

**SCE 4310 Teaching Elementary School Science (K-6)
Section 001, Fall 2005 (August 30 to Dec. 13, 2005)**

Semester/Term: Fall 2005 (August 30 to December 13)

Final Exam:

Section 001: Dec. 13, Tuesday

Class Meeting Schedule:

Section 001: Tuesdays, 9:00 to 11:50 AM in EDU 313 or other announced location

Instructor Information:

Pauline Luther, Pinellas County Schools District Office, 301 4th St. SW, Largo, Florida 33770.

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Course Home Page: <http://www.paulineluther.com> follow the link to the USF SCE4310 Course site.

Office Hours:

By appointment

Course Description:

PR: Admission to Elementary Program and completion of General Education Requirements in the Natural Science area. This is a class specially designed for prospective elementary education teachers of science. Throughout the semester, this class will allow students to explore the following issues:

1. How to create a science curriculum which is aligned with National and State Science and other subject standards
1. How to design an **inquiry-based** science program
1. How to assess students' performance by using a combination of traditional and performance-based assessment strategies
1. Increasing our understanding of science
1. How to use technology effectively to locate appropriate resources in teaching science
1. How to modify your science lessons and activities to meet the needs of various student populations (i.e., **English for Speakers of Other Languages, Students with Disability**, etc.

Course Objectives:

By the end of the class, students will be expected to:

1. Expand her/his knowledge of science as a human activity, in the context of the pre-school and the elementary school (Florida's Accomplished Practices 1, 4, 8, 9);
2. Demonstrate the skills related to the process of science, as they apply to the learning of science by elementary school children, including specific ESOL strategies for students at various levels of proficiency (Florida's ESOL Standards 3, 4, 5, 6, 7, 12,13, 14, 18; Florida's Accomplished Practices 1, 4, 5, 6, 7, 8, 9, 10, 12);
3. Appreciate the importance of science teaching in the intellectual growth of elementary school children (Florida's Accomplished Practices 4, 5, 6, 7, 8, 9);
4. Apply the appropriate assessment strategies to determine the progress of children's learning of science, including specific ESOL strategies for students at various levels of proficiency (Florida's ESOL Standards 13, 14, 15, 16, 17,18, 19, 20, 21; Florida's Accomplished Practices 1, 4, 5, 8, 9);

5. Apply the knowledge obtained from previous education courses to the teaching of science at the elementary school level (Florida's Accomplished Practices 1, 4, 8, 9, 10, 11);
6. Reflect on their classroom experience in teaching science and math in assigned school districts in relation to the standards articulated in the National Science Education Standards and Florida Sunshine State Science Standards (Florida's Accomplished Practices 1, 4, 8, 9, 10, 11);
7. Develop lesson plans, which are aligned with the local, state, and national science education standards and Florida Performance Standards for Teachers of English for Speakers of Other Languages (Florida's ESOL Standards, 13-21) (Florida's Accomplished Practices 1, 4, 8, 9, 10, 11, Florida's Accomplished Practices 1, 4, 5, 6, 7, 8, 9, 10, 11, 12).

Textbooks and Materials:

Required:

1. NSTA Pathways to the Science Standards (Elementary) (NSTA, 2000), Lawrence F Lowery, Juliana Texley, Ann Wild; ISBN: 0873551613 [**Pathways**]
2. Martin, R., Sexton, C., Franklin, T., & Gerlovich, J. (2005). Teaching Science for All Children: An Inquiry Approach. Pearson Education/Allyn & Bacon. [Available] <http://books.nap.edu/books/0309052971/html> [**All Children**]
3. Florida Sunshine State Science Standards [Available] <http://www.firn.edu/doe/curric/prek12/frame2.htm> [**SSS**]
4. American Association for the Advancement of Science (AAAS, 1993). Benchmark for Science Literacy: Project 2061. New York: Oxford University Press. [Available] <http://www.project2061.org/tools/benchol/bolintro.htm> [**Benchmarks**]
5. National Research Council (1996). National Science Education Standards. Washington, DC: National Academy Press. [Available] <http://www.nap.edu/books/0309053269/html/R1.html> [**Standards**]
6. Other classroom activities and required readings will be provided to you throughout the course.

Policies & Procedures:

A. Attendance and Assignment: Attendance at all class sessions is simply expected. A course is one where the 'medium is the message'. No amount of reading or theorizing can 'make-up' the physical act of being in class and actually 'doing'-teaching, critical thinking, learning, discussing, goal-oriented observation, etc. Therefore, absences are frowned upon except in cases of extreme emergency. If you cannot attend the class due to an extreme emergency, please inform the instructor directly at **727-433-0338**. If an extreme emergency occurs, students will be required to bring in a doctor's note prior to returning to class. It is student's responsibility to be in the class on time and be ready for the classroom discussion and activities. Any lateness more than 10 minutes will be counted as an absence. Any lateness would affect your class participation and possibly your final grade. In the event of an extended absence, you will be encouraged to withdraw from the class. All **assignments** must be **word processed** and turned in on time. **No late assignment will be accepted** unless an extreme circumstance happens to the student.

