levels 1 & 2

Small Animal Focus	Large Animal Focus
Veterinary Science II	Veterinary Science II or Livestock Management II
Agricultural Research Projects	Agricultural Research Projects
Senior Projects or Agricultural Products	Senior Projects or Agricultural Products

Title: Agri-Science IV Supervised Agricultural Experience (SAE)

Unit Overview: SAE is a vital aspect of agricultural education. As part of Agri-Science I & II students have explored their options and developed work experience programs suitable for young students exploring agriculture as a career. Students have learned how to keep records and the best methods for documenting their day to day work as well as their progress. By the end of Agri-Science III students have developed and implemented plans for supervised work experience relating to their interests and career goals and have shown growth over the previous years.

Agri-Science IV students are expected to continue to demonstrate increased responsibility and new learning relative to their SAEs. Through advanced SAE work, students may be more involved in starting and operating their own businesses or taking employment in agriculturally-related enterprises. It is strongly recommended that students apply for local and state FFA proficiency awards as well as the FFA State Degree.

SAE advisors work with individual students, parents, work-site mentors, and employers to ensure student activities are appropriate, meet student needs, and are in compliance with state labor laws. All students work with their SAE advisors to complete the Universal Structured Work-Based Learning Plan. In addition, some students must complete the Connecticut Department of Labor forms LED 75-1 (Workplace Learning Experiences for Minor Students in Hazardous Occupations).

Suggested Time: On-going

Ledyard High School Expectations for Student Learning:

- Read and write critically and effectively for a variety of purposes
- Speak clearly and communicate ideas accurately in a variety of settings
- Demonstrate critical thinking skills

Agriculture, Food, and Natural Resources Standards:

- CS.01.01.07.c** Evaluate actions taken and make appropriate modifications to personal goals.
- CS.01.03.02.c.** Create a plan of action to complete a task based on a conceptualized idea
- CS.01.06.03.c** Use problem solving strategies to solve a professional or personal issue
- CS.01.06.05.c** Implement a plan to develop new knowledge and skills related to professional and personal aspirations
- CS.02.03.03.c.** Demonstrate employability skills for a specific career
- CS.03.01.01.b.** Select the appropriate form of technical and business writing or communication for a specific situation.
- CS.03.02.03.b.** Practice ethical behaviors.
- CS.07.04.01.c.** Apply general workplace safety precautions/procedures.
- CS.08.01.01.c.** Use tools and equipment appropriately to complete a specific task.
- ABS.03.01.01.a** Maintain production and agri-business records

Common Core State Standards

RST.11-12.4 Determine the meaning of words and phrases as they are used in text, including analyzing how an author uses and refines the meaning of a key term over the course of a text

WHST.11-12.1.e Provide a concluding statement or section that follows from or supports the argument presented.

WHST.11-12.2a Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension

WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience

MP 6 Attend to precision

Objectives	Required Activities/ Suggested Activities	AFNR Standards/CCSS
Implement planned improvements to enhance or improve work experience program	<ul style="list-style-type: none"> • Develop and expand work experience activities/projects in line with career goals • Write SMART goals for SAE improvement over the year 	CS.01.01.07.c CS.01.03.02.c CS.01.06.03.c CS.01.06.05.c CS.02.03.03.c. ABS.03.01.01.a RST.11-12.4 WHST.11-12.4
Accurately (or independently) complete appropriate work experience forms utilizing AFNR standards	<ul style="list-style-type: none"> • Identify key skills necessary to complete the Structured Work-Based Learning Form using AFNR standards • Complete appropriate CT Departments of Labor and Education forms for student work experience independently 	CS.01.06.05.c CS.02.03.03.b. CS.03.01.01.b. WHST.9-10.4
Demonstrate effective and appropriate work skills	<ul style="list-style-type: none"> • Work safely and effectively • Document safe handling of equipment, plants, and animals • Demonstrate appropriate workplace skills such as time management, interpersonal skills, organization, communication, technology and tool use, and problem solving 	CS.01.06.03.c CS.02.03.03.c. CS.01.06.05.c CS.03.02.03.b. CS.07.04.01.c. CS.08.01.01.c. ABS.03.01.01.a RST.11-12.4 WHST.11-12.4
Develop and maintain clear records	<ul style="list-style-type: none"> • Document time spent in activities, skills learned, income, and expenses 	CS.02.03.03.c. CS.03.01.01.b.

	<ul style="list-style-type: none"> • Keep all SAE records in a well-organized binder • Provide evidence of work using photographs, videos, and journals • Meet with SAE advisor weekly during the school year and at least once during the summer • Set up/organize appointments with SAE advisor and employer/supervisor/parent 	ABS.03.01.01.a RST.11-12.4 WHST.11-12.1.e WHST.11-12.2a WHST.11-12.4
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Italicized items indicate technology use

SAE Use Vocabulary:

501(c)(3)
Entrepreneurship
Hazardous Occupations
Liability

Non-Profit Entity
Paid Placement
Structured Work-Based Learning
Plan

Worker's Compensation Insurance
Work-site Mentor

Assessments:

- Weekly record checks
- Monthly and annual summaries
- On-site visits by advisor in coordination with parent/supervisor/employer
- SAE rubrics

Resources/Materials:

- AFNR Standards
- Binder and record sheets
- SDE/SDOL employment forms

Title: Veterinary Science II

Unit Overview: This unit will reinforce the content and skills from Veterinary Science I and will emphasize veterinary hands on skills and content during class, on field trips and with guest presenters. Veterinary Science I is a prerequisite. Students have an opportunity to receive a Veterinary Assistant Certification.

