

## YOSEMITE REGIONAL OCCUPATIONAL PROGRAM

COURSE TITLE:           Agriculture 2 ROP S1           Agriculture 2 ROP S2  
COURSE NUMBER:       ROP01621                       ROP01622  
RECOMMENDED GRADE LEVEL:   11, 12  
DURATION:   4 semesters or 2 summers and 2 semesters  
CREDIT:   Variable; up to 15 each summer, 10 per semester for a maximum of 40  
MEETS GRADUATION REQUIREMENTS:   Practical Arts  
REQUIRED FOR GRADUATION:   No  
CBEDS CODE:   4098  
MEETS UC AND CSU ENTRANCE REQUIREMENTS:   No  
CREDENTIAL REQUIREMENTS:   Single Subject Agriculture  
REPLACES:

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### Course Description:

This competency-based course prepares students for employment in areas of modern agriculture with emphasis in the area of commercial livestock agriculture. Integrated throughout the course are career preparation standards which include basic academic skills, communication, interpersonal skills, problem-solving, workplace safety, technology, and employment literacy.

Recommended Prerequisites:   None

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Date Aligned with State Standards:   November 10, 2008

Board Approved:                       January 17, 2012

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REVIEW CYCLE: 2011-12 through 2015-16

REQUIRED TEXTBOOK (Title, publisher, year): AgriScience Explorations, Morgan, Lee, Wilson, Pearson Education, Inc., Revised Third Edition 2009 or Latest Edition, AgriScience Explorations, Activity Manual, Mika, Pearson Education, Inc., Revised Third Edition 2009 or Latest Edition

## INSTRUCTIONAL MATERIALS

### Basic Text(s):

AgriScience Explorations, Morgan, Lee, Wilson, Pearson Education, Inc., Revised  
Third Edition 2009 or Latest Edition

AgriScience Explorations, Activity Manual, Mika, Pearson Education, Inc., Revised  
Third Edition 2009 or Latest Edition

### Supplementary Text(s):

AgriScience Explorations, Activity Manual Instructor's Guide

AgriScience Explorations, Teacher's Manual

ExamView® Test Bank CD-ROM for Comprehensive Titles

Visual Aids on PowerPoint® CD-ROM

SUMMARY OF MAJOR UNITS OF INSTRUCTION  
Approximate Length of Instruction for Each Unit

		<u>(Hours)</u>
A.	Orientation	2
B.	Career Development	3
C.	Employability	5
D.	Agriculture Leadership Development	25
E.	Health and Safety	5
F.	Livestock Selection and Management	55
G.	Business Skills Development	25
H.	Beef and Swine Industry	20
I.	Livestock Physiology and Nutrition	25
J.	Agriculture Math Problem Solving	15
K.	Agriculture in California, the U. S. and the World	10
L.	Agriculture Leadership Development	20
M.	Merchandising/Marketing Livestock	
N.	Advanced Livestock Selection	
O.	Livestock Health Management and Sanitation Practices	
P.	Reproduction & Genetics in Agriculture	
Q.	Commercial Horse Management and Dairy Production	
R.	Basic Agriculture Business Law	
S.	Supervised Occupational Experience	55
T.	Commercial Plant Science	10
U.	Current Events in Agriculture	5
V.	Agriculture Math	
VI.	Community Classroom Training	<u>330</u>
	Total	720

**Orientation** – Students will understand attendance, grading and discipline policies.

- 1.1 Explain the function of OSHA in the workplace.
- 1.2 Describe accident prevention techniques and provide methods to prevent accidents in the workplace.
- 1.3 Explain and implement procedures to be followed in the event of an emergency or accident in the workplace or classroom.
- 1.4 Students will identify instances of sexual harassment and provide appropriate solutions to deal with workplace issues.
- 1.5 Students will identify, describe, and demonstrate positive work ethics.

Anchor Standards: 6.2, 6.4, 6.5, 6.6 Career Readiness: 6
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2.0 **Career Opportunities** – Describe and give examples of entry, technical, and professional careers in the industry.

- 2.1 Complete a self-assessment related to work values and interests.
- 2.2 Develop a personal occupational plan that outlines career goals and an action plan to achieve those goals.