B. Academic Dishonesty and Punishment Guidelines: Students attending USF are awarded degrees in recognition of successful completion of coursework in their chosen fields of study. Each individual is expected to earn his/her degree on the basis of personal effort. Consequently, any form of cheating on examinations or plagiarism on assigned papers constitutes unacceptable deceit and dishonesty. Disruption of the classroom or teaching environment is also unacceptable. This cannot be tolerated in the University community and will be punishable, according to the seriousness of the offense, in conformity with this rule. Punishment for academic dishonesty will depend on the seriousness of the offense and may include giving the student an "F" or "Zero" on the subject paper, lab report, etc.; or an "F" in the course. If the offense is serious enough, it may warrant the

student's suspension or expulsion from the University. The University drop and forgiveness policies may not be used for a course in which the student has been accused of academic dishonesty. The internal transcript of a student who is awarded an "F" for academic dishonesty will read "FF." Note: A grade of "F" for academic dishonesty, resulting in a grade of "FF" in the student's record, requires notification of the intent to award the grade to the student and subsequent approval by the Graduate Dean or Undergraduate Dean as appropriate. Notice that a student has been dismissed for reasons of academic dishonesty may be reflected on the student's transcript.

C. Disruption of Academic Process and Punishment Guidelines: Disruption of academic process is defined as the act or words of a student in a classroom or teaching environment which in the reasonable estimation of a faculty member: (a) direct attention from the academic matters at hand, such as noisy distractions; persistent, disrespectful, or abusive interruptions of lecture, exam or academic discussions, or (b) presents a danger to the health, safety, or well being of the faculty member or students. Punishments for disruption of academic process will depend on the seriousness of the disruption and will range from a private verbal reprimand to dismissal from class with a final grade of "W," if the student is passing the course. If the student is not passing, a grade of "F" will be shown on the student record. Available at: <http://www.stpt.usf.edu/sacs/FHChapter5.htm - academicdishonesty>

Grading Policy and Procedures:

Activity	Points
Weekly Post to Class Discussion: (20 points/week)	280
Assignment 1	30
Assignment 2	30
Assignment 3 (Experiment parts 1-7:20; EDL Lesson Plan-30)	50
Assignment 4 (Experiment parts 1-11:20; Integration of Real Time Data-25)	45
Assignment 5	30
Science Experiment parts: 1-7; 1-11; Graphs/Table; 1-17	60
Midterm Exam	50
Class Activity Presentation	100
5 Activity Reflections (5X25)	125
Science Project-Final	100
Science Teaching Philosophy	50
Class participation and attendance	50
Total	1000

Your final grade will be based on the percentage of points that you earn throughout the course:

Grade	Percentage	Points needed
A+:	97.5% and above	975
A	97.49-95.00%	974-950
A-	94.99-90%	949-900
B+	89.99-87%	899-870
B	86.99-83%	869-830
B-	82.99-80%	829-800
C+	79.99-77%	799-770
C	76.99-73%	769-730
C-	72.99-70%	729-700
D	69.99-65%	699-650
F	below 65%	649-0

My Philosophy of Teaching

As a teacher in the elementary classroom for over 20 years, I have discovered that science is the subject that sparks excitement in all students. Science should be a subject that students explore and learn about through “doing.” It is my goal for this class to model and demonstrate how effective science teaching can make every teacher stronger in content and pedagogy. Mine is an open door policy, so feel free to ask questions and use this course as the opportunity to develop your “love of science!”

Americans with Disability Act (ADA) Statement

It is the USF’s policy to provide reasonable accommodations to students with disabilities under ADA. At the beginning of the semester, any student with a disability should inform the course instructor if instructional accommodations or academic adjustments will be needed. For more information about the ADA and academic accommodations or adjustments, contact the Office of Disability Resources and Services at (727) 553-4413 or e-mailing at mcdowell@stpt.usf.edu.

Calendar/Schedule (The sequence is subject to modification and changes):

