

**CALIFORNIA STATE UNIVERSITY SAN MARCOS  
COLLEGE OF EDUCATION  
EDMS 545B – Science Education in Elementary Schools CRN 21055  
Spring 2011 – Meeting Time: Mondays 1.00 – 3.45 p.m.  
University Hall 460**

### General Information

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Office Hours: Before and after class. Other times are also available by appointment. Please feel free to call or email me to set up a convenient time to meet.

### Mission Statement

The mission of the College of Education Community is to collaboratively transform public education by preparing thoughtful educators and advancing professional practices. We are committed to diversity, educational equity, and social justice, exemplified through reflective teaching, life-long learning, innovative research, and ongoing service. Our practices demonstrate a commitment to student-centered education, diversity, collaboration, professionalism, and shared governance.

### Required Textbooks:

- Friedl, A.E. & Koontz, T.Y. (2005). *Teaching Science to Children. An Inquiry Approach, 6<sup>th</sup> Ed.* NY: McGraw-Hill. **PLEASE BRING TO EACH CLASS**
- California Department of Education (1998). *Science Content Standards for California Public Schools.* Sacramento, CA: CDE. <http://www.cde.ca.gov/BE/ST/SS/documents/sciencestnd.pdf>  
**PLEASE BRING TO EACH CLASS (K-6)**
- California Department of Education (2003). *Science Framework for California Public Schools.* Sacramento, CA: CDE. <http://www.cde.ca.gov/ci/cr/cf/documents/scienceframework.pdf>
- California Department of Education (2008). *Health Education Content Standards for California Public Schools.* Sacramento, CA: CDE. <http://www.cde.ca.gov/be/st/ss/documents/healthstandmar08.pdf>
- **Composition Notebook for Science Journal**
- **Other handouts will be distributed in class or through Cougar Courses.**

### Other Recommended Books

- National Research Council (1996), *National Science Education Standards*, Washington D.C.: National Academy Press. **Also available online**
- National Research Council (2000), *Inquiry and National Science Education Standards*, Washington D.C.: National Academy Press. **Also available online**
- National Research Council (2001), *Classroom Assessment and the National Science Education Standards*, Washington D.C.: National Academy Press. **Also available online**

### COURSE DESCRIPTION

This course focuses on developing an understanding of theory, methodology, and assessment of science in integrated and inclusive elementary and middle level classrooms. *This course is aligned with California's SB 2042 Standards* and it is designed to provide a comprehensive overview of the objectives, skills, concepts, experiments, materials, and methods necessary to teach science to elementary and middle school children. A series of team activities will provide you with first-hand experiences in these areas. This course focuses

on instructional methods, techniques, materials, lesson planning, curriculum development, organization and assessment in science. The integration of curricular areas is addressed. Methods of cross-cultural language and academic development will be integrated into the course.

#### **Course Prerequisites:**

Admission to a Multiple Subject/CLAD Teacher Credential Program.

#### **COURSE OBJECTIVES**

By the end of this course, students should be able to:

1. Demonstrate proficiency with inquiry skills of observing, measuring, inferring, classifying, predicting, verifying predictions, hypothesizing, isolating variables, interpreting data, and experimenting.
2. Identify exemplary materials (curriculum kits, science programs, textbooks, equipment, technology, ancillary materials) appropriate for elementary and Middle school children.
3. Demonstrate knowledge and understanding of the California Science Framework, the California Health Framework, the California Health Education Content Standards and the National Science Education Standards
4. Demonstrate an understanding of the physical, earth and life science concepts included in the K-8 California Science Content Standards, and how to design lessons to teach the concepts.
5. Use the Learning Cycle Model of instruction to teach science in a contemporary manner.
6. Use technology in elementary and middle school science teaching.
7. Demonstrate confidence in leading and performing investigations designed to teach science concepts, science process skills, and scientific attitudes.
8. Use authentic methods of assessment to evaluate student learning of science concepts and processes.
9. Design an integrated science web quest.
10. Practice strategies to include all students in science (linguistically and culturally diverse, students with disabilities and other students with special needs).

