Course of Study Information Page

Course Title: Agriculture Science 1 #704		
Rationale: Agriculture Science is essential to the survival of humans and animals on this planet and agriculture is a vital industry in California. With a n increasing worldwide population growing environmental concerns, and urbanization of farmlands, it is more important than ever that we prepare students to focus on agriculture in their futures.		
Course Description: Agriculture Science 1 is available to all students who have never taken a vocational agriculture class. It is the first year of a two-year core program. The course introduces students to the basic elements of plant science, animal sconce, agriculture business, California agriculture, leadership and the FFA. Students will have the opportunity to gain field experience through the development of a supervised occupational experience. As a vehicle for developing leadership skills students will be exposed to the FFA and its many opportunities. Upon completion of Agriculture Science 1 and Agriculture Science 2 students will receive life Science credit for graduation.		
How Does This Course Align With or Meet State and District Content Standards? (Please attach a copy of the standards used) – This course meets the State Agricultural standards and follows the Revised California Agriculture Core Curriculum.		
Length of Course:	1 Year	
Grade Level:	9-12	
Credit: X Number of units: 5 credits X Meets graduation requirements Request for UC "a-g" requirements College Prep X Elective X Vocational		
Prerequisites:	None	
Department(s):	Agriculture	
District Sites:	Ponderosa High School	
Board of Trustees Adoption Date:	March 11, 2003	
Textbook(s)/Instructional Materials:	Lee, Jasper S., <i>Agriscience</i> , Interstate Publisher, 3 rd edition, 2003	

Date Adopted by the Board of Trustees: May 20, 2003

Course Title: Agriculture Science 1

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UNIT 1: California Agriculture-Economy of California Agriculture

GOAL: Students shall understand the economic importance of the agricultural sector in

California, including leading production areas and commodities

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Identify the major agricultural production areas of California and list three major commodities produced in each.	California map project
List the dollar value of the five leading agricultural commodities produced in their county.	2. Teacher led discussion
List the dollar value of the five leading agricultural commodities produced in the state.	3. Group project, teacher led discussion
Describe and discuss the economic impact of the agricultural sector on the state and national economy.	4. Current agriculture news
5. Describe and discuss the "cost-price squeeze" and understand its effect on California agriculture.	5. Teacher led discussion

Content Area Standards (Agriculture Content Standards)

The students will achieve the following content standards:

^{1.1} Students will develop an awareness of the interrelationship of California agriculture and society on the local, sate, national and international levels, and will discuss the economic impact of leading commodities.

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UNIT 2: California Agriculture-Agriculture and Society

GOAL: Students shall understand the interrelationship of agriculture and society in California, including factors which influence the development of agricultural activities.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Explain the relationship of the development of agriculture and our modern society in the U.S.	Teacher led discussion
2. List three problems faced by California farmers caused by population shifts and social technological trends.	2. Teacher led discussion
List five government agencies which influence and affect agricultural production in California	3. Teacher led discussion

Content Area Standards (Agriculture Content Standards)

The students will achieve the following content standards:

1.1 Students will develop an awareness of the interrelationship of California agriculture and society on the local, sate, national and international levels, and will discuss the economic impact of leading commodities.

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UNIT 3: California Agriculture-Agriculture and California Resources

GOAL: Students shall understand the impact of agricultural production on the environment

and natural resources of California. Students will develop an appreciation of energy, its effects on modern agriculture and current and potential applications of alternative

sources of energy available to the field today.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Define the economic effects of air pollution on agricultural production in California.	Newspaper articles and research
2. Describe the major watersheds of California	2. Teacher led discussion
Identify the major water quality and pollution problems in California.	3. Internet research
4. Identify the major forest regions of California.	4. Map project
5. List three environmental effects of production agriculture in California.	5. Partner presentation
6. Begin to appreciate the role of farmers and ranchers as stewards of natural resources.	6. Guest speaker
7. Identify the major sources of energy in California.	7. Teacher led discussion
Describe three ways agriculture is using alternative energy.	8. Internet research

(Content Area	Standards	(Agriculture	Content Standards)

The students will achieve the following content standards:

1.2 Students will understand the interrelationship of modern agriculture and the environment, focusing on water, land and other natural resources in California. Students will explain how natural resource availability affects agriculture.