Veterinary Assistant Certification (Pending Practical Experience)	Veterinary Assistant Certification Level 1
Complete the online curriculum Pass the class with a C or higher Complete the hands on skills/competencies validation sheet Pass the certification exam	Complete the online curriculum Pass the class with a C or higher Complete the hands on skills/competencies validation sheet Pass the certification exam Complete 300 hours in a veterinary hospital

Suggested Time: Two Quarters

Ledyard High School Expectations for Student Learning:

- Read and write critically and effectively for a variety of purposes
- Employ problem-solving skills effectively

Agriculture, Food, and Natural Resources Standards

CS.01.01.01.c Work independently and in group settings to accomplish a task

CS.01.02.01.a Explain human relation skills such as compassion, empathy, unselfishness, trustworthiness, reliability and being friendly

CS.02.02.02.c Present oneself appropriately in various settings

CS.02.03.03.b Develop skills required for a specific career

CS.03.02.03.a Differentiate between ethical and unethical behavior

CS.06.02.01.a Use proper safety practices/personal protective equipment

CS.07.02.01.c Complete a recognized industry-level first aid training program

CS.08.01.01.c Use tools and equipment appropriately to complete a specific task

AS.02.02.01.a Identify basic characteristics of animal cells, tissues, organs and body systems

AS.02.02.06.c Explain the impact of animal body systems on performance, health, growth and reproduction

AS.02.03.01.a Identify ways an animal's health can be affected by anatomical and physiological disorders

AS.03.01.01.b Perform simple health-check evaluations on animals

AS.03.01.02. Identify common diseases, parasites and physiological disorders that affect animals

AS.03.01.05.a Identify and describe zoonotic diseases

AS.04.01.01.a Compare and contrast common types of feedstuffs and the roles they play in the diets of animals

AS.06.01.01.a Discuss the dangers involved in working with animals

AS.06.01.02.a Explain the implications of animal welfare and animal rights for animal agriculture

AS.08.02.01.c Establish and maintain favorable environmental conditions for animal growth and performance

Common Core State Standards:

RST 11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.

WHST 11.12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience

SL.11.-12.4 Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

MP 4 Model with mathematics

MP 6 Attend to precision

Objectives	Required Activities/ Suggested Activities	AFNR Standards/CCSS
Explore veterinary science careers	<ul style="list-style-type: none">• List and describe veterinary medicine career opportunities.• Explain the job entry requirements needed to work in a veterinary clinic or hospital• Discuss schools and their training programs in veterinary medicine• Explain today's role veterinary medicine plays as well as the role it will have in the future	CS.01.01.01.c CS.01.02.01.a CS.02.02.02.c CS.07.02.01.c AS.06.01.01.a RST 11-12.4 WHST 11-12.4 SL.11.-12.4
Differentiate between animal rights and animal welfare	<ul style="list-style-type: none">• Describe the difference between an ethical issue and a legal issue• Discuss human-animal bond and how to deal with clients and their animals• Create a skit involving the implications of animal welfare and animal rights	CS.01.01.01.c CS.01.02.01.a CS.02.02.02.c CS.02.03.03.b CS.03.02.03.a CS.06.02.01.a CS.07.02.01.c CS.08.01.01.c AS.06.01.01.c

		AS.06.01.02.a RST 11-12.4 WHST 11.12.4 SL.11.-12.4
Demonstrate knowledge of personal and occupational safety practices in the workplace	<ul style="list-style-type: none"> • Discuss the importance of practicing safety in a veterinary clinic • Dispose of syringes, needles and other sharps according to FDA regulations • Demonstrate the use of eye wash stations and protective wear • Role play response to emergency situations • Explain the risk to public health from zoonotic diseases 	CS.01.01.01.c CS.01.02.01.a CS.02.02.02.c CS.03.02.03.a CS.06.02.01.a CS.08.01.01.c AS.06.01.01.a AS.03.01.05.a RST 11-12.4 WHST 11.12.4 SL.11.-12.4
Identify the veterinary abbreviations and other domain-specific terminology for animals.	<ul style="list-style-type: none"> • Read and interpret a medical chart • Enter physical examination information into a medical chart 	CS.01.01.01.c CS.02.03.03.b RST 11-12.4 WHST.11-12.4 SL.11.-12.4
Identify common breeds and varieties of canine, feline, bovine, porcine, equine, ovine, caprine, exotic animals and zoo animals.	<ul style="list-style-type: none"> • Observe and document specific temperament behavior characteristics according to individual breed classification and characteristics in school animals or on field trips. 	CS.01.01.01.c CS.02.03.03.b RST 11-12.4 WHST.11-12.4 SL.11.-12.4
Identify and interpret the various means of animal communication	<ul style="list-style-type: none"> • Describe the different types of animal behavior including normal behavior for a variety of species. • Observe and document the ways animals communicate 	CS.01.01.01.c CS.02.02.02.c CS.02.03.03.b AS.02.02.06.c RST 11-12.4 WHST.11-12.4 SL.11.-12.4
Safely restrain animals for veterinary procedures	<ul style="list-style-type: none"> • Discuss the AVMA policy statement concerning restraint • Identify and demonstrate the methods used in handling and restraining horses, cattle, alpacas, sheep, goats and pigs • Identify and demonstrate the methods used in handling and 	CS.01.01.01.c CS.02.02.02.c CS.02.03.03.b CS.06.02.01.a