#### **INFUSED COMPETENCIES**

##### **Authorization to Teach English Learners**

This credential program has been specifically designed to prepare teachers for the diversity of languages often encountered in California public school classrooms. The authorization to teach English learners is met through the infusion of content and experiences within the credential program, as well as additional coursework. Students successfully completing this program receive a credential with authorization to teach English learners. (Approved by CCTC in SB 2042 Program Standards, August 02))

##### **Special Education**

Consistent with the intent to offer a seamless teaching credential in the College of Education, this course will demonstrate the collaborative infusion of special education competencies that reflect inclusive educational practices.

##### **Technology**

This course infuses technology competencies to prepare candidates to use technologies, emphasizing their use in both teaching practice and student learning.

##### **Computer/Cell Phone Use During Class**

*You are welcome to use a laptop computer in class when working on in-class assignments. The use of computers for taking notes is discouraged because most students find it disruptive when they are focusing listening to presentations and can hear keyboarding in the classroom. Please use cell phones, computers or other personal electronic devices to text, check email, or conduct personal business OUTSIDE of class. Your kind consideration is greatly appreciated by all!*

## **COURSE REQUIREMENTS**

### **COE Attendance Policy**

Due to the dynamic and interactive nature of courses in the College of Education, all students are expected to attend all classes and participate actively. At a minimum, students must attend more than 80% of class time, or s/he may not receive a passing grade for the course at the discretion of the instructor. Individual instructors may adopt more stringent attendance requirements. Should the student have extenuating circumstances, s/he should contact the instructor as soon as possible.

For this class, each class session that you are absent from class drops your maximum final grade by 5% points. Late arrivals and early departures will affect your final grade as well. For each late arrival or early departure you will lose 2% points. A make-up assignment will be available for up to two classes (10% points). This means that if you are absent twice and complete a makeup assignment and earn full credit points on this assignment, you may not be penalized on attendance. The makeup assignment applies to ALL absences excused or otherwise. Absences do not change assignment due dates.

### **Writing**

In keeping with the All-University Writing Requirement, all courses must have a writing component of at least 2,500 words (approximately 10 pages), which can be administered in a variety of ways.

### **Students with Disabilities Requiring Reasonable Accommodations**

Students are approved for services through the Disabled Student Services Office (DSS). This office is located in Craven Hall 5205, and can be contacted by phone at (760) 750-4905, or TTY (760) 750-4909. Students authorized by DSS to receive reasonable accommodations should meet with their instructor during office hours or, in order to ensure confidentiality, in a more private setting.

### **CSUSM Academic Honesty Policy**

“Students will be expected to adhere to standards of academic honesty and integrity, as outlined in the Student Academic Honesty Policy. All written work and oral assignments must be original work. All ideas/materials that are borrowed from other sources must have appropriate references to the original sources. Any quoted material should give credit to the source and be punctuated with quotation marks.

Students are responsible for honest completion of their work including examinations. There will be no tolerance for infractions. If you believe there has been an infraction by someone in the class, please bring it to the instructor’s attention. The instructor reserves the right to discipline any student for academic dishonesty in accordance with the general rules and regulations of the university. Disciplinary action may include the lowering of grades and/or the assignment of a failing grade for an exam, assignment, or the class as a whole.” In addition, all cases of academic dishonesty will be reported to the Dean of Students.

### **Plagiarism**

As an educator, it is expected that each student will do his/her own work, and contribute equally to group projects and processes. Plagiarism or cheating is unacceptable under any circumstances. If you are in doubt about whether your work is paraphrased or plagiarized see the Plagiarism Prevention for Students website <http://library.csusm.edu/plagiarism/index.html>. If there are questions about academic honesty, please consult the University catalog.