Weeks/Dates	Topics	Required Reading for the following week	Assignments Due
Week 1 Aug. 30	<ul style="list-style-type: none"> Course Introduction Internet Resources CD use Science Inquiry online or ppt Form 11 Groups to present an Activity, sign up for DATE Water Drop and Coin Activity Diary (use 1/group for each Inquiry) 	(1) Course Syllabus, Assignments, and Requirements (2) Benchmarks: Chap. 1 read online (3) Standards: Chap. 1 download or read online (4) All Children, Chap. 1: download or read online (5) Selected Reading: Eisenkraft, A. Expanding the 5-E Model. download	Assignment 1 Online Printed later in this document
Week 2 Sept. 6	<ul style="list-style-type: none"> Dr. Roger Brindley, Director, Sun Coast Area Teacher Training Honors Program Standards and The Nature of Science The 5 E's ppt and handout "Mystery Box" Activity and Explanation Diary (use 1/group for each Inquiry) Science Investigation -pretest PK-2 Vocab Cards 	(1) Benchmarks: Chap. 12 read online (2) Standards: Chap. 2 download or read online (3) All Children, Chap. 2: download or read online (4) SSS download K-2 , download 3-5	Assignment 2 Online Printed later in this document
Week 3 Sept. 13	How Children Learn <ul style="list-style-type: none"> EDL Battery and Bulb Activity Diary (use 1/group for each Inquiry) Group 1 Activity Activity Reflection pdf (do any 5) Word 	(1) Benchmarks: Chap. 3 read online (2) Standards: Chap. 3 download or read online (3) All Children, Chap. 3: download or read online (4) Pathways , pp. 1-11; 35-41	Assignment 3 Online Printed later in this document
Week 4 Sept. 20	Developing a Constructivist Learning Environment <ul style="list-style-type: none"> Using Real-Time Data (CD) Balance and Simple Machine 1 Diary (use 1/group for each Inquiry) Group 2 Activity Activity Reflection pdf (do any 5) Word 	(1) Benchmarks: Chap. 4 read online (2) Standards: Chap. 4 download or read online (3) All Children, Chap. 4: download or read online (4) Pathways , pp. 28-33	Assignment 4 Online Printed later in this document
Week 5 Sept. 27	Learning Environment <ul style="list-style-type: none"> Balance and Simple Machine 2 Diary (use 1/group for each Inquiry) Group 3 Activity Activity Reflection pdf (do any 5) Word 	(1) Benchmarks: Chap. 2 read online (2) Standards: Chap. 7 download or read online (3) All Children: Chap. 5: download or read online (4) Pathways: pp. 43-57 (5) Read about Two-Way Tables online	Assignment 5 Online Printed later in this document
Week 6 Oct. 4	Physical Science <ul style="list-style-type: none"> Pendulum1 Diary (use 1/group for each Inquiry) Group 4 Activity Activity Reflection pdf (do any 5) Word 	(1) Benchmarks: Chap. 5 read online (2) Standards: Chap. 6 download or read online (3) All Children: Chap. 6 download or read online (4) Pathways: pp. 59-69	Assignment 6 Online Printed later in this document

Week 7 Oct. 11	<p>Life Science</p> <ul style="list-style-type: none"> • Pendulum2 • Pendulum3 • Group 5 Activity • Activity Reflection (do 5 of 11) Word 	Midterm Review Online	<p>Assignment 7</p> <p>Online</p> <p>Printed later in this document</p>
Week 8 Oct. 18	<p>Midterm Exam Open Book</p>	<p>(1) Benchmarks: Chap. 9 read online</p> <p>(2) Standards: Chap. 5 download or read online</p> <p>(3) All Children: Chap. 8 download or read online</p> <p>(4) Pathways: pp. 19-25</p>	<p>Assignment 8</p> <p>Online</p> <p>Printed later in this document</p>
Week 9 Oct. 25	<p>Assessment</p> <ul style="list-style-type: none"> • Midterm results • Group 6 Activity • Activity Reflection (do 5 of 11) Word 	<p>(1) Benchmarks: Chap. 11 read online</p> <p>(2) All Children: Chap. 10 download or read online Read pages 138-152</p> <p>(3) Pathways: pp. 71-79</p>	<p>Assignment 9</p> <p>Online</p> <p>Printed later in this document</p>
Week 10 Nov. 1	<p>Common Themes</p> <ul style="list-style-type: none"> • Group 7 Activity • Activity Reflection (do 5 of 11) Word 	<p>(1) Benchmarks: Chap. 8 read online</p> <p>(2) All Children: Chap. 10 download or read online Read pages 153-163</p> <p>(3) Pathways: pp. 81-88</p>	<p>Assignment 10</p> <p>Online</p> <p>Printed later in this document</p>
Week 11 Nov. 8	<p>Science and Technology</p> <ul style="list-style-type: none"> • Group 8 Activity • Activity Reflection (do 5 of 11) Word 	<p>(1) Benchmarks: Chap. 6 read online</p> <p>(2) All Children: Chap. 10 download or read online Read pages 164-176</p> <p>(3) Pathways: pp. 89-102</p>	<p>Assignment 11</p> <p>Online</p> <p>Printed later in this document</p>
Week 12 Nov. 15	<p>The Human Organism</p> <ul style="list-style-type: none"> • Group 9 Activity • Activity Reflection (do 5 of 11) Word 	<p>(1) Benchmarks: Chap. 10 read online</p> <p>(2) All Children: Chap. 10 download or read online Read pages 177-190</p> <p>(3) Pathways: pp. 103-110</p>	<p>Assignment 12</p> <p>Online</p> <p>Printed later in this document</p>
Week 13 Nov. 22	<p>Historical Perspectives</p> <ul style="list-style-type: none"> • Group 10 Activity • Activity Reflection (do 5 of 11) Word 	<p>(1) Benchmarks: Chap. 7 read online</p> <p>(2) Pathways: pp. 112-126</p>	<p>Assignment 13</p> <p>Online</p> <p>Printed later in this document</p>
Week 14 Nov. 29	<p>System and Program Standards</p> <ul style="list-style-type: none"> • Group 11 Activity • Activity Reflection (do 5 of 11) Word 	None	<p>Assignment 14</p> <p>Online</p> <p>Printed later in this document</p>
Week 15 Dec. 6	<p>Prep for Science Fair</p>	Review Project Rubric	<p>Assignment 15</p> <p>Online</p> <p>Printed in this document</p>
Week 16 Dec. 13	<ul style="list-style-type: none"> • Final Exam – Science Fair • Grading Rubric (5) • Post Test – Science Cards 		