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UNIT 4: Animal Science-Domestic Animals and Production

GOAL: Students will understand the importance of domestic animals and their roles in modern society.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Describe the importance of animal domestication.	1. Teacher led discussion
Identify within each domestic species four livestock enterprises that are part of production agriculture in the United States.	2. Library research
Discuss animals through a full production cycle	3. Class project

Content Area Standards (Agriculture Content Standards)
The students will achieve the following content standards:
1.11 Students will understand the importance of animals, their domestication and role in modern society. Students will explain the care and uses of domesticated livestock in society.

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UNIT 5: Animal Science-Animal Behavior and Biology

GOAL: Students shall develop a basic understanding of animal behavior, morphology,

taxonomy, general reproductive traits and natural selection.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Using correct spelling; label the external anatomy of at least four domestic animals of economic significance.	1. Student lab
Visually identify external parts of live farm animals.	2.Hands on lab
Identify the major components of the various cells, spelling each name correctly	3. Teacher led discussion, cell drawing
4. Identify both plant and animal cells	4. Laserdisc presentations
Identify the location for and correctly spell the names of each of the major cell components.	5. Lab
Prepare various slides for viewing of cells under the microscope	6. Cell lab
7. Compare and contrast the basic structure of plant and animal cells to the different functions of each	7. Group project

l	Content Area Standards (Agriculture Content Standards)		
	The students will achieve the following content standards:		
	1.12 Students will understand the anatomy of the major body systems. Students will explain the major		

function so the digestive, reproductive, circulatory, nervous, muscular, skeletal, respiratory and endocrine systems.

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UNIT 6: Animal Science-Anatomy/Physiology

GOAL: Students will develop a basic understanding of the structure, function and

maintenance of the manor mammalian body systems and their components using

examples draw from humans as well as animals of economic importance.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Label the six major organs found in the reproductive tracts of farm animals and the human.	Build reproduction tracts
Describe the function of the major organs found in the mammalian reproductive tract.	2. Lab and teacher led discussion

Content Area Standards (Agriculture Content Standards)

The students will achieve the following content standards:

^{1.12} Students will understand the anatomy of the major body systems. Students will explain the major function so the digestive, reproductive, circulatory, nervous, muscular, skeletal, respiratory and endocrine systems.

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UNIT 7: Animal Science- Nutrition and Feeds

GOAL: Students shall develop an understanding of the factors involved in animal nutrition, animal feeding, and the basic feedstuffs available for that purpose.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
List the six classes of nutrients and identify examples of feeds containing each	1. Teacher led discussion
Have a basic understanding of the function of each nutrient needed by livestock	2. PowerPoint from Nutrena Feeds

Content Area Standards (Agriculture Content Standards)
The students will achieve the following content standards:
1.14 Students will understand the factors influencing animal nutrition and feeding. Students will identify

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UNIT 8: Animal Science-Animal Health

GOAL: Students shall understand the concept of animal health and become familiar with

methods of identification of unhealthy animals, treatment, preventive measures and the causal agents of common health problems in animals of economic importance.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
List the predisposing conditions that bring on animal health problems	1. Teacher led discussion
Identify ways in which infections agents gain entrance and do harm to the animal	2. Teacher led discussion and guest speaker
3. Explain how antibodies are formed and how animals become immune to disease.	3. Teacher led discussion
List three biological preparations used for disease control.	4. Teacher led discussion
5. Read and use information on medication labels.	5. Teacher led discussion
List several ways that disease can be transmitted.	6. Guest speaker

Content	Area Standards	(Agriculture	Content Standards)
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The students will achieve the following content standards:

1.15 Students will identify general symptoms of animal health problems and will understand the causes of disease in domestic animals. Students will recognize a sick animal, describe its symptoms and recommend treatment.

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UNIT 9: Animal Science- Livestock Evaluation and Selection

GOAL: Students will develop an appreciation for the factors involved in and the ability to

evaluate and select livestock for specific uses.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
List four uses of livestock evaluation for the producer.	1. Teacher led discussion
Differentiate between ideal meat animal types and old-fashioned meat animal types for two market species using live animals or photos.	2. Guest speaker
3. Evaluate two species of livestock on a comparative basis, in groups of four, using live animals or photos.	3. Hands on lab

Content Area Standards (Agriculture Content Standards)

The students will achieve the following content standards:

1.13 Students will understand the basic theory of inheritance, the genetic basis for animal selection, the process of fertilization, and the process of meiosis and mitosis. Students will explain and/or diagram these concepts and processes.

