

Chino Valley Unified School District

High School Course Description

CONTACTS	
1. School/District Information:	School: Chino Valley Unified School District Street Address: 5130 Riverside Dr., Chino, CA 91710 Phone: (909) 628-1201 Web Site: chino.k12.ca.us
2. Course Contact:	Teacher Contact: Samantha Valverde Position/Title: Agriculture Teacher Phone: (909) 591-3902 ext. 4579 E-mail: samantha_valverde@chino.k12.ca.us
A. COVER PAGE - COURSE ID	
1. Course Title:	Agriculture Science
2. Transcript Title/Abbreviation:	Ag Science
3. Transcript Course Code/Number:	5E09
4. Seeking Honors Distinction:	No
5. Subject Area/Category:	science
6. Grade level(s):	9-12
7. Unit Value:	5 units per semester/ 10 total credit – physical science
8. Was this course previously approved by UC?	Yes
9. Is this course classified as a Career Technical Education course:	Yes
10. Is this course modeled after an UC-approved course?	Yes
11. Repeatable:	No
12. Date of Board Approval:	July 17, 2014
13. Brief Course Description: Agriculture Earth and Physical Science is a course designed to develop a scientific viewpoint in students and provide each student with a background in earth and physical science as it relates to agriculture. Students will obtain this understanding through the exploration of our solar system, astronomy, plate tectonics, atmosphere, alternative energy sources, weather, climate, oceanography and California geology. Participation in the FFA organization and hands-on projects are integral parts of this class. Students will have access to up-to-date laboratory equipment, science equipment, agriculture teaching lab and technology. This course is aligned to State adopted content standards in science and agriculture. Students will be participating regularly in both lab and lecture situations. Homework will include reading, writing, lab reports and field studies. In addition students will be involved in many interdisciplinary connections including geography with earth sciences, and English with presenting, speaking, and technical reading and writing.	
14. Prerequisites:	none
15. Context for Course:	
16. History of Course Development:	
17. Textbooks:	Prentice Hall Earth Science E.J. Tarbuck, F.K. Lutgens 2006
18. Supplemental Instructional Materials:	
B. COURSE CONTENT	
Course Purpose: This course provides students with an agriculture laboratory class that fulfills the state graduation requirement for physical science and fulfills an entrance requirement for the UC/CSU level schools. This course creates a platform of introductory agriculture knowledge for choosing a pathway for future agriculture courses.	

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Course Outline:

1. Physical/Earth Science basics.
 - a. Science and the scientific method.
 - b. Lab safety.
 - c. Measurement.
 - d. Graphing.
2. Agriculture, Society and Technology.
 - a. Local, State, National, International Agriculture.
 - b. Technology in Agriculture science.
3. Leadership and record keeping.
 - a. FFA
 - b. SAE
 - c. California Agriculture Record Book.
4. Earth Materials.
 - a. What is a mineral?
 - b. Mineral identification.
 - c. Uses of minerals.
 - d. Rock cycle.
 - e. Types of rocks.
 - f. Weathering.
 - g. Soil types.
 - h. Soil loss (erosion).
 - i. Soil management/conservation.
5. Sculpturing Earth's Surface.
 - a. Weathering, soil and mass movements.
 - b. Classification of matter.
 - c. Running water.
 - d. Glaciers, desserts, wind.
 - e. Agricultural erosion.
6. Interactions of Matter.
 - a. Solutions.
 - b. Chemical reactions.
 - c. Radioactivity/Nuclear Reactions.
 - d. Agriculture/Commercial chemistry applications.
7. Earth's History
 - a. Fossils.
 - b. Extinction of Dinosaurs.
 - c. Relative and absolute ages of rocks.
 - d. Evolution and geological time.
 - e. Present day rapid extinctions.
 - f. Early earth history.
 - g. Middle and recent earth history.

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8. Oceanography

- a. Ocean floor, features, sediments, resources
- b. Ocean water, life, productivity
- c. Ocean circulation
- d. Ocean waves and tides
- e. Shoreline process and features
- f. Agriculture aquaculture and ocean preservation

9. Weather and Climate.

- a. Earth's atmosphere.
- b. Ozone.
- c. Energy from the sun.
- d. Air movement.
- e. Differentiating climate and weather.
- f. Weather patterns.
- g. Forecasting.
- h. Global warming.
- i. Origin and composition.
- j. Ocean currents.
- k. Ocean waves and tides.
- l. Tapping tidal energy.
- m. Shorelines.
- n. Sea floor.
- o. Season's growing degree days.
- p. Frost protection-inversions, heat concept.
- q. Zones, temperate, tropical, polar.
- r. Natural vegetation vs. agricultural use.
- s. Factors affecting climate.
- t. Surface features and their relationship to climate.