## **TOPICS OUTLINE**

- ✓ The Nature of Science
- ✓ Science Process Skills and Scientific Attitudes
- ✓ CA Science/Health Content Standards Grades K-6
- ✓ California Science/Health Framework
- ✓ The Learning Cycle Model of Instruction (5E Lesson Plan)
- ✓ Learning Cycle Science Lesson Demonstrations
- ✓ Teaching Science to ELL Students (SDAIE Strategies)
- ✓ Teaching Science to GATE and Special Needs Students

- ✓ Authentic Assessments and Rubrics in Science
- ✓ Safety issues in Science
- ✓ Science Projects, Student Research and Science Fairs
- ✓ Infusing Technology into Science Teaching
- ✓ Infusing Writing Activities in Science Lessons
- ✓ Science Curriculum Kits and Supplementary curricula and materials
- ✓ Current Issues in Science Education

### **COURSE ASSIGNMENTS AND LEARNING OUTCOMES**

- Class Participation – 7pts
- Science Concept Maps – 24pts
- 5E Science Lesson Plan – (Pairs/Groups TBD) 10pts
- 5E Science Lesson Presentation – (Pairs/Groups TBD) - 20pts
- 5E Science Lesson Reflection – 4pts
- Science Exploration Fair (Lesson Plan, Presentation, Display Board & Reflection (Groups TBD)– 20pts
- Web quest (Technology& Web Resources) (Groups TBD) – 15pts
- Make Up Assignment – Up to 10 points for missed classes

Each student is responsible for ensuring that assignments are submitted correctly and on time. Late assignments will be penalized by a 10% point reduction each day they are late. Online assignments not correctly posted do not count as submitted and will be subjected to the late assignment policy. Keep digital copies of all assignments for your Credential Program TPE Portfolio where necessary.

### **CRITERIA FOR GRADING ASSIGNMENTS**

- A. 90-100%: Outstanding work on assignment, excellent syntheses of information and experiences, great insight and application, and excellent writing.
- B. 80-89%: Completion of assignment in good form with good syntheses and application of information and experiences; writing is good.
- C. 70-79%: Completion of assignment, adequate effort, adequate synthesis of information, and application of information and experiences, writing is adequate.
- D. 60-69%: Incomplete assignment, inadequate effort and synthesis of information, writing is less than adequate.

The above criteria will be applied in conjunction with specific assignment rubrics. Points earned will determine grades:

A = 93-100	A- = 90-92	B+ = 87-89	B = 83-86	B- = 80-82
C+ = 77-79	C = 73-76	C- = 70-72	D = 60-69	F = 0-59

### **ASSIGNMENT DESCRIPTIONS**

Please refer to Cougar Courses-Assignment Drop Box Section, which includes description and rubric for each assignment.

#### **1. Active Participation, Class Discussion and Collaboration: 7pts**

Teacher education is a professional preparation program and students will be expected to adhere to standards of dependability, professionalism, and academic honesty.

Grading will include a component of “professional demeanor.” Students will conduct themselves in ways that are generally expected of those who are entering the education profession, including the following:

- On-time arrival to all class sessions and attendance for the entire class period
- Advance preparation of readings and timely submission of assignments
- A positive attitude at all times
- Active participation in all class discussions and activities
- Respectful interactions with the instructor and other students in all settings

- Carefully considered, culturally aware approaches to solution-finding

Students will engage in active learning each class session, and will be expected to actively participate. You may lose points for lack of participation based on the following criteria:

- Do you participate in class discussions productively, sharing your knowledge and understandings?
- Do you interact productively with your peers, taking on a variety of roles (leader, follower, etc.)?
- Do you contribute appropriately to group work—do you “do your share”?
- Are you able to accept others’ opinions?
- Are you supportive of others’ ideas?
- Do you support your peers during their presentations?
- Can you monitor and adjust your participation to allow for others’ ideas as well as your own to be heard?