Important Holidays:

Labor Day: Sept. 5 (Monday)

Veteran's Day: Nov. 11 (Friday)

Thanksgiving: Nov. 24-25 (Thursday and Friday)

Note: The sequence of the class is subject to change.

Recommended Additional Readings

1. National Science Resources Center, National Academy of Sciences, Smithsonian Institution. (1996). Resources for Teaching Elementary School Science [Available] <http://www.nap.edu/catalog/4966.html> Read part one and familiarize yourself with the document.
2. National Research Council. (2000). Inquiry and the National Science Education Standards. Washington, DC: National Academy Press. Available: <http://www.nap.edu/catalog/9596.html> Read Chapters 1, 2, 3, & 4.
3. National Science Teachers Association Position Statements Available: <http://www.nsta.org/position> Read: The National Science Education Standards: A Vision for the Improvement of Science Teaching and Learning, Elementary School Science, Multicultural Science Education, and Science/Technology/Society: A New Effort for Providing Appropriate Science for All.

Course Assignments

- I. Science Project:** One Science Project will be constructed during this course. Specific assignments will be given to emulate how a project should be performed in a classroom. You will pose the question, do the research, evaluate your data, and post the results on a project board. The final will consist of a class Science Fair night, complete with scoring rubrics.

- I. Science Teaching Philosophy:** This **three-page (a minimum)** double-spaced paper requires you to think about what kind of teacher of science you would like to be. Just think if someone asks you that question during a job interview, how would you respond to that question? **You can only use 12-point font size.**

- I. Class presentation:** In groups of 3, you have to present an **inquired-based** lesson to the whole class. This presentation needs to a minimum of **25** minutes long with hands-on activities included. A detailed **rubric** for the class presentation will be discussed in class. A key element for your presentation is to demonstrate the modifications that you can make for those students with different needs (e.g., ESOL) In addition, a detailed lesson plan will be created and copies made for each member of the class and the instructor. Groups should work collaboratively to complete all parts of this assignment. Equal participation by all members of the group is expected. Each member will report what they did for the project in the lesson plan. Points will be subtracted for members who do not do their share of the work.

- I. Midterm Exam:** The midterm exam will be open book/downloaded materials. This exam consists primarily of open-ended questions with possibly a few traditional items (e.g., multiple-choice and justification). Please be prepared and expect the challenging questions. These questions, including the ESOL required readings, are not simple facts-oriented questions. You have to utilize your critical thinking skills. To be prepared for the exam, review all materials, and organize your thoughts. Notes are also permitted. It has been my experience that open book exams are sometimes harder than responding to memorized material. Prepare before the test, otherwise you may be very surprised at the results of your performance.

- I. Unannounced assignments/class work/reflection papers:** Frequently, the instructor will give or assign quizzes and/or assignments to be completed in class. One of the assignments would require you to read and critique a science education article relevant to ESOL education (e.g., Simich-Dudgeon. C & Egbert J. (2000). Science as a Second Language. *The Science Teacher*, pp. 28-32). These kinds of practices will be used to monitor the progress of your learning and how you keep up the reading assignment and listen attentively in class. Therefore, please be prepared to come to this class and ready to learn. **There will be no make-up quiz or class work if you miss the class.**

SCE 4310 Assignment: Inquired-Based Science Lesson Plan

Format for Lesson Plan

Context: Develop an inquired-based lesson plan that would actively engage and motivate students in learning science (A traditional work-sheet or teacher-centered approach lesson plan is **not acceptable**). The topic of your lesson plan will be decided upon the approval of the instructor. I would encourage you to develop a lesson for students at the upper elementary school levels (grades 3-5). Our elementary education teaching certification allows you to teach up to the 6th grade. Thus, you must be flexible regardless of what types of kids you desire to work most. The length of the lesson can be varied. Keep the length between 1 and 2 hours. You may base your lesson plan on one you find on the web, but you will need to add the details listed below.

When you begin teaching as a professional, you will have the option of writing an inquired-based lesson plan that does not contain much detail. **YOU DO NOT HAVE THAT OPTION IN THIS COURSE.** Your lesson plans must be so detailed that we can determine **EXACTLY** what you are doing and what your students are doing throughout the class period. That means you need to include every example and answer that you intend to use, and every question and answer that you intend to use while interacting with your students. You need to describe clearly how students are to do a hands-on activity, and if students are in groups, what every group member will be doing. If you plan to hold a discussion, include the major points you want made. If you want students to follow a worksheet, include it, along with the answers. WHY all this detail? Because otherwise, we will not be able to determine whether your activities, examples, or questions are appropriate for teaching the science content to children at the specified grade level. Please keep in mind, I look for your **thinking** processes while developing a lesson (e.g., How you would engage your students, How would you orchestrate an exciting class discussion to promote student curiosity, and How you assess student learning, etc.)