	restraining dogs and cats <ul style="list-style-type: none"> Identify and demonstrate the methods used in handling and restraining birds, exotics and reptiles 	CS.08.01.01.c RST 11-12.4 WHST.11-12.4
Investigate the body systems and gain knowledge of how each system functions, its purpose and how it is affected by disease	<ul style="list-style-type: none"> Discuss the importance of knowing the parts that make up various body systems of animals Identify the parts and functions of the skeletal, muscular, respiratory, digestive, circulatory, nervous, urinary, integumentary, reproductive and endocrine systems of animals Complete an <i>online</i> veterinary assistant certification program 	CS.01.01.01.c CS.02.02.02.c CS.02.03.03.b AS.02.02.01.a AS.02.02.06.c AS.02.03.01.a AS.03.01.02.a AS.04.01.01.a RST 11-12.4 WHST.11-12.4
Understand the effects diseases and parasites have on animals	<ul style="list-style-type: none"> Identify and discuss common internal and external parasites Perform common diagnostic procedures to identify parasites Explain the difference between non-infectious and infectious diseases Describe the threat of common zoonotic diseases in our area Examine the role bacteria, fungus, viruses, genetics and nutrition has in causing diseases Observe and Identify parasites under a <i>microscope</i> Interpret veterinary test results Simulate the spread of a disease in a population Discuss immunization procedures that are administered to most small and large animal species Describe methods used to control, prevent or treat common internal and external parasites 	CS.01.01.01.c CS.02.02.02.c CS.02.03.03.b CS.06.02.01.a CS.08.01.01.c AS.02.02.01.a AS.02.02.06.c AS.02.03.01.a AS.03.01.02.a AS.03.01.05.a RST 11-12.4 WHST.11-12.4 SL.11.-12.4 MP4 MP 6
Perform or observe laboratory and hospital procedures	<ul style="list-style-type: none"> Observe X-rays, Computerized Tomography, Magnetic Resonance Imaging, Endoscopy and Ultrasound Tests at a veterinary hospital Prepare, stain, and examine blood smears Perform a urinalysis on the school animals Identify anatomical sites for administering injections, measuring vital signs and collecting blood samples for various animal species 	CS.01.01.01.c CS.02.02.02.c CS.02.03.03.b CS.06.02.01.a CS.08.01.01.c AS.02.02.06.c AS.02.03.01.a AS.03.01.02.a

	<ul style="list-style-type: none"> • Interpret a prescription, determine dosage and fill a syringe accordingly • Administer medications to animals • Demonstrate aseptic wound care • Observe a spay and neuter procedure on a dog or cat • Clean animal ears and eyes • Trim livestock hooves • Explain the purpose of drugs commonly used in veterinary medicine such as: antibiotics, tranquilizers and analgesics • Define and observe hydrotherapy • Demonstrate the ability to work with the English and Metric systems in performing veterinary calculations • Identify and demonstrate the use of equipment and instruments commonly found in a veterinary hospital • Explain the importance of pre and post- surgical care of animals • Observe the use of anesthetic equipment preparation and patient monitoring 	RST 11-12.4 WHST.11-12.4 SL.11.-12.4 MP 4 MP 6
Demonstrate proper health care, cleaning and handling of animals.	<ul style="list-style-type: none"> • Feed, water, provide health care, maintain clean/sanitary living conditions and handle school animals. • Communicate with instructor about normal and abnormal health in school animals 	CS.01.01.01.c CS.02.02.02.c CS.02.03.03.b CS.06.02.01.a CS.08.01.01.c AS.03.01.01.b AS.06.01.01.a AS.08.02.01.c RST 11-12.4 WHST.11-12.4 SL.11.-12.4

Level 1

Develop a veterinary skills/competency portfolio	<ul style="list-style-type: none"> • Document, in writing, how to perform or demonstrate veterinary assistant duties or job tasks. 	CS.01.01.01.c CS.01.01.01.c CS.01.02.01.a CS.02.02.02.c CS.02.03.03.b
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		CS.03.02.03.a CS.06.02.01.a CS.07.02.01.c CS.08.01.01.c AS.02.02.01.a AS.02.02.06.c AS.02.03.01.a AS.03.01.01.b AS.03.01.02.a AS.03.01.05.a AS.04.01.01.a AS.06.01.01.a AS.06.01.02.a AS.08.02.01.c RST 11-12.4 WHST.11-12.4 SL.11.-12.4 MP 4 MP 6
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Italicized items indicate technology use

Assessed Vocabulary:

Antiseptics
 Aseptic
 Caudal
 Cranial

Distal
 Dorsal
 EPA
 Litigation

Malpractice
 Medial
 Posterior
 Proximal

Quarantine
 Sterilization
 Ventral

Classroom Use Vocabulary:

Acts of commission
 Animal Activist
 Animal Rights
 Animal Welfare
 Anterior
 Biohazard

Disinfect
 Ethics
 Ethics Acts of omission
 Euthanasia
 FDA
 Incubation Period

Isolation
 Lateral
 MSDS
 Negligence
 OSHA
 Parasite

Pathogen
 Professionalism
 Sanitation
 Sharps
 Virus
 Zoonoses

Assessments:

- Quizzes
- Unit test
- Lab activities
- Demonstrations
- Class assignments
- Project

Resources/Materials:

- Handouts
- Certified Veterinary Assistant Online Program
- Variety of animals
- Animal and medical supplies
- Vehicle for field trips
- Disinfectant
- Guest Speakers

Title: Agricultural Research Projects

Unit Overview: This course is an opportunity for students explore scientific principles and emerging technologies in the agricultural industry. Students will research an agricultural topic of their choice related to Animal Systems, Environmental Services/Natural Resource Systems, Food Products and Processing Systems, Plant Systems, Power, Structural and Technical Systems and Social Systems. Students will be given an opportunity to demonstrate and display agricultural research projects during the FFA State Agri-Science Fair.