## **2. Science Concept Maps: 24 points (4 points per assignment) - See class schedule for due dates**

Assigned readings from the course text provide an important foundation for your increasing understanding of science content and how to effectively teach science. Three chapters at a time from the course text *Teaching Science to Science: An Inquiry Approach* will be designated for reading on specific class meeting (see class schedule for chapter assignment). To demonstrate your comprehension of science content-related readings you are asked to complete a Concept Map. The concept map will be due at the beginning of class time on the dates corresponding to the date the readings are assigned. You will only receive credit points, if the concept map is completed by the start of class on date indicated in the schedule.

### **Science Concept Map guidelines:**

1. Choose **one** of these chapters and read it to develop an in-depth understanding of its contents. For the chosen chapter, you will prepare a concept map that shows a clear hierarchy and depicts how the concepts are linked or relationship between the concepts, using **concept-mapping principles**. The concept maps should be generated using a concept mapping software of your choice. Some recommended software include; Inspiration (Available on all public university student computers and at [www.inspiration.com](http://www.inspiration.com)) or Cmap Tools (free download available at [http://cmap.ihmc.us/download/dlp\\_CmapTools.php?myPlat=Win](http://cmap.ihmc.us/download/dlp_CmapTools.php?myPlat=Win)) **OR** legibly handwritten.
2. Choose an activity from the chapter you have chosen for your concept map that you feel fits well with content of your concept map and list this on your rubric.
3. Match your activity to a specific CA Science Content Standard and list on your rubric. **You must have two for each grade level (K-2, 3-4, 5-6).**
4. Bring a copy of your concept map to class. Put your name, chapter and date when the reading was assigned at the top of each page. You will be asked to share your concept maps with your peers at the beginning of each class session. You should be prepared to share in depth the breadth of your concepts presented in the chapter you read. Everyone will reflect upon what they learned in a science journal and individuals will be asked to share.
5. Print, complete and attach a Science Concept Map Rubric to your Science Concept Map.
6. After you have received your graded Concept Map, please paste it into your science journal. You will automatically lose half the points on the day’s concept map if you are unable to share the concepts with the class.

### **Each Science Concept Map has a possible total of 4 points based on the following criteria:**

1. Map shows clear hierarchy or relationships of the science content.
2. Maps cover the depth of the science content in the assigned chapter.
3. Maps use 1-2 words or nouns for Concepts (not sentences) and use verbs or prepositions for linking words between concepts and include Chapter Key Terms.
4. Maps are connected to a Science Activity from the *Teaching Science to Children: An Inquiry Approach* textbook **and** a CA Science/Health Content Standard

## **3. The 5E Science Lesson Plan –10 Points - See class schedule for due dates**

The spirit of the assignment is to develop and teach a particular kind of a science inquiry lesson that teaches both science process skills and science content using the Learning Cycle Model of Instruction.

You will work in pairs or groups to create and lead a science lesson based on the Learning Cycle Model of Instruction (5E lesson plan). You will prepare and teach this lesson to your classmates. Use activities from the textbook, Internet sites or other science resources. The team should teach the lesson as you would to elementary or middle school students.

### **Elements to Include Within Your Lesson Plan**

**Lesson Title:** What is the title of your lesson?

**Grade Level:** What is the grade level?

**Student Groupings:** How will you group students for instruction?

**California Science/Health Content Standard(s):** What standards are addressed? Include at least one science area (life science, physical science, or earth science) standard and one investigation and experimentation standard **OR** one health content standard, within one of the six health content areas: 1) Nutrition and Physical Activity, 2) Growth, Development, and Sexual Health, 3) Injury Prevention and Safety, 4) Alcohol, Tobacco, and Other Drugs. 5) Mental, Emotional, and Social Health, and 6) Personal and Community Health.