Anchor Standards: 3.1, 3.4, 3.9 Career Readiness: 3
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3.0 **Employability** – Students will participate in an interview that includes presentation of the employability portfolio.

- 3.1 *Students will create and develop a*
  - Resume
  - Cover Letter
  - Job Application Form
  - Letter of Recommendation
  - Work Sample
- 3.2 Students will participate in an interview that includes presentation of the employability portfolio.

Anchor Standards: 11.5 Career Readiness: 1, 2, 5, 7, 8, 9, 12
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4.0 **Agriculture Leadership Development** – Students understand effective leadership styles, key concepts of group dynamics, team and individual decision-making and conflict resolution.

- 4.1 Know and engage in SAE (supervised agricultural experience).

- 4.2 Parliamentary law and its importance to agriculture.
- 4.3 Types of Supervised Occupational Experience Programs.
- 4.4 Record-Keeping and management of projects.
- 4.5 Agriculture presentation/public speaking.
- 4.6 Opportunities available through the FFA.
- 4.7 Students understand health and safety practices, policies, procedures, and regulations, including equipment and hazardous materials handling.

Anchor Standards: 2.2, 2.3, 2.5, 3.1, 3.9, 5.1, 5.3, 5.4, 6.3, 6.4, 6.5, 6.6, 9.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 9.10, 9.11, 10.7, 11.3  
 Career Readiness: 1, 2, 3, 4, 5, 6, 7, 8, 9, 11

- 5.0 **Health and Safety** – Students understand health and safety practices, policies, procedures, and regulations, including equipment and hazardous materials handling.

- 5.1 Explain policies and procedures for safety in the agriculture field.
- 5.2 Use tools and machines safely.

Anchor Standards: 5.2, 6.2, 6.3, 6.4, 6.6  
 Career Readiness: 1, 2, 5, 7

- 6.0 **Livestock Selection and Management** – Students understand the necessary elements for proper animal housing and handling equipment, space and location requirements, selection of habitat and housing, sane and humane use of restraint equipment and animal husbandry tools.

- 6.1 Identify major livestock breeds.
- 6.2 Evaluate major classes of livestock.
- 6.3 Terms, definitions, and life-cycles of the major classes of livestock.
- 6.4 Explain economic/social significance of livestock classes.
- 6.5 Describe management techniques used on various livestock.
- 6.6 Identify parts and functions of livestock.
- 6.7 Identify economic importance of livestock.
- 6.8 Identify different breeds of livestock, and their importance, and their use in agriculture.
- 6.9 Identify external anatomy.
- 6.10 Understand principles of animal behavior.
- 6.11 Understand the factors involved in and develop an ability for evaluating livestock.
- 6.12 Demonstrate basic skills necessary in livestock management.

Anchor Standards: 1, 5.1, 5.4, 7.1, 7.6, 10.1, 10.4, 10.6  
 Career Readiness: 1, 2, 5  
 CTE Pathway Agriculture and Natural Resources: Agriscience Pathway (C) 6.1; Animal Science Pathway (D) 1.1, 1.2, 1.3, 1.4, 3.2-5.2, 6.1, 6.2, 9.1, 10.1, 10.2, 11.1, 11.2, 12.1-12.6

7.0 **Business Skills Development** – Responsibility & Flexibility – qualities and behaviors that constitute a positive and professional work demeanor; accountability, adaptation to various roles and responsibilities, individual actions affect a community, time management, continually refine, perfect and apply high-quality craftsmanship to a product or presentation.

- 7.1 Project types and opportunities.
- 7.2 Merchandising/marketing process.
- 7.3 Financing procedures.
- 7.4 Budgeting and enterprise.
- 7.5 Product selection.
- 7.6 Contracts – loans, facility, insurance, feeding.
- 7.7 Cooperatives – insurance, feed, hay.
- 7.8 Management practices – housing/equipment, feeding and health care.
- 7.9 Project accounting procedures.
- 7.10 Exhibit preparation/showmanship practices.
- 7.11 Exhibit/live product evaluation.
- 7.12 Processing evaluation.
- 7.13 Overall evaluation.