I. Heading (Please indicate each heading in your lesson plan in bold font).

- 1a: Title:
- 1b: Grade Level:
- 1c: Name of the Methods' Instructor: Pauline Luther
- 1d: Names of Presenters:

II. Introduction (What you are going to do?)

- 2a. A summary of the major concepts that you plan to teach
- 2b. **Objectives:** A list of the science content/skills to be learned. **Your objectives must be measurable** (e.g., using a action verb such as "Identify", "Distinguish", etc. as opposed "Know", "Understand", etc.)
- 2c. Teacher Background Knowledge: Please specify the scientific background that you have to know in order to teach this lesson successfully. You need to be as specific as you can.
- 2d. Students' prerequisite knowledge, **including specific vocabulary or language structures for ESOL students.**
- 2e. Connections to other subject areas.
- 2f. **Standards/Benchmarks:** You have to align with AAAS Benchmarks (NOS, HOM, and other appropriate chapters), NRC's National Science Education Standards (Chapters 3 & 5), Florida's Sunshine State Science Standards (appropriate strands).

III. Procedures (How you are going to do it?)

- 3a. A list of materials:

What will students/pair of students/groups of students need?

What will the teacher need?

3b. The Classroom Climate

How will you arrange the classroom?

How will you group the students for each activity?

How will you attend to special needs (**English for Speakers of Other Languages**, Students with Disability, etc.)

3c. A Step-by-Step description of what will happen during the lesson

The procedures section must be written as a **scripted dialogue**. Please put spaces between various paragraphs.

Your dialogues can be organized as:

Teacher:

Student A:

Student B:

T

SA

SB

etc.

Throughout the description, please specify:

1. **What modifications you would make for ESOL students at various levels (with a particular focus on pre-production, early production)**
1. **What questions will you ask, and**
1. **What will you do to make them comprehensible?**

This section must include:

1. **Motivation/anticipatory** set of procedures: You should state verbally/in writing the goal of the lesson in language the students can read and understand. Your motivational activity should help students understand why they are learning this science content; connect the lesson to previous learning experiences, and provide an opportunity to assess the students' background knowledge.
1. A description of what you will be doing and what the students are going to be doing during each activity. You can write the description in a paragraph above the list of the procedural steps for the activity, or you can incorporate the description directly into list. A reader should be able to determine exactly what it is the teacher doing and what the students are doing at all times.
1. The directions you are going to do give. They must be clear and concise.
1. The exact problems you are going to use or questions that you are going to ask, with **expected responses**, and the mode of response. Use the third person only and no names. Keep in mind, a lesson plan should be written so that someone who doesn't know what you are trying to teach can follow your plan. So, spell everything out clearly. Your activities must address content, and be appropriate to the students' knowledge and skill level.
1. Describe activities you will use to keep students actively engaged in a lesson while you make the transition from each part of a lesson to another or between the two lessons taught on this day.
1. The amount of time you THINK each activity will take. (Be prepared for some activities to run long, and some to run short. This is expected!). Remember, a good lesson plan has **several** activities that are well sequenced and paced. Recall that most children have a 5-7 minute attention span.
1. A description of how you will end the lesson (this is called **closure**). How will you help students to summarize what they have learned? It may include a review of the objectives and anticipate future lessons.
1. Include at least one **extension** or **enrichment** activity that could be used if you have time left over. Keep in mind, the extension activity is NOT same as the assignment or homework.

1. Please use appropriate subheadings to organize this section. For example, you are encouraged to use the various phases of the learning cycle models (e.g., 4-E, 5-E, or 7-E models) to organize the flow of your lesson.

PLEASE NOTE: It is not acceptable to say, “I will explain the scientific importance of this topic.” Instead, write down what you will explain- “The scientific importance of this topic is ...” Likewise, it is not acceptable to write “I will give/show students three examples.” Instead, write down exactly what examples you plan to use. Be sure to include the answers. Additionally, it is not acceptable to write “I will be sure students understand before moving on” or “I will review.” Instead, write down how you plan to determine whether students understand, or do not understand. What will you see children doing or writing, or what will you hear children saying?

IV. Assessment (How are you going to know if you have done it?)

How will you know what students learned? You can refer to elements described in the procedure or closure activities. It may be formal or informal. A detailed scoring procedure, including **scoring guides/rubrics and sample responses**, must be included.

This section must include:

1. Strategies you will use to assess whether students have met your objectives.
1. If you are formally assessing with a quiz, test, worksheet, or performed-based assessment, include it here. Also, you need to include the scoring methods or procedures of the assessment, such as sample responses and scoring guides. If you have adapted this assessment from another source, you must give them credit and put into the Bibliography section.
1. Modified assessment for ESOL students at various levels.