**Lesson Objective(s)/Outcome:** What do you want students to be able to do? Write in complete sentences. Use an action verb and explain how students will demonstrate their new knowledge and understanding. "The students will demonstrate understanding of \_\_\_\_\_."

**Science Concept(s) (Enduring Understandings):** What are you trying to teach? Do not say "The students will \_\_\_\_." (That is an objective, not a concept.)

**Lesson Procedures:** List the procedures for each stage of the 5E Learning Cycle (Engage, Explore, Explain, Elaborate, Evaluate). Please include approximate time for each stage (E) of the 5E lesson plan. ***For completion of this assignment please access the 5E lesson plan template on Cougar Courses.***

### **The Learning Cycle (5E Lesson)**

#### **Learning Cycle Part 1: Exploration**

**Engage:** the "catch"

- Tap students' Prior Knowledge
- Focus learners thinking by piquing their interest
- Spark interest in the topic

#### **Learning Cycle Part 2: Concept Invention**

**Explore:** the "do"

- Provide hands- on activities
- Provide common, concrete, tactile experiences with skills and concepts
- Student driven
- Inquiry based

**Explain:** "the lesson"

- Connect the pieces together
- Use language of instruction
- Higher order thinking questions
- Use students previous experiences as the basis for explaining concepts
- Clarify and correct misconceptions

#### **Learning Cycle Part 3: Concept Application**

**Elaborate:** the “enrich”

- Apply real life application
- Deepen understanding of concept
- Apply concept in new context
- Expect students to use content (topic) terms appropriately
- Apply or extend concepts and skills in new situation

**Evaluate:** the “did they get it?”

- How will your students demonstrate that they have met the objective(s)?
- What evidence demonstrates that they have achieved the objective?
- Student demonstrates knowledge of concept and/or skills

Please use the following description below to assist you in completing the 5E lesson plan.

**Guiding Question(s):** List the essential question/s specific to the concept that you want students to be able to answer during the lesson. What is it that students should be able to answer by having successfully participated in your lesson? Use higher level questions and ensure that these are not lower level fact or information questions (refer to [Bloom's Taxonomy](#)). For example, instead of “Why did warming the bottle cause the attached balloon to inflate? Ask “How can you demonstrate that air is a real substance that occupies space?”

**Materials/Resources/Technology:** What does the teacher need? What do the students need? **Please include at least 2** interactive relevant web sites with descriptions and links

**Criteria for Assessments Conducted in the Evaluate Stage of 5E lesson plan:** What criteria will you use to grade the assessment? How will you know if someone has successfully completed the assessment?

**Differentiation:** Adaptations and accommodations for students with special needs (ELL, Special Education and GATE students)

**References:** Title, author, publisher, year

#### **4. The 5E Science Lesson Presentation: 20 points - See class schedule for due dates.**

Each team will be allocated a maximum of 30 minutes of class time to teach their lesson. Prepare a PowerPoint Presentation to use in your lesson. The presentation should include a detailed explanation of the science or health content, as well as a list and definitions of science/health concepts important to the lesson. Include two websites (with short descriptions) that address the science/health topic and concepts through simulations, graphics and movies. You should have links to these web sites and show examples during the lesson.

**Helpful Hints: Begin the “Explore” stage with students making predictions or answering essential questions or completing a challenge.** You should take the activities “off the paper” and require students to use the science process skills with science manipulatives. **You need to know and demonstrate the stages of the 5E Learning Cycle, or you will not be given credit for your lesson.** Be sure you understand the concepts you are emphasizing, and that you can explain them. The lessons should be developmentally appropriate for K-8 grade students, and should follow the NSTA Safety Guidelines.

Bring one copy of your lesson plan to class for the instructor on the day of your presentation and post a copy of the lesson plan on the online forum of the Cougar Courses page for access by your classmates.