Anchor Standards: 3.2, 3.3, 4.5, 4.7, 5.1-5.4, 7.1, 7.2, 7.6, 10.1, 10.2, 10.4-10.8  
Career Readiness: 1, 4, 5, 6, 9, 11

8.0 **Beef and Swine Industry** – Students understand large animal production.

- 8.1 Overall industry terminology.
- 8.2 Conformation points.
- 8.3 Breeds/selection.
- 8.4 Basic health.
- 8.5 Marketing.

Anchor Standards: 1.0, 10.1, 11.1  
Career Readiness: 1, 5  
CTE Pathway Agriculture and Natural Resources: Animal Science (D) 5.1, 5.2, 6.1-6.4, 8.4, 10.2, 12.2-12.6

9.0 **Livestock Physiology and Nutrition** – Students understand key principles of animal nutrition and will understand animal physiology.

- 9.1 Describe major systems and functions of organs in each system.
- 9.2 Describe the management practices that are likely to improve the functioning of the various systems.
- 9.3 Explain the principles for providing proper balanced rations for a variety of production stages in ruminants and monogastrics.

- 9.4 Explain the digestive processes of the ruminant and monogastric digestive systems.
- 9.5 Describe how animal nutrition is affected by the digestive, endocrine, and circulatory systems.

Anchor Standards: 1.0, 10.1  
Career Readiness: 1, 5  
CTE Pathway Agriculture and Natural Resources: Animal Science (D) 2.2, 2.4, 3.1-3.3, 7.1, 10.2, 11.2

10.0 **Agriculture Math Problem Solving** – Students will learn Probability & Statistics and organizing data distributions.

- 10.1 Various mathematical applications integrated in the curriculum including accounting basics, statistics and data sets, judging argument validity, etc.

Anchor Standards: 1, 5.1-5.4  
Career Readiness: 1, 5  
CTE Pathway Agriculture and Natural Resources: Agricultural Business Pathway (A) 1.4, 1.6, 4.1, 4.2

11.0 **Agriculture in California, the U. S. and the World** – Students know how to use contemporary and emerging technological resources in diverse and changing personal, community and workplace environments.

- 11.1 Global perspectives of agriculture.
- 11.2 Internal agriculture trade.
- 11.3 Current events in U. S. agriculture.

Anchor Standards: 1, 8.2, 10.1, 10.2, 10.8  
Career Readiness: 1, 12  
CTE Pathway Agriculture and Natural Resources: Agricultural Business Pathway (A) 2.1-2.4, 9.1-9.7, Agriscience Pathway (C) 1.1-1.4, 1.6, 1.7

12.0 **Agriculture Leadership Development** – Students understand effective leadership styles, key concepts of group dynamics, team and individual decision-making and conflict resolution.

- 12.1 Supervised Experience Project Evaluation – Bishop Future Farmers.
- 12.2 FFA Leadership program/Officer training.
- 12.3 Junior Livestock meetings.
- 12.4 NJLS Meetings.
- 12.5 Stanislaus Cattleman's Association participation.
- 12.6 Farm Bureau.
- 12.7 CPPA Shows and meetings.

Anchor Standards: 9.1, 9.2, 9.7, 9.9, 9.12, 9.15  
Career Readiness: 1, 2, 7  
CTE Pathway Agriculture and Natural Resources: Agricultural Business Pathway (A) 6.1-6.3

- 13.0 **Merchandising/Marketing Livestock** – Students understand how animal products and by-products are processed and marketed.
- 13.1 Describe animal harvest, carcass inspection and grading, meat processing safety regulations and practices, removal and disposal of non-edible by-products.
  - 13.2 Explain relative importance of major meat classifications.
  - 13.3 Describe how meat based products and meals are made.
  - 13.4 Describe how meat products are marketed and the value of animal by-products to non-agricultural industries.