Suggested Time: One quarter

Ledyard High School Expectations for Student Learning:

- Employ problem-solving skills effectively
- Read and write critically and effectively for a variety of purposes
- Demonstrate critical thinking skills
- Employ effective research and study skills

Agriculture, Food, and Natural Resources Standards:

- CS.01.01.01.c Work independently and in group settings to accomplish a task
- CS.01.01.02.c Assess outcomes to determine success for a task
- CS.01.01.03.c Implement an effective project plan
- CS.01.01.04.c Create resources to complete an action or project
- CS.01.01.07.b Use a variety of strategies to evaluate goals
- CS.02.02.02.c Present oneself appropriately in various settings
- CS.02.03.03.c Demonstrate employability skills for a specific career
- CS.02.04.01.c Demonstrate critical and creative thinking skills while completing a task
- CS.02.04.02.c Implement effective problem solving strategies
- CS.03.02.03.b Practice ethical behaviors
- CS.03.03.03.c Respond to feedback to improve a situation, skill or performance
- CS.08.01.01.c Use tools and equipment appropriately to complete a specific task
- CS.11.01.01.b Design an experiment to test a hypothesis

Common Core State Standards:

- WHST.11-2.2a** Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g. headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension
- WHST.11-12.2d** Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.
- WHST 11-12.4** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience
- WHST.11-12.5** Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
- WHST.11-12.8** Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
- RST.11-12.1** Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions
- RST 11-12.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
- SL.11.-12.4** Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
- SL 11-12.6** Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.
- MP 4** Model with mathematics
- MP 6** Attend to precision

Objectives	Required Activities/ Suggested Activities	AFNR Standards/CCSS
Select an appropriate agricultural research topic	<ul style="list-style-type: none"> • Identify and develop an agricultural research topic • Create a testable agricultural research hypothesis 	CS.01.01.01.c CS.11.01.01.b WHST.11-2.2a WHST.11-12.2d RST.11-12.1
Design and conduct an agricultural experiment	<ul style="list-style-type: none"> • Research literature on research topic • Acquire materials and supplies to execute agricultural experiment 	CS.01.01.01.c CS.01.01.03.c CS.01.01.04.c

	<ul style="list-style-type: none"> • Collect and categorize research data • Predict how agricultural experiment will conclude at the end of the experiment. • Use research terms appropriately when discussing agricultural experiment. • Interpret the data. • Write a research report on experimental research • Outline and plan a daily experiment schedule. • Select appropriate tools and equipment for research project. • Interpret results and evaluate their applicability to the agricultural industry 	CS.02.02.02.c CS.02.03.03.c CS.02.04.01.c CS.02.04.02.c CS.03.02.03.b CS.08.01.01.c WHST.11-12.2d WHST.11-12.2d WHST.11-12.5 WHST.11-12.8 RST.11-12.1 RST 11-12.4 MP 4 MP6
Assess the research project	<ul style="list-style-type: none"> • Describe the limitations to achieve the results of the agricultural experiment • Explain in writing, the ways to improve the experiment in the future 	CS.01.01.01.c CS.01.01.02.c CS.01.01.07.b CS.02.04.02.c CS.03.03.03.c WHST.11-12.2d WHST 11-12.4

Level 1

Present overview of experimental research	<ul style="list-style-type: none"> • Deliver a 10 minute presentation of research and findings • Create a professional research report display that describes details of the experiment • Complete necessary requirements for entry to the FFA Agri-Science Fair 	CS.01.01.01.c CS.02.03.03.c CS.02.04.01.c CS.03.02.03.b CS.03.03.03.c WHST.11-2.2a WHST.11-12.2d WHST 11-12.4 WHST.11-12.5 RST.11-12.1 SL.11.-12.4 SL 11-12.6
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Italicized items indicate technology use

Vocabulary:

Vocabulary varies with topics

Assessments:

- Class assignments
- Agricultural research written report
- Speech presentation

Resources/Materials:

- Agricultural research report & presentation rubric
- FFA Agri-Science Fair resources
- On-line and print resources
- Agricultural Research
- Connecticut Wildlife
- Florist Review Magazine
- American Nurseryman
- US Department of Agriculture www.usda.gov
- Cooperative State Research Education and Extension Service www.geography.org/sustainable
- Farm Service Agency www.fsa.usda.gov
- Food Nutrition Service www.fns.usda.gov
- Food Safety Inspection Service [www.fsis.usda.gov/Consumers_ & Educators/index.aps](http://www.fsis.usda.gov/Consumers_&_Educators/index.aps)
- National Resource Conservation Service www.nrcs.usda.gov
- Agricultural Research Service www.ars.usda.gov/ar
- CT Department of Environmental Protection www.dep.state.ct.us
- CT Department of Agriculture www.ct.gov/DOAG
- CT Cooperative Extension www.extension.uconn.edu
- UCONN www.canr.uconn.edu
- Southern Region Aquaculture Center <http://srac.tamu.edu/index.cfm?catid=24>

Title: Livestock Management II

Unit Overview: This course will provide students with information and skills helpful for the raising caring and management of livestock used for food production. This second course will focus more on sheep and poultry management and will include a section of livestock disease and health management.

Suggested Time: One Quarter

Ledyard High School Expectations for Student Learning:

- Employ problem-solving skills effectively

Agriculture, Food, and Natural Resources Standards:

- CS.01.01.01.c** Work independently and in group settings to accomplish a task
- CS.01.05.01.c** Articulate current issues that are important to the local, state, national and global communities
- CS.02.02.02.c** Present oneself appropriately in various settings
- CS.02.03.03.b** Develop skills required for a specific career
- CS.03.02.03.c** Examine an ethical dilemma and prepare an argument for a position
- CS.06.02.01.a** Use proper safety practices/personal protective equipment
- CS.07.02.01.b** Use first aid knowledge and procedures relevant to a particular situation
- CS.08.01.01.c** Use tools and equipment appropriately to complete a specific task
- AS.01.01.01.b** Evaluate and describe characteristics of animals that developed in response to the animals' environment and led to their domestication
- AS.02.01.01.c** Classify animals according to the taxonomical classification system
- AS.02.02.06.c.** Explain the impact of animal body systems on performance, health, growth and reproduction.
- AS.02.03.01.b** Compare and contrast desirable anatomical and physiological characteristics of animals within and between species
- AS.03.01.01.b** Perform simple health-check evaluations on animals
- AS.03.01.02.a** Identify common diseases, parasites and physiological disorders that affect animals
- AS.03.01.03.a.** Explain characteristics of causative agents and vectors of diseases and disorders in animals.
- AS.04.01.01.c** Select appropriate feedstuffs for animals based on factors such as economics, digestive system and nutritional needs.
- AS.06.01.01.c** Interpret animal behaviors and execute protocols for safe handling of animals
- AS.08.02.01.c** Establish and maintain favorable environmental conditions for animal growth and performance

Common Core State Standards:

WHST.11-12.2d Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.