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UNIT 10: Plant Science- Basic Botany

GOAL: Students shall understand growth and development of plants, including the function of plant parts, reproductive systems, and auxins.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Identify plant parts including roots, leaves, stem, fruit, and flower.	1. Hands on lab
Describe the general function of each of the above listed plant parts.	2. Teacher led discussion
3. Explain the functions of the root, leaf, stem, fruit, and flower.	3. Lab
List necessities of mans life that are furnished by plants.	4. Video

Content Area Standards (Agriculture Content Standards)		
The students will achieve the following content standards:		
1.17 Students will understand the requirements for plant growth and development. Students will identify and explain the functions of plant systems and structures.		

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Course Title: Agriculture Science 1

UNIT 11: Plant Science- Soils

GOAL: Students will understand the role of soil in plant production including factors that

affect soil productivity.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Discuss the function of soil as related to plant growth, development, and maintenance.	1. Teacher led discussion
List the basic types of soil texture and structure.	2. Demonstration
3. Describe soil texture and understand its importance to soil tilth, water use and fertility needs.	3. Teacher led discussion
4. Collect and test a soil sample.	4. Lab
5. List four types of soil erosion.	5. Video
Describe management practices that aid in erosion control.	6. Group project
7. Describe the importance of conversation tillage methods in controlling soil erosion.	7. Teacher led discussion

Content Area Standards (Agriculture Content Standards)	
The students will achieve the following content standards:	
1.16 Students will understand the role of soil, water and fertilizer in plant production.	

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UNIT 12: Plant Science- Plant Nutrition

GOAL: Students shall understand the role of fertilizers in agricultural production.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
List the primary, secondary and micronutrient materials.	1. Teacher led discussion
2. List a source for each of the primary elements.	2. Teacher led discussion
List three advantages each of organic and inorganic fertilizers.	Guest speaker and teacher led discussion

Content Area Standards (Agriculture Content Standards)		
The students will achieve the following content standards:		
1.17 Students will understand the requirements for plant growth and development. Students will identify and explain the functions of plant systems and structures.		

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UNIT 13: Plant Science- Irrigation

GOAL: Students shall understand the importance of irrigation in the growth and development of plants as well as water's impact on the agriculture industry.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Name four types of irrigation systems.	1. Teacher led discussion
2. Demonstrate two methods of irrigating a plant.	2. Demonstration
3. Define and explain, field capacity, saturation, wilting point, permanent wilting point, and available water.	3. Teacher led discussion
Explain three ways of determining when to irrigate.	4. Teacher led discussion.
5. Explain and demonstrate the concept of water holding or field capacity of different soils.	5. Lecture
6. Discuss acre inch, acre foot, water penetration, and water holding capacity.	6. Lecture and worksheet
7. Discuss the importance of choosing land for irrigation, obtaining water, water quality, and the importance of drainage.	7. Teacher led discussion

Content Area Standards (Agriculture Content Standards)	
The students will achieve the following content standards:	
Enrichment	

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UNIT 14: Agricultural Business Management- Record Keeping

GOAL: Students will understand the importance of keeping accurate records and explain the

consequences of inaccurate records. Students will maintain and complete the California Agricultural Record Book that pertains to their Supervised Agricultural

Experience Program.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
1. List the reasons for keeping records.	1. Lecture
Maintain and complete the following in the California Farm Account Book:	2. California Farm Account Book
Calendar of Operations	
Business Agreements	
Budget	
Journals	
Depreciable and Non-Depreciable Property	
Financial Statement	
Income Summary	
FFA, School, and Community Service Activities	
3. List the purposes of an inventory.	3. Discussion

Content Area Standards (Agriculture Content Standards)		
The students will achieve the following content standards:		
Students will understand the importance of keeping accurate records and explain the consequences of inaccurate records. Students will maintain and complete the California Agricultural		
Record Book which pertains to their Supervised Occupational Experience Program.		

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Course Title: Agriculture Science 1

UNIT 15: Agricultural Business Management- Computers

GOAL: Students will understand the basic concepts of computer literacy and appreciate the role of computer applications in agriculture.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Give five examples of the use of computers in agriculture business.	1. Teacher led discussion
Describe the benefits of a personal computer in making decisions.	2. Group discussion
Appreciate the value of computer skills as related to pursuing and agricultural career.	Compare and contrast discussion
List three ways to keep informed about developments in computers and their applications.	4. Lecture
5. Give four examples of the capabilities or applications of computers.	5. Teacher led discussion
Demonstrate mastery of basic computer technology.	6. Definition discussion
7. Demonstrate the six components of a personal computer and the function of each component.	7. Demonstration lab
Describe the difference between program and data files.	8. Discussion

Content Area Standards (Agriculture Content Standards)		
The students will achieve the following content standards:		
1.5 Students will understand the importance of computer literacy as it pertains to agriculture.		