Anchor Standards: 8.1, 10.2, 10.4  
Career Readiness: 1, 2  
CTE Pathway Agriculture and Natural Resources: Animal Science Pathway  
(D) 12.1-12.3, 12.5, 12.6

- 14.0 **Advanced Livestock Production** – Students understand the necessary elements for proper animal housing and handling equipment – space and location requirements, selection of habitat and housing, sane and humane use of restraint equipment and animal husbandry tools.
- 14.1 Identify major livestock breeds.
  - 14.2 Evaluate major classes of livestock.
  - 14.3 Terms, definitions, and life-cycles of the major classes of livestock.
  - 14.4 Explain economic/social significance of livestock classes.
  - 14.5 Describe management techniques used on various livestock.
  - 14.6 Identify parts and functions of livestock.
  - 14.7 Identify economic importance of livestock.
  - 14.8 Identify different breeds of livestock, and their importance, and their use in agriculture.
  - 14.9 Identify external anatomy.
  - 14.10 Understand principles of animal behavior.
  - 14.11 Understand the factors involved in and develop an ability for evaluating livestock.
  - 14.12 Demonstrate advanced skills necessary in livestock management.

Anchor Standards: 1, 7.1, 9.5, 10.1, 10.4  
Career Readiness: 1, 6  
CTE Pathway Agriculture and Natural Resources: Agriscience Pathway  
(C) 6.1, Animal Science Pathway (D) 1.1-1.4, 3.2, 4.1, 4.2, 5.1, 5.2, 6.1, 6.2, 9.1, 10.1, 10.2, 11.1, 11.2, 12.1-12.6

- 15.0 **Livestock Health Management and Sanitation Practices** – Students understand the causes and effects of diseases and illnesses in animals.
- 15.1 Describe signs of normal health in contrast to illness and diseases.
  - 15.2 Explain importance of animal behavior in diagnosing animal sickness and disease.
  - 15.3 Describe common pathogens, vectors, and hosts that cause disease in animals.
  - 15.4 Explain prevention, control, and treatment practices for pests and parasites.
  - 15.5 Describe how diseases are passed among animal species and from animals to humans and how that relationship affects health and food safety.



Anchor Standards: 1, 10.1, 10.3  
Career Readiness: 1, 2, 5  
CTE Pathway Agriculture and Natural Resources: Animal Science  
Pathway (D) 6.1-6.7

16.0 **Reproduction and Genetics in Agriculture** – Students understand animal reproduction including reproductive organ function. Students understand animal inheritance and selection principles including the structure and role of DNA.

- 16.1 Explain animal conception, gestation process and fetal development.
- 16.2 Describe the parturition process including problems and solutions.
- 16.3 Describe the role of artificial insemination and embryo transfer in animal agriculture.
- 16.4 Explain animal production breeding systems and reasons for use.
- 16.5 Evaluate a group of animals for desired qualities and discern among them for breeding selection.
- 16.6 Demonstrate how to use animal performance data in the selection and management of production animals.
- 16.7 Research and discuss current technology used to measure desirable traits.
- 16.8 Demonstrate how to predict phenotypic and genotypic results of a dominant/recessive gene pair.
- 16.9 Explain role of mutations and hybrids in animal genetics.

Anchor Standards: 1, 4.1, 4.3, 4.5, 10.1  
Career Readiness: 1, 5  
CTE Pathway Agriculture and Natural Resources: Animal Science Pathway  
(D) 4.1-4.5, 5.1-5.5

17.0 **Commercial Horse Management and Dairy Production** – Students understand large animal production and be able to do a Demonstration and Application.

- 17.1 Demonstrate an understanding of selection of livestock.
- 17.2 Demonstrate sound methods for raising young livestock to a productive age.
- 17.3 Know channels in which livestock and livestock products are marketed.
- 17.4 Know structure and limitations of livestock industries.
- 17.5 Apply knowledge and experience to ag farm practices including caring for horses and dairy cows.

Anchor Standards: 1, 4.5, 10.1, 10.4  
Career Readiness: 1, 5  
CTE Pathway Agriculture and Natural Resources: Animal Science Pathway  
(D) 1.1, 1.2, 3.2, 5.1, 5.2, 6.7, 9.2, 10.2, 12.4, 12.5

18.0 **Basic Agriculture Business Law** – Students understand animal welfare concerns and management practices that support animal

18.1 Understand federal and state animal welfare laws and regulations such as those for abandoned and neglected animals, animal fighting, euthanasia, medical research, etc.

18.2 Understand regulations for humane transport and harvest such as those delineated in the USDA Food Safety and Inspection Service (USDA/FSIS) and the Humane Methods of Slaughter Act.