WHST 11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience

RST 11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.

SL.11.-12.4 Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

MP1 Make sense of problems and persevere in solving them

MP 4 Model with mathematics

MP 6 Attend to precision

Objectives	Required Activities/ Suggested Activities	AFNR Standards/CCSS
Recognize healthy livestock	<ul style="list-style-type: none"> • Site and evaluate characteristics of healthy animals 	AS.03.01.01.b
Evaluate and select good quality forage crops.	<ul style="list-style-type: none"> • Identify characteristics of good quality forage crops. • Select superior examples from various samples of roughages. 	AS.04.01.01.c
Outline appropriate livestock handling and animal safety.	<ul style="list-style-type: none"> • Create a safety chart for handling and caring for livestock • Demonstrate proper hygiene and sanitation 	CS.01.01.01.c CS.02.03.03.b WHST.11-12.2d WHST 11-12.4 RST 11-12.4
Describe key factors in livestock production and management.	<ul style="list-style-type: none"> • Identify various breeds of sheep, and poultry • Outline steps for effectively raising livestock from birth to harvest. • Identify common livestock diseases and parasites 	CS.02.02.02.c CS.06.02.01.a CS.08.01.01.c AS.01.01.01.b AS.02.01.01.c AS.02.03.01.b AS.03.01.02.a AS.04.01.01.c AS.08.02.01.c

		WHST.11-12.2d WHST 11-12.4 RST 11-12.4 SL.11.-12.4
Evaluate and discuss ethical and/or current issues regarding livestock production and the consumption of meat.	<ul style="list-style-type: none"> • Research a livestock or food system ethical and/or current issue • Write a persuasive essay on selected issue • Cite sources appropriately 	CS.01.01.01.c CS.01.05.01.c CS.02.02.02.c CS.03.02.03.c WHST.11-12.2d WHST 11-12.4 RST 11-12.4
Demonstrate proper feeding, watering, health care, cleaning and handling of animals	<ul style="list-style-type: none"> • Feed animals according to their nutritional requirements. • Monitor and replenish water supply as directed using the appropriate water container. • Properly store animal feed in specified bins. • Interpret animal behavior while safely and humanely handling animals 	CS.01.01.01.c CS.02.02.02.c CS.02.03.03.b CS.06.02.01.a CS.07.02.01.b CS.08.01.01.c AS.03.01.02.a AS.04.01.01.c AS.06.01.01.c AS.08.02.01.c
Explore careers in the livestock industry.	<ul style="list-style-type: none"> • Discuss the requisites and rewards of careers in the livestock and meat animal industry. 	RST 11-12.4

Level 1

Calculate a balanced ration	<ul style="list-style-type: none"> • Using nutrition tables and feed charts, calculate an individual animal from the various livestock species and calculate an appropriate ration for an individual animal. 	RST 11-12.4 MP1 MP 4 MP 6
Evaluate livestock conformation	<ul style="list-style-type: none"> • Label the external parts of various livestock species • Evaluate individual animals for their conformation to the "ideal" • Give written or verbal reasons for assessment 	AS.02.03.01.b.

Italicized items indicate technology use

Assessed Vocabulary:

Antibody
Antigen
Carrion
Disease

Hormone
Intra-muscular
Intra-venous
Pathogen

Subcutaneous
Vaccine
Vector

Assessments:

- Lab activities
- Class assignments
- Tests
- Quizzes
- Guest presentation/field trip reflections

Resources/Materials:

- Animals kept at Ag Center
- Feed: concentrates and roughages
- Modern Livestock and Poultry Production, Gilespeie, J.R., Thompson.
- Animal Science, Ensminger, M.E.

Title: Equine Management II

Unit Overview: While this unit will reinforce the information and skills covered in Equine I, it will further provide students with information and skills helpful for the care and management of horses and equine facilities. The course will focus on the financial management of a horse farm.

Suggested Time: One Quarter

Ledyard High School Expectations for Student Learning:

- Employ problem-solving skills effectively
- Employ effective research and study skills
- Demonstrate critical thinking skills

Agriculture, Food, and Natural Resources Standards:

- CS.01.01.01.c** Work independently and in group settings to accomplish a task
- CS.01.05.01.c** Articulate current issues that are important to the local, state, national and global communities
- CS.02.02.02.c** Present oneself appropriately in various settings
- CS.02.03.03.b** Develop skills required for a specific career
- CS.03.02.03.c** Examine an ethical dilemma and prepare an argument for a position
- CS.03.01.02.b.** Prepare a resume.
- CS.03.01.03.b.** Deliver a business presentation for a peer group (e.g., class presentation)
- CS.06.02.01.a** Use proper safety practices/personal protective equipment
- CS.07.02.01.b** Use first aid knowledge and procedures relevant to a particular situation
- CS.08.01.01.c** Use tools and equipment appropriately to complete a specific task
- ABS.02.01.01.b.** Identify components of business plans and demonstrate how to write such components using the SMART format
- AS.02.03.01.b** Compare and contrast desirable anatomical and physiological characteristics of animals within and between species
- AS.03.01.01.b** Perform simple health-check evaluations on animals
- AS.03.01.02.a** Identify common diseases, parasites and physiological disorders that affect animals
- AS.04.01.01.c** Select appropriate feedstuffs for animals based on factors such as economics, digestive system and nutritional needs
- AS.06.01.01.c** Interpret animal behaviors and execute protocols for safe handling of animals
- AS.07.01.01.c.** Design an animal facility, focusing on animal requirements, efficiency, safety and ease of handling.
- AS.07.01.02.c.** Select equipment and implement animal handling procedures and improvements to enhance production efficiency.
- AS.08.02.01.c** Establish and maintain favorable environmental conditions for animal growth and performance

