FOLSOM CORDOVA UNIFIED SCHOOL DISTRICT

Agriscience 1: The Science of Plants and Animals

Board Approval Date: June 18, 2025	**Course Length: 2 Semesters**
Grading: A-F	**Credits: 5 Credits per Semester**
Proposed Grade Level(s): 9, 10	**Subject Area: Biology, CTE** **Elective Area (if applicable):**
Prerequisite(s):	**Corequisite(s):**
CTE Sector/Pathway: Agriculture and Natural Resources	
Intent to Pursue 'A-G' College Prep Status: Yes	
A-G Course Identifier: (d) Laboratory Science	
Graduation Requirement: No	
Course Intent: Site Specific **Program (if applicable): CTE**	

Folsom Cordova Unified School District
2024-2025 Nondiscrimination Statement

The Folsom Cordova Unified School District prohibits discrimination, intimidation, harassment (including sexual harassment) or bullying based on a person's actual or perceived ancestry, color, disability, gender, gender identity, gender expression, immigration status, nationality, race or ethnicity, religion, sex, sexual orientation, or association with a person or a group with one or more of these actual or perceived characteristics. For questions or complaints, contact:

Jim Huber, Ed.D., Assistant Superintendent, Educational Services
Compliance Officer, Section 504 Coordinator, ADA Coordinator (students)
jhuber@fcusd.org
916-294-9000 x 104580

Shannon Diaz, Director of Compliance
Compliance Officer and Title IX Coordinator
sdiaz@fcusd.org
916-294-9000 x 104415

1965 Birkmont Drive
Rancho Cordova, CA 95742

The Folsom Cordova Unified School District does not discriminate on the basis of sex and prohibits sex discrimination in any education program or activity that it operates, as required by Title IX and its regulations, including in admission and employment.

Inquiries about Title IX may be referred to the Folsom Cordova Unified School District's Title IX Coordinator, the U.S. Department of Education's Office for Civil Rights, or both. The District Title IX Coordinator is:

Shannon Diaz, Director of Compliance
Compliance Officer and Title IX Coordinator
sdiaz@fcusd.org
916-294-9000 x 104415
1965 Birkmont Drive
Rancho Cordova, CA 95742

The District nondiscrimination policy can be located at:
https://www.fcusd.org/district/about-us/nondiscrimination-statementpolicy

The District's nondiscrimination complaint procedures can be located at:
Students: https://www.fcusd.org/departments/compliance/complaints/uniform-complaints
Staff: https://www.fcusd.org/departments/compliance/complaints/nondiscrimination-in-employment

To report information about conduct that may constitute sex discrimination or sex-based harassment, or make a complaint of sex discrimination or sex-based harassment under Title IX, please refer to:
Students: https://www.fcusd.org/district/about-us/title-ix-notificationsexual-harassment
Staff: https://www.fcusd.org/departments/compliance/complaints/sexual-harrassment-title-ix

COURSE DESCRIPTION:

Agriscience 1: The Science of Plants and Animals introduces students to the foundational biology and ecology principles through the lens of agricultural science. Utilizing a micro to macro progression, this course explores plant and animal biology, ecology, and genetics, integrating scientific and agricultural perspectives to provide a comprehensive understanding of living systems and their interactions. This course also introduces the National FFA Organization (FFA), providing opportunities for leadership and skill development in agricultural pathways. Satisfying biology credit requirements, Agriscience 1 serves as the entry point into the Agriscience Pathway, equipping students for advanced study in agricultural biology and careers in the field.

DETAILED UNITS OF INSTRUCTION:

Unit Number/Title	Unit Essential Questions	Examples of Formative Assessments	Examples of Summative Assessment
1. Introduction to Agriscience and FFA	What is agriscience, and how does it impact society?	*FFA Exploration Activity: Small groups research FFA programs, events, and leadership roles, then present findings	*FFA Membership Plan: Students outline a personal plan for engagement in FFA based on their goals and interests
9.1 Leadership Development C1.0 Evaluate the role of agriculture in the California economy. C13.0 Design agricultural experiments using the scientific method			
2. Cell Structure and Function	How do cell structures contribute to the function of plants and animals?	*Cell Diagram Labeling: Students label plant and animal cell diagrams with organelles and their functions	*Cell Model Project: Students create 3D models of plant and animal cells and explain each part's function. The Incredible Edible Cell using food to model
C5.0 Compare the structure and function of plants, animals, bacteria, and viruses.			
3. Ecology	How do human actions affect ecosystems and agricultural sustainability?	*Ecosystem Field Journal: Students observe and document local ecosystems, identifying species and interactions	*Biome Brochure: Students will develop a brochure that demonstrates all abiotic and biotic factors in a specific biome
HS-ESS 3-5: Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems. **C2.0 Examine the interrelationship between agriculture and the environment.**			