V. Assignment or Homework (You must include this component in addition any class assessment):

Prepare an assignment that will provide the student with an opportunity to use, review, or extend the concepts/skills you taught in this lesson. You must include this component regardless of the length of your lesson. A detailed scoring procedure, including **scoring guides/rubrics and sample responses**, must also be included.

VI. Attachments and others:

a. **Handouts** for students: If you plan to use any worksheets or data collection forms, you must attach copies of them to your lesson plan, along with **answer keys/sample responses/scoring guides** if appropriate. Please list the title of each attachment.

b. **List the names** of your attachments. Please have a title for each of your attachment and list them first. Also, you need to refer your attachment in your text.

c. Bibliography:

List all sources that you used to prepare this lesson. Please make sure to include the **sources of Science Standards/Benchmarks at the National and State Levels** (e.g., AAAS Benchmarks, NRC’s NSES standards, and Sunshine State Standards in Science). You can use APA or MLA format. A typical format must include: Author’s names, Date, Title of the book or article, Publishers (If an Internet source were used, then you must include URL address as well).

Source: Handbook for the Math/Science Practicum: Ed. 231 (2002). Section II: 1-2. College of Education Temple University: Philadelphia, PA

Assignment 1, SCE 4310, Section 001
Discussion Board Completed by 12:00 PM, September 4
Hand in book list and URL in class, September 6, 2005

1. Go to <http://www.cde.ca.gov/ci/sc/ll/litscimathacknow.asp>, another Internet site, or the library. Create a list of 10 elementary children's books that can be used to relate science in the classroom. Give a complete bibliography reference and a short explanation of the each book. Choose one of the books and find a lesson plan online. Include a copy of the lesson plan and list the URL of the lesson on your assignment page.

Example:

In the Heart of the Village: The World of the Indian Banyan Tree

Author(s):	Bash, Barbara	Grade Level(s):	3-5
Publisher:	Sierra Club Books	Publication Date:	1996
Illustrator:	Barbara Bash	Translator:	
Genre(s):	Narrative Nonfiction	Classification(s):	Picture Book, Read Aloud
Curriculum:	Science	Language(s):	English
Award(s):		Series:	
Mathematics			
Subject(s):		Science Subject(s):	Life Science (Biology)
Mathematics			
Standards:		Science Standards:	3 Life Sciences 3

Annotation: This book highlights the importance and interrelationships of the banyan tree to a village in India. It features the activities of the village people and the local wildlife in and around the tree. The artwork includes double-page spread paintings that provide a close-up view.

Lesson URL: <http://www.newton.mec.edu/Franklin/Yes/Lessons/Nature/nature.htm> (30 points)

- Complete the following readings: (Can be read online or downloaded at website)
 - Syllabus
 - AAAS Benchmarks for Science Literacy, (Benchmarks)**, Chapter 1: [online](#) only, not available in pdf
 - National Science Education Standards (Standards)**, Chapter 1, [online](#) or [download pdf](#) view on CD in Standards folder.
 - Science for All Children (All Children), Chapter 1**, [online](#) or [download pdf](#), or view on CD in All Children folder
 - Selected PDF:** Eisenkraft, A. (Sept., 2003). Expanding the 5-E Model. The Science Teacher, pp. 56-59. [download pdf](#)
- Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com/sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. September 4. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)
- Prepare/plan for your Class Activity Presentation. Find two others in your class to work with to present a Science Inquiry Activity/Lesson to the class. Sign up for a date to present.
- Think about what your Science Project. The final will be a class Science Fair, complete with displays and judging.

Assignment 2, SCE 4310, Section 001
Discussion Board Completed by 12:00 PM, September 11
Hand in Connections in class, September 13, 2005

1. **Make connections** between the **Water Drop and Coin & Mystery Box** Activities and the **Benchmarks** (K-8) specified in the Nature of Science and Habits of Mind in *AAAS Benchmarks for Science Literacy*. You can create a 3-way chart or table (see Table 1) Hand in a printed copy at the beginning of Week 3 class. (30 points)
2. **Read** the following:
 - (1) **Benchmarks:** Chap. 12: [read online](#)
 - (2) **Standards:** Chap. 2: [download](#) or [read online](#) or find in Standards folder on CD.
 - (3) **All Children,** Chap. 2: [download](#) or [read online](#) or find in the All Children folder on CD.
 - (4) **Selected Reading:**
 - a) [Download pdf](#) of Sample Questions for your Science project, or do research for another topic. Choose the investigation that you will do. In the Science Investigation folder on CD
 - b) Download pdf of the following or read in the Science Investigation folder on CD
 - Elementary Research Manual [download pdf](#)
 - Experiment Rubric [download pdf](#)
 - Experiment Schedule [download pdf](#)
3. Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com//sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. September 11. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)
4. Prepare/plan for your Class Activity Presentation.