Common Core State Standards:

- WHST.11-12.2d** Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.
- WHST 11-12.4** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience
- RST 11-12.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
- SL.11.-12.4** Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
- MP1** Make sense of problems and persevere in solving them
- MP 4** Model with mathematics
- MP 6** Attend to precision

Objectives	Required Activities/ Suggested Activities	AFNR Standards/CCSS
Create a farm business plan	<ul style="list-style-type: none"> • Select a home and a car and amortize the loans appropriately • Develop a household budget • Apply the principles of branding to select a business name • Develop a cash flow statement • Write a resume, cover letter and letter of recommendation • Create an equine business plan 	CS.01.01.01.c CS.02.03.03.b CS.03.01.02.b. CS.03.01.03.b. WHST.11-12.2d WHST 11-12.4 RST 11-12.4
Indicate an understanding of care horse facilities.	<ul style="list-style-type: none"> • Design a barn yard (including stalls, feed storage, tack room, lounges, offices and indoor arena). 	AS.07.01.01.c. AS.07.01.02.c. RST 11-12.4
Calculate a balanced ration for horses	<ul style="list-style-type: none"> • Using nutrition tables and feed charts, calculate an appropriate ration for an individual horse • Choose feeds appropriate and safe for a horse • Develop a feeding schedule appropriate for all horses on the farm 	AS.04.01.02.c RST 11-12.4 MP1 MP 4 MP 6
Assess equine health and suggest appropriate protocol for addressing disease or illness.	<ul style="list-style-type: none"> • Identify characteristics of a healthy horse • Perform a physical examination on a horse • Use veterinary tools and equipment safely and correctly. 	CS.01.01.01.c CS.02.02.02.c CS.02.03.03.b

	<ul style="list-style-type: none"> • Create a protocol for dealing with sick horses • Evaluate the horse for internal and external parasites and skin disorders and suggest appropriate treatment 	CS.06.02.01.a CS.07.02.01.b CS.08.01.01.c AS.02.03.01.b AS.03.01.01.b AS.03.01.02.a AS.06.01.01.c WHST 11-12.4 RST 11-12.4
Discuss proper feeding, watering, health care, cleaning and handling of horses	<ul style="list-style-type: none"> • Feed animals according to their nutritional requirements. • Monitor and replenish water supply as needed using the appropriate water container. • Properly store animal feed • Interpret animal behavior while safely and humanely handling animals. 	CS.01.01.01.c CS.02.02.02.c CS.02.03.03.b CS.06.02.01.a CS.07.02.01.b CS.08.01.01.c AS.03.01.02.a AS.04.01.01.c AS.06.01.01.c AS.08.02.01.c
Explore careers in the equine industry.	<ul style="list-style-type: none"> • Discuss the requisites and rewards of careers in the equine industry. 	RST 11-12.4 WHST 11-12.4 RST 11-12.4

Level 1

Evaluate horse conformation	<ul style="list-style-type: none"> • Evaluate individual horses for their conformation to the “ideal” • Give written or verbal reasons for assessment 	AS.02.03.01.b. WHST 11-12.4 RST 11-12.4 SL.11.-12.4
Evaluate and discuss current issues regarding horse use and handling.	<ul style="list-style-type: none"> • Research a current issue regarding the horse industry • Write a position statement on the selected issue 	CS.01.01.01.c CS.01.05.01.c CS.02.02.02.c CS.03.02.03.c WHST.11-12.2d WHST 11-12.4 RST 11-12.4

Italicized items indicate technology use

Assessed Vocabulary:

Amortization
Assets
Budget

Capital inventory
Cash Flow Statement
Cover Letter

Depreciation
Interest
Liabilities

Principle
Resume
Term

Assessments:

- Lab activities
- Class assignments
- Tests
- Quizzes
- Farm business plan

Resources/Materials:

- The Horse, Evans.
- Equine Science, Ensminger, M.E.
- Agribusiness: Decisions and Dollars, Elliot, J.
- Video: Basic Horseshoeing Principles, Butler Publishing and Tools
- Video: Horse Judging, Creative Educational Video

Title: Senior Project

Unit Overview: Most Agri-Science IV students will develop and complete a culminating project at the end of the school year. This project will give students the opportunity to demonstrate the application of critical skills learned over the course of their high school careers through a comprehensive project selected with the assistance of their Agri-Science teachers. Although this option is available to all students there are some who may select an alternative unit as a replacement. "Agricultural Products" (see Ag Sci IV, Animal Science curriculum) will be available to all students with the exception of those who are enrolled in ECE Horticulture classes.

Suggested Time: One quarter

Ledyard High School Expectations for Student Learning:

- Read and write critically and effectively for a variety of purposes
- Speak clearly and communicate ideas accurately in a variety of settings
- Employ problem-solving skills effectively
- Demonstrate critical thinking skills
- Employ effective research and study skills

Agriculture, Food, and Natural Resources Standards:

- CS.01.01.01.c** Work independently and in group settings to accomplish a goal
- CS.01.01.02.c** Assess outcomes to determine success for a task
- CS.01.01.03.c** Implement an effective project plan
- CS.01.01.04.b.** Use appropriate and reliable resources to complete an action or project
- CS.01.01.05.c.** Implement a plan that minimizes physical, financial, and professional risks and analyze results
- CS.01.01.07.c.** Evaluate actions taken and make appropriate modifications to personal goals
- CS.01.03.02.c.** Create a plan of action to complete a task based on a conceptualized idea
- CS.01.02.02.c.** Engage others in conversations to respond to an obstacle when completing a task
- CS.01.04.06.c.** Analyze one's level of self-discipline and causes for lack of self-discipline
- CS.01.06.05.c.** Implement a plan to develop new knowledge and skills related to professional and person aspirations.
- CS.02.04.01.c** Demonstrate critical and creative thinking skills while completing a task
- CS.02.04.02.c** Implement effective problem solving strategies
- CS.03.03.03.c.** Respond to feedback to improve a situation, skill or performance
- CS.06.02.01.a** Use proper safety practices/personal protective equipment
- CS.07.04.01.c** Apply general workplace safety precautions/procedures.
- CS.08.01.01.c** Use tools and equipment appropriately to complete a specific task