#### **5. The 5E Science Lesson Reflection: 4 points – Due one week from the date of your 5E Science Lesson Presentation**

After teaching the lesson in class, you should each complete a lesson reflection. The reflection should include strengths, weaknesses, and recommendations for improvement addressing the following questions:

- Why were the instructional strategies and student activities appropriate for this class based on learning objectives and student development needs?
- How did the instructional strategies and student activities help the students make progress toward achieving the state adopted academic content standards for student in this content area?
- Explain the strengths and weaknesses of your assessment in relationship to the learning goals/objectives.
- Describe your alternative assessment based on the potential gaps in the students learning.  
*\*No more than 2 pages (double spaced).*

## **6. Science Exploration Fair Lesson Plan and Presentation: 20 Points – See Schedule for due dates**

Working in pairs, assigned in class, you will develop:

- Develop a hands-on, inquiry-based activity that uses a discrepant event using the CA science/health content standards for 4<sup>th</sup>/5<sup>th</sup> grade students at a local elementary school.
- The inquiry-based activity must follow the NSTA Safety Guidelines.
- The inquiry-based activity should be developmentally appropriate and allow students to explore with a science/health concept by engaging in the activity.
- Check for understanding, and then explain the concept behind the activity, if necessary. Be sure you understand the concept(s) you are emphasizing, and that you can explain it clearly.
- Prepare a presentation board that describes your inquiry-based, hands-on activity and scientific/health concepts using a discrepant event.
- Please be sure to bring sufficient materials for repeating the lesson 10 times to groups of 5-6 students.
- After the Science Exploration Fair write a complete reflection about how children demonstrated understanding and how you could or did improve.

### **Please complete a 5E Lesson Plan (Engage, Explore, Explain) as follows:**

1. Team Member Names
2. Science Concept (and definition) you are teaching. Write it out in a complete sentence. Do not say, "The students will \_\_\_\_." (That is an objective, not a science concept.)
3. Lesson Objectives
4. California Science/Health Content Standards addressed
5. Engage
6. Exploration
7. Explain
8. References

## **7. Science Web quest (Using Technology & Web Resources for Science Teaching and Learning): 15 points - See class schedule for due dates**

Technology provides unique resources for teaching and learning in science. In this assignment, you will apply your understanding of web-based resources to specific science lessons. This assignment is linked to your Capstone research project in ID 381B. In the capstone research project, you will conduct scientific research on a given science topic. In this assignment, your task is to think about how you can invite K-8 students to participate in some aspects of your research project by integrating technology into your capstone research projects by developing a science web quest.

### **Procedures to follow:**

- a. Read Chapter 3 in the Friedl Text.
- b. Use filamentality or a similar web quest creation template.
- c. The Science web quest must include but not limited to the following:
  - **Introduction** – What is the task about and what learning objectives will it achieve
  - **Task** - What will the students do? Describe the task that you will assign to students. This may be framed as a "challenge" task.



- **Process:** How will the students go about doing the task?
- **Resources:** What resources are available for students to complete the task (should include web resources)
- **Product:** What products (student work) will the students generate from the web quest?
- **Evaluation:** How will the products be assessed and evaluated? Include the rubric that will be used.

**Your final web quest will be submitted as a link through the Cougar Course site and you will share your web quest as part of your capstone project presentation. Credit for this assignment includes the web quest itself and the presentation.**

**8. Make-up Assignment (missed class or late arrivals/early departures): 10 points**

By completing this assignment you have the opportunity to offset penalty points for missing up to two entire classes or a combination of up to three late arrivals and/or early departures or points missed on other assignments. Attend a science related informal site or formal event or presentation equivalent in time and effort to one class session (3 hrs). This could be a field trip, museum, lecture or some other equivalent experience that will assist you either directly or indirectly in becoming a science teacher. Your choice but you may not use an activity attended prior to the first day of this class!! However, you may revisit a site you have previously visited.

