

# El Monte Union High School District

## Course Outline

5/11/2011

### High School: District

Title: Sup Earth Science

Transitional\* \_\_\_\_\_ (Eng. Dept. Only)

Sheltered (SDAIE)\* \_\_\_ Bilingual\* \_\_\_

AP\*\* \_\_\_\_\_ Honors\*\* \_\_\_\_\_

Department: Science

Grade Level (s): 9 - 12

Semester \_\_\_\_\_ Year X

Year of State Framework Adoption   

This course meets graduation requirements:

- English
- Fine Arts
- Foreign Language
- Health & Safety
- Math
- Physical Education
- Science
- Social Science

Department/Cluster Approval

Date

Department/Cluster Approval	Date
_____	_____
_____	_____
_____	_____
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\*Instructional materials appropriate for English language learners are required.

\*\*For AP/Honors course attach a page describing how this course is above and beyond a regular course. Also, explain why this course is the equivalent of a college level class.

### 1. Prerequisite(s):

Student should be in the 9<sup>th</sup>, 10<sup>th</sup>, 11<sup>th</sup>, or 12<sup>th</sup> grade with a current Individual Educational Plan (IEP, which will identify their need to be enrolled in a Special Education Science course.

**\*Completion of Intro to Physical Science with a grade of “C” or better.**

### 2. Short description of course, which may also be used in the registration manual:

This support course is designed to provide students with an individualized program of study in alignment with the student’s IEP, core curriculum and state standards. This support course will introduce the high school student to Earth Science through lecture and laboratory activities. It will provide a balance between the study of physical and historical geology, meteorology, oceanography, and astronomy. Students will also explore societal issues such energy shortages, earthquake and hurricane

prediction, and resource management. Students wishing to apply to a UC/CSU must achieve a minimum grade of “C” in this course to meet P elective credit.

**3. Describe how this course integrates the schools ESLRS (Expected School-wide Learning Results):**

The following ESLRS will be integrated:

- Be effective communicators:
  - Students will use word processing and presentation programs to present their work.
  - Students will use computers for research and development of projects.
  - Students will receive supervised Internet instruction and utilize the net as a tool to assist them in their class work.
  
- Be ethical and responsible individuals:
  - Students will be expected to be in class on time and prepared to work.
  - Students will be expected to complete assignments on time and submit quality work.
  - Students will be expected to assume personal responsibility for their work.
  
- Be critical thinkers and self-directed learners:
  - Students will understand the process of goal setting and develop a personal plan for high school and beyond.
  - Students will conduct lab investigations that present problems to solve and use critical thinking skills.
  
- Be healthy individuals:
  - Students will learn and follow all laboratory safety rules and procedures.
  - Students will learn how to apply scientific concepts to improve their health.
  - Students will apply topics in physiology and ecology to their lives in order to make healthy lifelong choices.
  
- Be active community participants:
  - Students will be encouraged to respect diverse cultures within the classroom setting.
  - Students will be given opportunities to participate in school clubs and activities that respect cultural diversity.
  - Students will learn to work cooperatively with each other in groups when doing labs and projects.
  - Students will develop working relationships across gender and cultural groups.

**4. Describe the additional efforts/teaching techniques/methodology to be used to meet the needs of English Language Learners:**

- SDAIE (Specially Designed Academic Instruction in English) strategies will be incorporated into lessons
- Vocabulary development will be emphasized

- ELL supplementary materials will be incorporated into the lessons
- Glossaries will be used as available
- Visuals/manipulative will be used

**5. Describe the interdepartmental articulation process for this course:**

When applicable, the science department is willing to work with other departments to coordinate student work on course projects. All students take a Tech Core class for an introduction to computer applications. The individual departments then build computer skills through assigning various projects requiring Power Point Presentation, Word Processing, Spreadsheet, and Graphing. The Media Center provides class instruction on computer applications and research when needed.

**6. Describe how this course will integrate academic and vocational concepts, possibly through connecting activities. Describe how this course will address work-based learning/school to career concepts:**

Students will be exploring career pathways and employment requirements within the Earth sciences.

**7. Materials of Instruction (Note that materials of instruction for English Language Learners are required and should be listed below.)**

A. Textbook(s) and Core Reading(s):

B. Supplemental Materials and Resources: (see attached lab equipment list)

- Supplementary materials provided by the publisher of the text
- A sufficient supply of standard chemicals and specimens, as necessary.

C. Tools, Equipment, Technology, Manipulation, Audio-Visual:

Visual presentations will be made using overhead transparencies, videos, models, and/or presentations with LCD projector. A variety of standard glassware and laboratory equipment including triple-beam and/or electronic balances, hotplates, rock/mineral identification kits, topographic maps, will be used during the practical exercises. Standard computer technologies including MS Office, web browsers, and other 3<sup>rd</sup> party software will be used as necessary.

**8. Objectives of Course and Student performance Standards. (Includes references to State Science Standards)(By the end of this course, the student will be able to/be certified to/have the following skills):**

- Unit detail including projects and activities including duration of units (pacing plan): **(Pacing Plan Attached)**
- Indicate references to state framework(s)/standards (If state standard is not applicable then national standard should be used): **(See Student Performance standards below)**
- Student performance standards:

All students are expected to have an understanding of common laboratory safety procedures as demonstrated by their use during practical laboratory activities. Practical laboratory activities must consist of a minimum of 20% of the regular instructional time. (Ex. 2-3 days of a traditional schedule per 2-3 week period.)