Common Core State Standards

- RST.11-12.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
- RST.11-12.7** Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
- WHST. 11-12.1e.** Provide a concluding statement or section that follows from or supports the argument presented.
- WHST. 11-12.4.** Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
- SL.11.-12.4** Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
- SL.11-12.5** Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence to add interest.
- SL.11-12.6** Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate.

Objectives	Required Activities/ Suggested Activities	AFNR Standards/CCSS
Develop a plan for an independent, agriculturally-related project	<ul style="list-style-type: none"> • With assistance from advisors, identify a suitable topic to meet the established requirements for the senior project • Submit a formal project proposal delineating goals, activities, procedures, and materials • Conduct necessary background research to develop a plan 	CS.01.01.04.b. CS.01.03.02.c. CS.02.04.01.c RST.11-12.4 WHST. 11-12.4.
Execute a project plan in order to meet established goals	<ul style="list-style-type: none"> • Establish clear project objectives • Create a weekly plan for research and work • Identify procedures to effectively complete the project • Create a time-line to complete work • Work safely and efficiently • Conduct research as needed to identify and solve problems • Work safely in a shop / lab situation 	CS.01.01.01.c CS.01.01.03.c CS.01.01.04.b. CS.01.01.05.c. CS.01.03.02.c. CS.01.06.05.c. CS.02.04.01.c CS.02.04.02.c CS.06.02.01.a CS.07.04.01.c CS.08.01.01.c RST.11-12.4

		RST.11-12.7 WHST. 11-12.4.
Assess progress and modify plans as needed	<ul style="list-style-type: none"> • Use journal to record successes and problems • Discuss issues with advisor and peers in order to solve problems • Make adjustments to plan as needed • Conduct research as needed to identify and solve problems 	CS.01.01.02.c CS.01.01.04.b. CS.01.01.05.c. CS.01.01.07.c. CS.02.04.01.c CS.02.04.02.c RST.11-12.4 RST.11-12.7 WHST. 11-12.4.
Journal accomplishments, problems, and propose solutions	<ul style="list-style-type: none"> • Record progress in a journal including weekly assessments of work 	CS.01.01.02.c CS.01.01.07.c. CS.02.04.02.c WHST. 11-12.4.
Present a summary of project	<ul style="list-style-type: none"> • Make a presentation to class of project work • Evaluate work and final project 	CS.01.01.02.c CS.01.01.07.c. CS.02.04.01.c WHST. 11-12.1e WHST. 11-12.4. SL.11.-12.4 SL.11-12.5 SL.11-12.6

Level 1

Develop a plan for an independent, agriculturally-related project	<ul style="list-style-type: none"> • Select AFNR standards applicable to project 	CS.01.01.01.c
Assess progress and modify plans as needed	<ul style="list-style-type: none"> • Initiate discussions with advisors and peers in order to identify and solve problems 	CS.01.02.02.c CS.01.04.06.c.

ECE Students

Develop a plan for an independent, agriculturally-related project	<ul style="list-style-type: none">• Work independently to develop an appropriate topic to meet established criteria	CS.01.01.01.c
Assist students with project tasks	<ul style="list-style-type: none">• Provide assistance to other students as needed	CS.02.04.02.c
Assess progress and modify plans as needed	<ul style="list-style-type: none">• Reflect in journal and through discussions	CS.01.04.06.c. CS.01.02.02.c CS.03.03.03.c.
Present a summary of project	<ul style="list-style-type: none">• Create a presentation for peers utilizing digital media	SL.11-12.5

Italicized items indicate technology use

Vocabulary:

Vocabulary is dependent upon topic and will be identified by each student

Assessments:

- Weekly plan
- Weekly journal
- Weekly work/participation evaluation
- Completed project
- Presentation

Resources/Materials:

- Resources are dependent on topic and will be identified by each student

Title: Agricultural Products

Unit Overview: This unit will look at the food delivery system. After a quick review of human digestion and food nutrients, the course will look at the production and safe handling of agricultural products from production to consumer. Included will be food borne illnesses, preservation, and handling. Further students will consider the implications of a vegetarian and vegan diet, as well as conventional versus small scale, locally grown agricultural products.

Suggested Time: One Quarter

Ledyard High School Expectations for Student Learning:

- Read and write critically and effectively for a variety of purposes
- Speak clearly and communicate ideas accurately in a variety of settings
- Demonstrate critical thinking skills

Agriculture, Food, and Natural Resources Standards:

ABS.01.01.01.a. Recognize principles of capitalism as related to AFNR businesses.

ABS.05.01.02.a Name and explain the impact of external economic factors on an AFNR Business.

ABS.05.01.04.a Calculate percentages, ratios, and related business applications

CS.02.04.01.c Demonstrate critical and creative thinking skills while completing a task

CS.02.04.02.c Implement effective problem solving strategies

CS.06.02.01.a Use proper safety practices/personal protective equipment

CS.07.04.01.c Apply general workplace safety precautions/procedures.

CS.08.01.01.c Use tools and equipment appropriately to complete a specific task

FPP.01.01.01.b. Evaluate changes and trends in the food products and processing industry.

FPP.01.01.02.b. Discuss the issues of safety and environmental concerns about foods and food processing (e.g., Genetically Modified Organisms, microorganisms, contamination, and irradiation).