4. Energy Transfer in Plants and Animals	How does energy transfer through plants and animals?	*Photosynthesis and Respiration Diagrams: Students create diagrams of both processes	*Cellular Respiration Model: Students will model cellular respiration and the relationship it has on energy transfer in an ecosystem
HS-LS 2-5: Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere and geosphere.			
5. Taxonomy and Nomenclature of Plants and Animals	How are organisms classified in biology? When looking at common ancestry, how are our modern livestock connected to those of the past?	*Species ID Exercise: Students practice identifying common agricultural species by taxonomy	*Taxonomy Project: Students research and classify a plant or animal used in agriculture
ANR-F3.3: Analyze the structure and function of plants and animals within ecosystems to understand how energy flows and matter cycles. **HS - LS 4-1 Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.**			
6. Plant Growth and Development	What role do hormones and environmental conditions play in plant development?	*Onion Root Tip Mitosis: Students will observe the different stages of mitosis in an onion root tip under a microscope	*A detailed report on a specific plant's life cycle relevant to agriculture. To include the effect of fertilizer and crop rotation as well (a deeper exploration will be taken in concentrator course looking at soil profiles)
C11.0 Analyze plant growth and development. **HS ESS 2-7: Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth.**			
7. Animal Nutrition and Digestion	What are the nutritional requirements of agricultural animals?	*Animal Feed Plan: Students will evaluate the different nutrient requirements for animals by looking at	*Nutrition Case Study: Analyze and report on nutritional needs of livestock. They will use

		different feed labels for grower, starter, finisher and roughages	feed ration calculations to develop a specified feed stuff (will be a trail mix of sorts). Must show all math calculations and make a label for their feed
ANR-A4.3: Describe how animal nutrition and feeding programs support the growth, health, and reproduction of animals. **HS LS 1-3: Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.**			
8. Genetics and Heredity	How can genetic knowledge benefit agricultural practices?	*DNA Modeling: Students will match base pairs in DNA and look at how half of the information comes from each parent	*Genetics Project: Research and present on selective breeding
HS-LS1-1: Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells. **C7.0 Comprehend basic animal genetics.**			
9. Animal Breeding and Reproduction	How are breeding practices used in agriculture?	*Reproductive Cycle Report: Analyze reproductive cycles of a selected species	*Biotechnology and Genetics: Exploring the influence of genetics on plant and animal breeding to enhance productivity and sustainability
C4.0 Determine the importance of animals, the domestication of animals, and the role of animals in modern society.			
10. Animal Health and Disease Management	How do disease prevention and management improve agriculture? How does evolution play a role in disease pathology in livestock?	*Case Study Analysis: Review case studies on animal disease outbreaks	*Health Management Plan: Create a plan for disease prevention and management on a dairy farm
HS-LS4-2: Construct an explanation based on evidence that the process of evolution primarily results from four factors: the potential for a species to increase in number, the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, competition for limited resources, and the proliferation of those organisms that are better able to survive and reproduce in the environment.			

C9.0 Evaluate basic animal health.			
11. Regenerative Agriculture Practices	What sustainable practices can be implemented in agriculture?	*Comparative Practices: Students will look at the pros/cons of different agricultural practices (sustainable, conventional, regenerative, organic) and put together and debate as a class	*Sustainability Report: Analyze the impact of regenerative practices
ANR-D2.1: Explain the ecological significance of sustainable and regenerative agricultural practices.			
12. Agriculture and Society	How can students contribute to sustainable and regenerative agriculture?	*Current Event Analysis: Study and present a news article on agriculture's role	*Agriculture Issues Project: Explore an agricultural challenge facing society today, create a poster, orally present and have a written paper to accompany
C3.0 Analyze the effects of technology on agriculture. **CCSS.ELA-LITERACY.RST.11-12.3: Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.**			

RELEVANT STANDARDS AND FRAMEWORKS, CONTENT/PROGRAM SPECIFIC STANDARDS:

Link to Common Core Standards (if applicable):
Educational standards describe what students should know and be able to do in each subject in each grade. In California, the State Board of Education decides on the standards for all students, from kindergarten through high school.

Link to Framework (if applicable):
Curriculum frameworks provide guidance for implementing the content standards adopted by the State Board of Education (SBE). Frameworks are developed by the Instructional Quality Commission, formerly known as the Curriculum Development and Supplemental Materials Commission, which also reviews and recommends textbooks and other instructional materials to be adopted by the SBE.

Link to Subject Area Content Standards (if applicable):
Content standards were designed to encourage the highest achievement of every student, by defining the knowledge, concepts, and skills that students should acquire at each grade level.
https://www.cde.ca.gov/ci/ct/sf/documents/agnatural.pdf

Link to Program Content Area Standards (if applicable):

Program Content Area Standards apply to programs such as International Baccalaureate, Advanced Placement, Career and Technical Education, etc.
https://www.cde.ca.gov/ci/ct/sf/documents/ctestdfrontpages.pdf

TEXTBOOKS AND RESOURCE MATERIALS:

Textbooks

Board Approved	Pilot Completion Date (If applicable)	Textbook Title	Author(s)	Publisher	Edition	Date
Yes		*Principles of Agriculture, Food and Natural Resources 2nd Edition *Digital availability*	John S. Rayfield, Kasee L. Smith, Travis D. Park, and D. Barry Croom	Goodheart-Willcox Publishing (G-W Inc)	2nd Edition	*1/2/2023*