10. Earth Processes.

- a. Structure of the earth.
- b. Science and new ideas.
- c. Continental drift.
- d. Plate tectonics.
- e. Earthquake information.
- f. Destruction by earthquakes.
- g. Living on a fault.
- h. Volcanoes and plate tectonics.
- i. Geothermal Energy from volcanoes.
- j. Eruptions and forms of volcanoes.
- k. Volcanic features.
- l. Contour maps.

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11. Astronomy.

- a. Stars and galaxies.
- b. Spaceship earth concept.
- c. Ecology.
- d. Ag Policy.
- e. Chemicals.

12. FFA Leadership Development Activities

- a. Judging teams
- b. Committees and offices
- c. Parliamentary procedure
- d. Community Service Project

13. Agriculture Careers

- a. Agriculture job opportunities in the future
- b. Career Identification
- c. Basic employment skills
- d. Completing applications
- e. Resume construction
- f. Interviewing skills

Course Objectives:

- A. Students will apply the scientific method to solve a problem.
- B. Students will design an experiment and articulate a conclusion.
- C. Students will demonstrate safe lab practices and care of equipment.
- D. Students will write lab reports and present them to class.
- E. Students will diagram an atom using the Bohr model.
- F. Students will identify elements utilizing their properties and characteristics.
- G. Students will depict the relationship between the state of matter and matter.
- H. Students will balance chemical equations.
- I. Students will utilize ph paper to test solutions and identify acids and bases.
- J. Students will solve equations using $v=d/t$ to arrive at velocity, distance, or time.
- K. Students will solve equations using $F=ma$ to calculate force, mass, or acceleration.
- L. Students will diagram the transfer of heat energy to mechanical energy.
- M. Students will simulate the direction of an object's motion with respect to momentum.
- N. Students will develop models showing the relationship between force, work and power.

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- O. Students will represent graphically how plate tectonics drives the earth's process.
- P. Students will draw, label, and interpret the "Ring of Fire".
- Q. Students will collect samples and interpret the rock cycle and various rock types.
- R. Students will identify minerals.
- S. Students will classify soils.
- T. Students will trace the path of energy as solar radiation.
- U. Students will chart weather tidal influences and predict climactic changes.
- V. Students will label and describe parts of the sun, planets and solar system.
- W. Students will lead a meeting, class discussion and group activity.
- X. Students will sketch California's natural resource base and relate its productive capabilities.
- Y. Students will keep accurate records of field visits labs, and SAE's.
- Z. Students will complete science research including agriculture and career investigations.

Key Assignments:

Laboratory Experiences:

- a. Scientific Method.
- b. Home Metrics.
- c. Measuring Density.
- d. Measuring Tools.
- e. Displacement Lab.
- f. Metric Mass lab.
- g. Water laboratory.
- h. Measuring Electrical Energy.
- i. Velocity and Momentum.
- j. Electric Currents.
- k. Vibration Lab.
- l. Energy to Melt Ice.
- m. Candle Changing States.
- n. Properties of Matter.
- o. Atom Model Lab.
- p. Balancing Chemical Equations.
- q. Fertilizer Tag Lab.
- r. Acid/base Lab.
- s. Earth Movements- Dating rocks.
- t. Differences in Species Lab.
- u. Rock and Mineral Identification.
- v. Effects of Erosion.
- w. Soil Infiltration, Water Holding Capacity

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- x. Soil Testing, pH
- y. Growing Seasons Lab.
- z. Weather and Climate Charting.
- aa. Earth Layers Lab.
- bb. Plate Tectonics Lab.
- cc. Mapping Lab.
- dd. Orbits and Gravitational Pull.

Instructional Methods and/or Strategies:

- 1. Lecture and class discussion.
- 2. Cooperative group work at lab stations.
- 3. Field studies with accompanying journals.
- 4. Guest Speakers.
- 5. Written and oral reporting skills.
- 6. Technical reading and writing assignments.
- 7. Use of Technology and equipment.

Assessment Including Methods and/or Tools:

- 1. Written Exams.
- 2. Quizzes.
- 3. Laboratory Investigations.
- 4. Research Projects.
- 5. Class Work.
- 6. Homework.
- 7. Notebook.