Table 1. Connections between the class hands-on activity with the **state and national standards**

Learning Objectives (e.g., Students will be able to Action Verb...)	Connections with the Nature of Science and Habits of Mind (AAAS Benchmarks)	Connections with the Sunshine State Standards in Science
1. Observe.....		
2. Distinguish....		
3. Compare...		
4. Use...		
5.		

Note. The above action verbs are just examples.

Assignment 3, SCE 4310, Section 001
Discussion Board Completed by 12:00 PM, September 18
Hand in Connections in class, September 20, 2005

1. Log into [EDL](#). Review the lesson plans and the site Learning Modules. Create and submit a lesson plan on the site on any topic of your choice. (30 points)
2. **Read** the following:
 - (1) **Benchmarks:** Chap. 3: [read online](#)
 - (2) **Standards:** Chap. 3: [download](#) or [read online](#) or find in Standards folder on CD.
 - (3) **All Children,** Chap. 2: [download](#) or [read online](#) or find in the All Children folder on CD.
 - (4) **Pathways:** pp. 35-41
 - (5) **Experiment Schedule** [download pdf](#)
3. Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com/sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. September 11. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)
4. Review the Experiment Schedule [download pdf](#) of the Science Project. Complete and print out parts 1-7. Hand in September 20. (20 points)
5. Prepare/plan for your **Class Activity Presentation**.

Assignment 4, SCE 4310, Section 001
Discussion Board Completed by 12:00 PM, September 25
Hand in Paragraphs and Experiment parts in class, September 27, 2005

1. As an elementary teacher you must be prepared to teach all subjects. Choose any 5 curriculum areas; i.e. science, math, reading, writing, art, social studies, health, music, PE. For each of the 5, write a paragraph to explain one way to use real time data in each of the 5 subjects. You may use anything from EDL or the other web sites you worked with. What would you do? How does real time data connect to the SSS? (25 points)
2. Read the following:
 - (1) **Benchmarks:** Chap. 4 [read online](#)
 - (2) **Standards:** [Chap. 4 download or read online](#)
 - (3) **All Children, Chap. 4:** [download](#) or [read online](#)
 - (4) **Pathways**, pp. 28-33
3. Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com/sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. September 25. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)
4. Review the Experiment Schedule [download pdf](#) of the Science Project. Add parts 8-11 to last weeks 1-7. Hand in September 27. (20 points)
5. Prepare/plan for your **Class Activity Presentation**.

Assignment 5, SCE 4310, Section 001
Discussion Board Completed by 12:00 PM, October 2, 2005
Hand in Two-Way Table in class, October 4, 2005

1. Read what a [two way table is by clicking here](#).

Create a two-way table (see below) and **detail** the various stages of learning cycle occurred in the Balance and Simple Machine2 (Mobile) and list all of the Facts, Prediction, Results, Explanation, Summary, Graphs, etc. in the right column. (30 points)

Stage of Activities (4-E, 5-E, or 7-E)	Facts, Prediction, Results, Explanation, Summary, Graphs, etc.

2. Read the following:

- (1) **Benchmarks:** Chap. 2 [read online](#)
- (2) **Standards:** Chap. 7 [download](#) or [read online](#)
- (3) **All Children:** Chap. 4: [download](#) or [read online](#)
- (4) **Pathways:** pp. 43-57
- (5) Read about **Two-Way Tables** [online](#)

3. Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com//sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. September 25. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)

4. Work on **Science Project**.

5. Prepare/plan for your **Class Activity Presentation**.

Assignment 6, SCE 4310, Section 001
Discussion Board Completed by 12:00 PM, October 9, 2005
Hand in Two-Way Table in class, October 11, 2005

1. Read the following:
 - (1) **Benchmarks:** Chap. 5 [read online](#)
 - (2) **Standards:** Chap. 6 [download](#) or [read online](#)
 - (3) **All Children:** Chap. 6 [download](#) or [read online](#)
 - (4) **Pathways:** pp. 43-57

2. Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com//sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. October 2. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)

3. Do 5 of the 11 [Reflections](#) on Group Activities.

4. Work on **Science Project**.

5. Prepare/plan for your **Class Activity Presentation**.

Assignment 7, SCE 4310, Section 001

Review for Midterm, October 18, 2005

1. Review these topics. More will become available nearer the exam date.
 - a. 5 E's
 - b. What is Science Inquiry Based learning
 - c. All children: Chapters 1-6
 - d. Benchmarks: Chapters 1-5; 12
 - e. Standards: Chapters 1-7
 - f. Pathways: pages 1-11; 58-69
2. Do 5 of the 11 [Reflections](#) on Group Activities.
3. Work on **Science Project**.
4. Prepare/plan for your **Class Activity Presentation**.