**Standards**

**Astronomy:** (The student will be able to...)

- 1d, f  
I&E: 1n
  - 2a,b, g
  - 1a,b,c,f,  
4d
  - 1e,g,  
2d, I&E: 1j
  - 1d,  
2c,e, f
- a. explore the origins of modern astronomy. Relate how the telescope evolved and how we use other technology to enhance the use of the telescope and the understanding of the universe.
  - b. describe the origin (big bang theory) of the universe and its future.
  - c. describe the structure and birth (nebular theory) of the solar system. Differentiate between terrestrial and Jovian planets.
  - d. describe the structure and location of our sun. Create a scaled model of the solar system.
  - e. describe the properties and life cycles of stars the fate of the universe.

**Standards**

**Earth's Materials** (The student will be able to...)

- 3c
  - 3c,  
7a,b, c, d
  - 4a,c, 8c, 9a
- a. identify common rock forming minerals and describe how they are formed.
  - b. identify the three rocks families and explain the geological processes that form them.
  - c. recognize the importance of energy and mineral resources. They will know the different ways that energy is produced. Know the major ecological impact humans have on air and water resources. Recognize alternative choices to reduce the impact of human consumption of these resources, including the impact on California.

**Standards**

**Forces Within the Earth:** (The student will be able to...)

- 3a,b, d, f
- a. understand the Earth around them in terms of the unifying theory of plate tectonics. Know the three plate boundaries and the significance of their geological features.

- 3d, 9b,c                    b. describe the effects and formation of earthquakes. Define and explain how earthquake waves provide information about the Earth's interior. Identify earthquake prone areas in California.
- 3e,f, 9b, c                c. explain the formation and classification of the three types of volcanoes. Identify the location of volcanoes in California.

**Standards**

**Sculpturing Earth's Surface:** (The student will be able to...)

- 3b,c, 9b                    a. recognize the tectonic forces that build up the Earth's crust.
- 7a, 7b                      b. describe the processes and results of physical and chemical weathering. Know how soil erosion has negatively impacted soil use and formation .
- I&E: 1a,h                    c. read and interpret topographic maps. Recognize the use of satellite imagery to help study the Earth's surface features.

**Standards**

**Meteorology:** (The student will be able to...)

- 4b, 6a, 8a,c                a. recognize the structure and temperature of the atmosphere. Describe the greenhouse effect and the effect it has on Earth.
- 5a,b, c, e, f, g            b. demonstrate basic knowledge and understanding of wind patterns and air mass and how water moves in the atmosphere in a cyclic pattern. Describe and identify cloud types. Identify different storm types and how air mass is involved in the formation of a storm.
- 6b
- 4c, 5e, 6a,b, c, d        c. identify factors that affect climate. Recognize the human impact on climate and weather such as the ozone hole and global warming.

**Standards**

**Oceanography:** (The student will be able to...)

- 3a                            a. recognize the geological features of the ocean floor.
- 5d                            b. describe the mineral composition of seawater and the biodiversity of ocean life according oceanic zones.
- 5a,b, d, 6b                c. recognize major oceanic circulation patterns, depositional features caused by tides and waves, and erosion caused by waves. Describe the gravitational effect the moon has on tides. Explain and diagram the positions of moon, sun, and Earth during spring and neap tides.

## **Standards**

## **Historical Geology:** (The student will be able to...)

- |             |   |
|-------------|---|
| 1c, I&E: 1i | a. recognize the key principles of geologic time. Determine the age of rocks and correlate different rock units using relative/absolute time and fossils.                                     |
| 1c,f,6c, 8b | b. understand the geologic time scale and recognize major geological events. Describe the major changes that have occurred during Earth's history and note that the Earth is always changing. |

## **Evaluation/assessment/rubrics including minimal attainment for student to pass course:**

**“A”-level work (90-100%):** (Excellence overall; no major weaknesses).

This student demonstrates real achievement in grasping scientific thinking, along with development of specific geological thinking skills and abilities. This student's work is clear, precise, and well reasoned.

**“B”-level work (80-89%):** (Moderate level of understanding and skill in geological thinking with some distinctive weaknesses; more strengths than weaknesses).

This student demonstrates a good level of achieving scientific thinking with occasional areas of weakness. This student's work is essentially clear and precise with occasional lapses into weak reasoning.

**“C”-level work (70-79%):** (More than a minimum level of understanding and skill in geological thinking, but highly inconsistent with as many weaknesses as strengths).

This student demonstrates a mediocre level of achieving scientific thought with pronounced areas of weakness. This student's work is inconsistent and shows only modest skills and reasoning.

**“D”-level work (60-69%):** (Minimal level of understanding and skill in biological thinking).

This student demonstrates a lack of clarity and discipline and appears to be only going through the motions. This student's work does not show good scientific reasoning and skills and only rarely show any attempt to take charge of ideas.

**“F”-level work (59% and below):** (Far below minimal level of understanding and skill in geological thinking).

This student does not display any discernable scientific reasoning. This student failed to do the required work of the course, even at a level-approaching standard.

In this course, there will be standards-based 6, 12, 18 week exams to assess student achievement.