To complete this requirement:

- 1) Visit a science related informal site or formal event or presentation;
- 2) Prepare a written summary of your visit documenting what you did for the 3 hours you were at the site, what science ideas and concepts you learned from the visit or presentation and how the visit or presentation can be applied to teaching in K-6 environments;
- 3) Post your write up to the Cougar Course site related forum;
- 4) Do a 5 minute PowerPoint presentation to the class during class one of the classes addressing the what you did, what you learned, how it can be applied, highlighting resources from the site. Discuss with the instructor about the class time in which you may do the presentation.

**TENTATIVE CLASS SCHEDULE (Updated 1/20/11)**

<b>DATE</b>	<b>COURSE TOPICS &amp; ASSIGNMENTS</b>	<b>Readings and Assignments Due</b>
1/24/2011 Class 1	<ul style="list-style-type: none"> <li>• Course Overview: Syllabus and Text</li> <li>• Concept Mapping</li> <li>• The Nature of Science (Process Skills, Discrepant Events, Inquiry)</li> <li>• Science Content Standards/Framework Overview</li> <li>• Instructor Led Learning Cycle Lesson #1: Science Process Skills</li> <li>• Class time for Sign-Up: Concept Maps</li> <li>• Review CA Science Framework/Standards Activity A &amp; B</li> <li>• Class time for Sign-Up: Science Framework/Standards Activity C</li> </ul>	Read Chapters 1 and 2  Bring required textbook  Download and print out CA Science Content Standards (K-6)  Download and read CA Science Framework pp. 1-22
1/31/2011 Class 2	<ul style="list-style-type: none"> <li>• Science Content Standards/Framework: Complete work on Activity C with grade level group.</li> <li>• Science Content Standards/Framework Activity C Team Presentations</li> <li>• Introduction to The Learning Cycle Model of Instruction (5E)</li> <li>• 5E Lesson Plan, Presentation, and Reflection (Sign up Schedule)</li> <li>• Class time for Sign-Up: 5E Lesson Presentations.</li> </ul>	Print Lesson Plan Template and Rubric  Science Framework/Standards Activity A & B  Science Framework/Standards Activity C (one