FPP.01.02.01.b. Evaluate the changes in the food products and processing industry brought about by industry organizations or regulatory agencies.

FPP.02.02.01.b. Outline procedures to eliminate possible contamination hazards associated with food products and processing.

FPP.02.03.01.a. Explain techniques and procedures for the safe handling of food products.

FPP.02.03.03.a. Describe the effects food-borne pathogens have on food products and humans.

FPP.03.01.03.a. Explain the Food Guide Pyramid in relation to essential nutrients for the human diet.

PP.03.01.04.a. Discuss common food constituents (e.g., proteins, carbohydrates, fats, vitamins, minerals).

FPP.03.01.05.b. Describe the purpose of common food additives.

FPP.04.01.01.b. Discuss factors that affect quality and yield grades of food products.

FPP.04.01.03.a. Identify and describe accepted animal treatment and harvesting techniques.

- FPP.04.02.01.b.** Discuss desirable qualities of processed meat, egg, poultry, fish and dairy products.
- FPP.04.03.05.a.** Explain materials and methods of food packaging and presentation.
- FPP.04.03.06.a.** Identify and explain storage conditions to preserve product quality.
- FPP.04.03.06.b.** Select methods and conditions for storing raw and processed food products
- PS.03.05.03.b.** Explain the proper conditions to maintain the quality of plants and plant products held in storage

Common Core State Standards:

- WHST.11-12.2d** Use precise language, domain-specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.
- WHST 11-12.4** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience
- RST 11-12.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.
- SL.11.-12.4** Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

- MP1** Make sense of problems and persevere in solving them
- MP 4** Model with mathematics
- MP 6** Attend to precision

Objectives	Required Activities/ Suggested Activities	AFNR Standards/CCSS
Identify and describe the function of the organs of the human digestive tract.	<ul style="list-style-type: none"> • Label a diagram of the human digestive tract, identifying the organs and giving the function of each. 	FPP.03.01.03.a. SL.11.-12.4
Outline the role each of the six food nutrients provide in the human diet.	<ul style="list-style-type: none"> • Name the six food nutrients and explain what they provide for normal human health and physiology. 	FPP.03.01.04.a.
Outline the guidelines for safe handling of food and raw materials.	<ul style="list-style-type: none"> • Summarize the Ledge Light Health District guidelines for safe handling of food. 	ABS.05.01.02.a FPP.02.02.01.b. FPP.02.03.01.a FPP.02.03.03.a. FPP.04.01.01.b FPP.04.01.03.a FPP.04.02.01.b. RST 11-12.4

Identify food spoilage and differences in food poisoning (contrast food borne infection and intoxication).	<ul style="list-style-type: none"> • Categorize food borne pathogens as causing food infection or food intoxication. 	FPP.02.03.03.a PS.03.05.03.b.
List common food additives and how they enhance foods.	<ul style="list-style-type: none"> • Create a chart of food additives and how they alter foods. 	FPP.03.01.05.b
Apply methods of food preservation (ie - freezing, drying, fermenting, pickling, etc.)	<ul style="list-style-type: none"> • Make butter • Make yogurt • Make ice cream • Make mozzarella • Dehydrate fruit • Make (dried meat) jerky • Make pickles 	ABS.05.01.04.a CS.02.04.01.c CS.02.04.02.c CS.06.02.01.a CS.07.04.01.c CS.08.01.01.c FPP.04.03.05.a FPP.04.03.06.a. FPP.04.03.06.b.
Recognize principles of capitalism as relates to food and food distribution.	<ul style="list-style-type: none"> • Create a flow chart of various foods and their path from farm to consumer. • Compare specific diets (vegetarian, vegan, etc.) 	ABS.01.01.01.a. FPP.01.01.01.b. FPP.01.02.01.b

Level 1

Objectives	Required Activities/ Suggested Activities	AFNR Standards/CCSS
Apply methods of food preservation (ie - freezing, drying, fermenting, pickling, etc.)	<ul style="list-style-type: none"> • Compare and contrast various preservation methods on raw foods 	ABS.05.01.04.a CS.02.04.01.c CS.02.04.02.c CS.06.02.01.a CS.07.04.01.c CS.08.01.01.c FPP.04.03.05.a FPP.04.03.06.a. FPP.04.03.06.b.

Analyze the feasibility of personal independence and sustainability with regard to food in New England.	<ul style="list-style-type: none"> Outline an annual, month by month schedule of home grown and produced food. Compare availability of New England produced foods to that of foods for sale from other parts of the U. S. and other countries 	ABS.05.01.04.a CS.02.04.01.c CS.02.04.02.c CS.06.02.01.a CS.07.04.01.c CS.08.01.01.c FPP.04.03.05.a FPP.04.03.06.a. FPP.04.03.06.b. WHST.11-12.2d RST 11-12.4 SL.11.-12.4
Discuss the issues of safety and environmental concerns about foods and food processing (e.g., Genetically Modified Organisms, microorganisms, contamination, and irradiation).	<ul style="list-style-type: none"> Prepare and give a Power Point presentation on a safety or environmental issue in the food delivery system. 	FPP.01.01.02.b.

Italicized items indicate technology use

Assessed Vocabulary:

Absorption

C. botulinum

Casein

Clostridium perfringens

Colloid

Digestion

Escherichia coli

Food infection

Food Intoxication

Food Nutrient

Homogenization

Metabolism

Myoglobin

Pasteurization

Salmonella

Staphylococcus aureus

Sterilization

Value-added

Assessments:

- Lab activities
- Class assignments
- Tests
- Quizzes
- Guest presentation/field trip reflections

Resources/Materials:

- Introduction to Food Science, Rick Parker, Delmar, 2003.
- Food Science and Safety, George J. Seperich, Interstate, 1998.
- Ledge Light Health District Guide for Food Handling.