Assignment 8, SCE 4310, Section 001
Discussion Board Completed by 12:00 PM, October 23, 2005
Class on October 25, 2005

1. Read the following:
 - **Benchmarks:** Chap. 9 [read online](#)
 - **Standards:** Chap. 5 [download](#) or [read online](#)
 - **All Children:** Chap. 8 [download](#) or
 - **Pathways:** pp. 19-25

2. Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com//sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. October 23. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)

3. Do 5 of the 11 [Reflections](#) on Group Activities.

4. Work on **Science Project**.

5. Prepare/plan for your **Class Activity Presentation**.

Assignment 9, SCE 4310, Section 001
Discussion Board Completed by 12:00 PM, October 30, 2005
Class on November 1, 2005

1. Read the following:
 1. **Benchmarks:** Chap. 11 [read online](#)
 1. **All Children:** Chap. 10 [download](#) or [read online](#) **Read pages 138-152**
 1. **Pathways:** pp. 71-79

2. Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com/sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. October 30. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)

3. Begin writing your Science [Teaching Philosophy Paper](#), Due Nov. 22

4. Do 5 of the 11 [Reflections](#) on Group Activities.

5. Work on **Science Project**.

6. Prepare/plan for your **Class Activity Presentation**.

Assignment 10, SCE 4310, Section 001
Discussion Board Completed by 12:00 PM, November 6, 2005
Class on November 8, 2005

1. Read the following:
 - a. **Benchmarks:** Chap. 8 [read online](#)
 - b. **All Children:** Chap. 10 [download](#) or read online **Read pages 153-163**
 - c. **Pathways:** pp. 81-88

2. Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com/sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. November 6. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)

3. Begin writing your Science [Teaching Philosophy Paper](#), Due Nov. 22

4. Do 5 of the 11 [Reflections](#) on Group Activities.

5. Work on **Science Project**. **Graphs due Week 13 (Nov. 22); Steps 1-17 Due Week 14 (Nov. 29)

6. Prepare/plan for your **Class Activity Presentation**.

Assignment 11, SCE 4310, Section 001
Discussion Board Completed by 12:00 PM, November 13, 2005
Class on November 15, 2005

1. Read the following:
 - a. **Benchmarks:** Chap. 6 [read online](#)
 - b. **All Children:** Chap. 10 [download](#) or read online **Read pages 164-176**
 - c. **Pathways:** pp. 89-102

2. Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com/sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. November 13. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)

3. Begin writing your Science [Teaching Philosophy Paper](#), Due Week 13 (Nov. 22)

4. Do 5 of the 11 [Reflections](#) on Group Activities.

5. Work on **Science Project**. **Graphs due Week 13 (Nov. 22); Steps 1-17 Due Week 14 (Nov. 29)

6. Prepare/plan for your **Class Activity Presentation**.

Assignment 12, SCE 4310, Section 001

Discussion Board Completed by 12:00 PM, November 20, 2005

**Hand in Science Teaching Philosophy and Science Graphs/Tables in class
on November 22, 2005**

1. Read the following:
 - a. **Benchmarks:** Chap. 10 [read online](#)
 - b. **All Children:** Chap. 10 [download](#) or [read online](#) **Read pages 177-190**
 - c. **Pathways:** pp. 103-110

2. Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com//sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. November 20. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)

3. Continue writing your Science [Teaching Philosophy Paper](#), **Due this week** (Nov. 22)

4. Do 5 of the 11 [Reflections](#) on Group Activities.

5. Work on **Science Project**. **Graphs due this week** (Nov. 22); Steps 1-17 Due Week 14 (Nov. 29)

6. Prepare/plan for your **Class Activity Presentation**.

Assignment 13, SCE 4310, Section 001
Discussion Board Completed by 12:00 PM, November 27, 2005
Hand in Science Steps 1-17 in class on November 29, 2005

1. Read the following:
 - **Benchmarks:** Chap. 7 [read online](#)
 - **Pathways:** pp. 112-126

2. Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com//sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. November 27. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)

3. Do 5 of the 11 [Reflections](#) on Group Activities.

4. Work on **Science Project**. **Due this week Steps 1-17** (Nov. 29)

5. Prepare/plan for your **Class Activity Presentation**.

Assignment 14, SCE 4310, Section 001
Discussion Board Completed by 12:00 PM, December 4, 2005
Class on December 6, 2005

1. [Review Science Fair Project Rubric](#) – you will use this to evaluate 5 projects in class.
2. Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com/sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. December 4. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)
3. Last of [Reflections](#) due in class.
4. Work on **Science Project Board – Final** **Make sure you have all parts displayed properly.**

Assignment 15, SCE 4310, Section 001
Discussion Board Completed by 12:00 PM, December 11, 2005
Class on December 13, 2005

1. [Review Science Fair Project Rubric](#) – you will use this to evaluate 5 projects in class.
2. Go to our class Blackboard Discussion at <https://my.usf.edu/webapps/portal/frameset.jsp> Log in with your student username and password. Choose our class. There is a direct link on our class website: <http://www.paulineluther.com//sce4310/index.html> back to the Blackboard MyUSF site. Post an answer the question(s) and respond to at least one of your classmates ideas. Finish your responses no later than 12:00 p.m. December 11. You should have a minimum of 2 postings per week, yours and a response to someone else. (20 points)
3. Finish **Science Project Board – Final** Make sure you have all parts displayed properly.