Anchor Standards: 1, 8.7, 10.1

Career Readiness: 1, 12

CTE Pathway Agriculture and Natural Resources: Animal Science Pathway  
(D) 9.3, 9.4

19.0 **Supervised Occupational Experience** – Demonstration and Application.

19.1 Demonstrate knowledge and experience through work tailored to interests/career emphasis.

Anchor Standards: 3.3, 3.4, 11.4

Career Readiness: 1

20.0 **Commercial Plant Science** – Students understand common rangeland management practices and their impact on a balanced ecosystem.

20.1 **Plant Classification**

20.1.1 Taxonomy and Classification

20.1.2 Plant Identification

20.2 **Plant Physiology and Growth**

20.2.1 Anatomy

20.2.2 Functions

20.2.3 Factors affecting growth

20.2.4 Physiological Processes

20.3 **Plant Reproduction**

20.3.1 Asexual versus Sexual Reproduction

20.3.2 Propagation

20.4 **Plant Pathology**

20.4.1 Entomology

20.4.2 Weed Identification

20.4.3 Integrated Pest Management

20.4.4 Plant Diseases

20.5 **Soil Properties**

20.5.1 Soil Texture, Structure, and Types

20.5.2 Soil and Water Management

20.5.3 Biology

20.5.4 Soil Origins

20.5.5 Irrigation and Drainage

Anchor Standards: 1, 10.1  
Career Readiness: 1  
CTE Pathway Agriculture and Natural Resources: Plant and Soil Science Pathway  
(G) 1.1-1.4, 3.1-3.4, 4.1, 4.2, 5.1-5.5, 6.1, 6.4, 7.1, 7.3, 8.1

21.0 **Current Events in Agriculture** – Understand public concerns for animal welfare in the context of housing, behavior, nutrition, transportation, disposal, harvest.

21.1 Discuss current events in agriculture researched using publications, newspapers, and the Internet.

Anchor Standards: 4.5, 4.7, 7.8, 10.2, 10.4  
Career Readiness: 1, 12  
CTE Pathway Agriculture and Natural Resources: Agricultural Business Pathway  
(A) 6.3, Agriscience Pathway (C) 2.5

22.0 **Agriculture Math** – Probability and Statistics. Organizing data distributions.

22.1 Various mathematical applications integrated in the curriculum including accounting basics, statistics and data sets, judging argument validity, etc.

Anchor Standards: 7.6  
Career Readiness: 1  
CTE Pathway Agriculture and Natural Resources: Agricultural Business Pathway  
(A) 1.4, 1.6, 4.1, 4.2

23.0 **Community Classroom Training** – Various based on site placement.

23.1 Perform specific skills and tasks relevant to the individual site placement.

Anchor Standards: 5.4, 11.1  
Career Readiness: 1  
CTE Pathway Agriculture and Natural Resources: Agricultural Business Pathway  
(A) 8.1-8.3

TEXTBOOK ADOPTION

NAME OF BOOK: AgriScience Explorations, Revised Third Edition &  
Activity Manual

AUTHOR(S): Morgan, Lee, Wilson

PUBLISHER: Pearson

COPYRIGHT DATE: 2009

ISBN #: 978-0-13-362637-7 0-13-362637-7 013362644X

PRICE: \$68.97/\$20.97

DEPARTMENT: Agriculture/ROP

CLASS: Agriculture 1 ROP, Agriculture 2 ROP, Agriculture 3  
ROP, Agriculture 4 ROP, Agriculture 5 ROP

GENERAL DESCRIPTION:

This newly revised edition provides students with a comprehensive introduction to  
the Agriculture industry. Updated photos and easy to understand text introduces  
students to a variety of interesting AgriScience concepts and skills including Agri-  
Science careers, the relationship between Agriculture and Science, how AgriScience  
is applied in the real world, and the meaning of being a professional in the AgriScience  
industry.

ASSURANCE OF SOCIAL APPROPRIATENESS: The selection committee has determined that the materials comply with the State of California Standards for Evaluation of Instructional Materials with Respect to Social Content.

APPROVED BY: Agriculture Advisory Committee

Selection Committee:  
Mark Nower, Roger Dickson

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Curriculum Area Chairperson

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