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UNIT 16: FFA Leadership Development

GOAL: Students shall appreciate the wide variety of leadership training activities available

through the FFA organization.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
List, explain, and/or recite the following materials needed to become an FFA member:	Teacher led discussion, group work, and worksheets.
a. a short history of the FFA	
b. creed	
c. motto	
d. colors	
e. emblem	
f. kinds of membership	
g. aims and purposes	
h. the FFA salute	
i. dress code	
j. wearing the FFA jacket	
k. code of ethics	
Receiving the Greenhand degree	
List and describe FFA awards available to members.	2. Teacher led discussion
Identify contests in which voc-ag students may participate.	3. Internet research
4. List the requirements for earning the Chapter FFA degree, State FFA degree, and American FFA degree.	Teacher led discussion and worksheet completion.
5. Identify regional, state, and national current information.	Teacher led discussion and official manual use.

Content Area Standards (Agriculture Content Standards)

The students will achieve the following content standards:

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UNIT 17: FFA Leadership Development- Parliamentary Procedure

GOAL: Students shall develop an understanding and appreciation of the principles and

application of parliamentary law in today's society.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Define Parliamentary procedure	Teacher led discussion
Ascertain the basic concepts of parliamentary law	Parliamentary procedure practice and packet
Discuss the evolution of parliamentary procedure	3. Teacher led discussion
Use effective parliamentary law within a contest structure.	Parliamentary procedure practice and packet

Content Area Standards (Agriculture Content Standards)

The students will achieve the following content standards:

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UNIT 18: FFA Leadership Development- Communications

GOAL: Students shall appreciate the important role that communication skills play in

developing leadership abilities.

OBJECTIVES	SUGGESTED ACTIVITIES	
The student will:		
List, explain, and/or recite the following materials needed to become an FFA member:	Teacher led discussion, group work,	
-history of the FFA		
-creed, -aims an purposes		
-motto, -FFA salute		
-colors, -dress code		
-emblem, wearing the FFA jacket		
-membership, -code of ethics		
-receiving the Greenhand degree		
List and describe FFA awards available to members.	Teacher led discussion and internet search	
3. Identify contests in which voc-ag students may participate.	3. Teacher led discussion and internet search	
4. List the requirements for earning the Chapter, state and American degree.	Teacher led discussion and worksheet	
Identify regional, state and national current information.	5. Teacher led discussion and internet search	

Content Area Standards (Agriculture Content Standards)

The students will achieve the following content standards:

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UNIT 19: FFA Leadership Development- Critical Thinking

GOAL: Students shall understand the basic concepts of scientific inquiry and critical

thinking.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
1. List the five characteristics of a critical thinker.	1. Lecture
2. Be able to recognize when a problem exists.	Role playing, FFA, SOEP and Parliamentary Procedure.
3. Be able to specifically identify the problem.	Role playing, FFA, SOEP and Parliamentary Procedure.
Define and describe the scientific method for problem solving.	Role playing, FFA, SOEP and Parliamentary Procedure.
5. Identify the information needed to solve the problem.	5. Role playing, FFA, SOEP and Parliamentary Procedure.
6. Identify how to locate specific information related to the problem.	Role playing, FFA, SOEP and Parliamentary Procedure.
7. List possible solutions to a problem.	7. Role playing, FFA, SOEP and Parliamentary Procedure.
8. Evaluate the consequences of alternative solutions.	Role playing, FFA, SOEP and Parliamentary Procedure.
9. Be able to determine the best solution among the alternatives.	Role playing, FFA, SOEP and Parliamentary Procedure.
10. Define discussion, disagreement, argument, inference, counterexample and propaganda.	10. Role playing, FFA, SOEP and Parliamentary Procedure.