		per team)
2/7/2011 Class 3	<ul style="list-style-type: none"> <li>• Concept Map Sharing</li> <li>• Instructor Led Learning Cycle Lesson #2: Ch. 4, 5, 6</li> <li>• Teaching Science to English Language Learners</li> <li>• Teaching Science to Gate and Students with Special Needs</li> <li>• Team time for 5E Lesson Plan/Presentation (time permitting)</li> </ul>	<p>Read Chapters 4, 5, and 6</p> <p>Concept Map on Chapters 4, 5, or 6 Due</p>
2/14/2011 Class 4	<ul style="list-style-type: none"> <li>• Concept Map Sharing</li> <li>• Instructor Led Learning Cycle Lesson #3: Ch. 7, 8, 9</li> <li>• Assessments (performance assessments, developing criteria for</li> <li>• Assessing learning and using rubrics)</li> <li>• Team time for 5E Lesson Plan/Presentation (time permitting)</li> <li>•</li> </ul>	<p>Read Chapters 7, 8, and 9</p> <p>Concept Map on Chapters 7, 8, or 9 Due</p>
2/21/2011 Class 5	<ul style="list-style-type: none"> <li>• <b>Team 1</b> The 5E Science Lesson Presentation</li> <li>• <b>Team 2</b> The 5E Science Lesson Presentation</li> <li>• Safety Issues in Science</li> <li>• Science Projects, Student Research and Science Fairs</li> </ul>	<p>5E Science Lesson Plan for everyone Due</p> <p>5E Science lesson reflection due one week after your 5E lesson presentation</p>
2/28/2011 Class 6  TPA Task 1 Due	<ul style="list-style-type: none"> <li>• Instructor Lead Learning Cycle Lesson #4: Ch. 10, 11, 12</li> <li>• Instructor Led Learning Cycle Lesson #5: Ch. 13, 14, 15</li> <li>• Class time to select partners &amp; plan for Science Exploration Fair</li> </ul>	
3/7/2011 Class 7	<ul style="list-style-type: none"> <li>• Share Concept Maps</li> <li>• <b>Team 3</b> The 5E Science Lesson Presentation</li> <li>• <b>Team 4</b> The 5E Science Lesson Presentation</li> <li>• Infusing Technology &amp; Web Resources into Science Teaching</li> <li>• Class time to select partners for Web quest Presentation</li> </ul>	<p>Read Chapter 3, Read Chapters 10, 11, &amp; 12</p> <p>Concept Map on Chapters 10,11, or 12 Due</p>
3/14/2011 Class 8	<ul style="list-style-type: none"> <li>• Share Concept Maps</li> <li>• <b>Team 5</b> The 5E Science Lesson Presentation</li> <li>• <b>Team 6</b> The 5E Science Lesson Presentation</li> <li>• Integrating Writing into Science Activities (using science notebooks)</li> </ul>	<p>Read Chapters 13, 14, and 15</p> <p>Concept Map on Chapters 13, 14, and 15 Due</p>
3/21 – 3/26/2011	<b>SPRING BREAK</b>	
3/28/2011 Class 9 *5	<ul style="list-style-type: none"> <li>• Share Concept Maps</li> <li>• <b>Team 7</b> The 5E Lesson Presentation</li> <li>• <b>Team 8</b> The 5E Lesson Presentation</li> <li>• <b>Team 9</b> The 5E Lesson Presentation</li> <li>• Science Kits, Supplementary Curricula and Materials</li> </ul>	<p>Read Chapters 16, 17, and 18</p> <p>Concept Map on 16, 17, and 18 Due</p>
4/4/2011 Class 10	<ul style="list-style-type: none"> <li>• Share Concept Maps</li> <li>• <b>Team 10</b> The 5E Science Lesson Presentation</li> <li>• <b>Team 11</b> The 5E Science Lesson Presentation</li> <li>• National Science Education Standards and Benchmarks</li> </ul>	<p>Read Chapters, 19, 20, and 21</p> <p>Concept Maps Chapters 19, 20, and 21 Due</p>

4/11/2011 Class 11	<ul style="list-style-type: none"> <li>• <b>Team 12</b> The 5E Science Lesson Presentation</li> <li>• <b>Team 13</b> The 5E Science Lesson Presentation</li> <li>• Current Issues in Science Education &amp; Scientific Community</li> <li>• Class time for Science Exploration Fair and/or Web quest</li> </ul>	
4/18/2011 Class 12	<ul style="list-style-type: none"> <li>• Instructor Led Learning Cycle Lesson #6: Ch. 16 - 21</li> <li>• CA Health Content Standards/Framework Overview and Activity</li> <li>• Class time for Science Exploration Fair and/or Science Web quest</li> </ul>	<p>Science Exploration Fair Lesson Plan and ½ page student data sheet</p> <p>Bring copy of CA Health Standards (pages TBD)</p>
4/25/2011 Class 13	<ul style="list-style-type: none"> <li>• Meet at an Elementary School for Science Exploration Fair- Location and Time TBD</li> </ul>	Upload Science Exploration Fair Lesson Plan and ½ page student data sheet
5/2/2011 Class 14	<ul style="list-style-type: none"> <li>• Science Exploration Fair Debrief</li> <li>• <u>Computer Lab</u>: Work on Science Web quest</li> </ul>	
5/9/2011 Class 15	<p>Last Class</p> <ul style="list-style-type: none"> <li>• Web quest Presentation in conjunction with ID 381B</li> <li>• Course Evaluations</li> </ul>	Upload Science Web quest
5/16/2011 Class 16	<p>Finals Week</p>	

**\*See Cougar Courses for All Assignment Rubrics**

**NOTE: While this syllabus is carefully planned, it may be modified or adjusted at any time in response to the learning needs of the class.**