Content Area Standards (Agriculture Content Standards)

The students will achieve the following content standards:

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UNIT 20: Supervised Agricultural Experience Program

GOAL: Students shall appreciate the importance of Supervised Agricultural Experience

Programs in the total program of agricultural education.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
1. Define SAEP.	Teacher led discussion
Describe the relationship between SAEP and the total program of agricultural education.	2. Teacher led discussion and internet search
3. Identify and list the benefits of SAEP.	FFA students as guest speakers
4. Describe the types of SAEP.	Teacher led discussion and FFA students as guest speakers
5. Identify and discuss the purpose and characteristics of an SAEP plan.	5. Teacher led discussion
6. Describe how a person can get started in a SAEP.	Teacher led discussion, SAEP plan worksheet and student data sheets
7. Develop a long-range SAEP plan.	7. Teacher led discussion, SAEP plan worksheet and student data sheets
8. Record all transactions and activities pertinent to the student's SAEP and FFA activities in the California Vocational Agriculture Record Book.	8. Record book recording

(Content Area	Standards	(Agriculture	Content Standards))

The students will achieve the following content standards:

1.7 Students will understand the relationship between a supervised occupational experience (SOE) and their preparation for a career in agriculture. Students will actively engage in and manage a SOE which enables them to develop occupational skills.

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UNIT 21: Employability Skills- Job Search Resources

GOAL: Students will develop knowledge of job search techniques and resources available to

the job seeker.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Locate, read, and understand want ads and posted vacancies.	Newspaper analysis
Identify the uses and locations of local private and/pr public employment agencies.	2. Teacher led discussion
3. Write a letter of inquiry for a specific job.	Demonstration letter provided
Become familiar with resources for learning about career options and become experienced with those resources.	4. Research
5. Complete a career search summary.	5. Internet research

Content Area Standards (Agriculture Content Standards)	
The students will achieve the following content standards:	

^{1.8} Students will be award of existing and future employment opportunities in the field of agriculture and will develop an understanding of how to conduct a job search, write a resume, and interview for a job.

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UNIT 22: Careers, Career Options

GOAL: Students will become aware of career opportunities available, skills required for different occupations, and the importance of work to the individual and society.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Explain the importance of work to the individual and society.	1. Teacher led discussion
2. Identify 12 potential ag or ag-related careers.	2. Teacher led discussion, internet research
3. Identify 4 potential local or Ag related careers.	Teacher led discussion and library research
Describe economic and technological trends which may affect the work environment.	4. Research USDA website
5. Identify ways in which employees may have to adapt to a changing work environment.	5. Interview an employer

Content Area Standards (Agriculture Content Standards)
The students will achieve the following content standards:
1.8 Students will be award of existing and future employment opportunities in the field of agriculture and will develop an understanding of how to conduct a job search, write a resume, and interview for a job.

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UNIT 23: Careers, Occupational Goals

GOAL: Students will develop a tentative occupational goal and will begin to plan steps

appropriate to achieving the stated goal through the career plan.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
Identify and describe a career interest of interest in an ag or ag related occupation.	Personality tests, career exploration
2. Analyze the skills, abilities, and education required to gain entry into the student's occupational choice.	2. Complete an analysis paper
Develop a plan of action for accomplishing an occupational objective (career plan).	3. Complete goal worksheet

Content Area Standards (Agriculture Content Standards)
The students will achieve the following content standards:
1.8 Students will be award of existing and future employment opportunities in the field of agriculture and

1.8 Students will be award of existing and future employment opportunities in the field of agriculture and will develop an understanding of how to conduct a job search, write a resume, and interview for a job.

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UNIT 24: Agricultural Mechanics- Tool Use and Safety

GOAL: Students will understand the operating principles of common tools used in agriculture. Students will demonstrate safe and appropriate use of tools.

OBJECTIVES	SUGGESTED ACTIVITIES
The student will:	
1. Identify tools: chisel, draw hammer, drills, garden rake, hand shears, hand trowel, hoe, level, pliers, post hold digger, ratchet, saws, screwdrivers, shovel, sockets, wrenches.	Teacher led demonstration, guest speaker
Select and justify the tools appropriate for a given project.	2. Teacher led demonstration, guest speaker
3. Explain safety procedures in the use of hand and power tools including; proper clothing, eye, hearing, and respiratory protection	3. Teacher led discussion and safety video

Con	tent Area Standards (Agriculture Content Standards)
The students will achieve th	e following content standards:
1.10 Students will understa	nd the operating principles of common tools used in agriculture and will

1.10 Students will understand the operating principles of common tools used in agriculture and will understand the principles of safety that apply to them.