University of North Carolina at Greensboro
School of Education
Department of Curriculum & Instruction
Course Syllabus – Fall 2005

1. **Course Prefix & Number:** CUI 370-05
2. **Course Title:** Science in the Elementary School
3. **Credits:** 3 semester hours: 3 lecture hours per week: 3 internship hours per week
4. **Course Prerequisites/Corequisites:** Biology, Chemistry 106, Geography 103, Physics 205, or equivalents, and PDS team membership.
5. **For Whom Planned:** This course is a required course for undergraduate elementary education majors who are pursuing K-6 teacher licensure. .
6. **Instructor Information:** Mrs. Terry Tomasek
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   (336) 334-3457 (office)
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   tltomase@uncg.edu

Office Hours: Mondays 11-12 noon, Wednesdays 3-4PM, or by appointment

7. Course Purpose/Catalog Description: This course is designed to provide you with "curriculum and teaching techniques in science… with emphasis on problem solving and critical thinking abilities." You will develop the basic skills, knowledge and competencies required to teach and assess science concepts and inquiry skills in the elementary school setting. By the end of this course, you should be clear about your own personal answers to the following questions:

- What is science and why should I teach it?
- How do students learn science?
- How can I teach so that all students can successfully learn science?

Based on your answers to these and other questions, you should be able to explain your philosophy of science education and defend your pedagogical approach to the teaching of science. Hopefully you will also learn a good deal of science content along the way. Please note, however, that in one semester it is impossible to give you a thorough grounding in each of the various scientific disciplines. My hope is that you leave this class feeling confident that you possess the skills needed to learn the relevant science content along with your students, as well as to facilitate their learning of this material. A successful elementary science teacher is willing to

engage in inquiry and exploration and admits when she or he doesn't know all the answers. If you don't currently view science as a subject that is both fun and engaging, I hope that you will come to see it that way by the end of this semester.

This course is aimed at helping the preservice elementary teacher develop:

(a) a theoretical framework for teaching science at the elementary level,
(b) a repertoire of methods for teaching science,
(c) favorable attitudes toward science and science teaching,
(d) deeper understandings of some science content.

8. Teachers Academy Conceptual Framework Mission Statement: The mission of professional education at UNCG is to prepare and support the professional development of caring, collaborative, and competent educators who work in diverse settings. This mission is carried out in an environment that nurtures the active engagement of all participants, values individual as well as cultural diversity and recognizes the importance of reflection and integration of theory and practice. UNCG's professional education programs are guided by shared commitments to: (a) equity and excellence in teaching, research, and service: (b) professional integrity and ethical deliberation in dealing with students and colleagues (university-based, school-based, and community-based); (c) the construction of a professional knowledge base through collaboration and collegiality; and (d) the dissemination of professional knowledge, skills, and dispositions through the preparation and continuing professional development of teachers, principals and other school personnel.

9. Course Goals and/or Objectives/Student Learning Outcomes:
This course is primarily designed to introduce the pre-service elementary teacher to the principles and practices of reform-based science instruction as described in the *National Science Education Standards*. The central concept of inquiry is key to reform-based instruction. The disciplines of science are broad as are the methods for how science "gets done"; therefore, there is no single method for teaching science. The goal of this course then is to explore the various science concepts you will be teaching as well as the different pedagogical methods best suited to each concept. Always keep in mind that student learning is the goal of good teaching. You should come out of this course with a beginning understanding of good science instruction. It is my hope that you will build on this beginning understanding throughout your career as a teacher.

This course will provide multiple opportunities to:[1]

1. Develop the knowledge, skills, and attitudes to understand that learning and teaching science requires that you become a life-long learner and foster this same value with your students (INTASC 9, NCATE 1A, NCPTS).
2. Construct knowledge of science and the nature of science, with a special emphasis on inquiry (INTASC 1, NCATE 1A, NCPTS).

3. Critically design, select, and/or adapt materials and resources for teaching the science curriculum to students with a variety of ages, interests, developmental levels, cultural and linguistic backgrounds, and exceptionalities (INTASC 2, 3, 4, NCATE 1B).
4. Experience, plan, and teach activities that are consistent with the North Carolina Standard Course of Study (NC SCOS) and support inquiry-based, reform-based instruction (INTASC 1, NCATE 1B).
5. Learn about and apply current research findings about teaching and learning science to the planning and teaching of science. Become aware of professional organizations and literature (INTASC 1, 6, 7, 10, NCATE 1C).
6. Learn about various ways to use technology to support the facilitation of inquiry and collaboration (INTASC 6, NCATE 1B).
7. Select and integrate into your instructional plans a variety of methods of assessment (INTASC 8, 9, NCATE 1D).
8. Learn how to evaluate students' work using performance-based measures (INTASC 2, 8, NCATE 1D).
9. Develop interdisciplinary lessons and units for teaching science that integrate a variety of skills and content (INTASC 1, 5, 7, 9, NCATE 1B).

[1]Thanks to Heidi Carlone for the language expressed in many of these objectives.

Interstate New Teacher Assessment and Support Consortium (INTASC) Model Standards for Beginning Teachers Licensing and Development

Principle #1 – Content Pedagogy
Principle #2 – Student development
Principle #3 – Diverse Learners
Principle #4 – Critical Thinking
Principle #5 – Management and Motivation
Principle #6 – Communication and Technology
Principle #7 – Planning
Principle #8 – Assessment
Principle #9 – Reflective Practice and Professional Development
Principle #10 – School and Community Involvement

National Council for Accreditation of Teacher Education (NCATE)
Standard 1: Candidates' preparing to work in schools as teachers or other professional school personnel know and demonstrate the content, pedagogical, and professional knowledge, skills, and dispositions necessary to help all students' learn.

A. *Content Knowledge* for Teacher Candidates: Teacher candidates have in-depth knowledge of the subject matter that they plan to teach as described in professional, state, and institutional standards. They demonstrate their knowledge through inquiry critical analysis, and synthesis of the subject.

B. *Pedagogical Content Knowledge* for Teacher Candidates: Teacher candidates reflect a thorough understanding of pedagogical content knowledge delineated in professional, state, and institutional standards. They have in-depth understanding of the subject matter that they plan to teach, allowing them to provide multiple explanations and instructional strategies so that all students learn. They present the content to students in challenging, clear, and compelling ways and integrate technology appropriately.
C. *Professional and Pedagogical Knowledge and Skills* for Teacher Candidates: Teacher candidates reflect a thorough understanding of professional and pedagogical knowledge and skills delineated in professional, state, and institutional standards. They develop meaningful learning experiences to facilitate learning for all students. They reflect on their practice and make necessary adjustments to enhance student learning. They know how students learn and how to make ideas accessible to them. They consider school, family and community contexts in connecting concepts to students' prior experience and applying the ideas to real-world problems.
D. *Student Learning* for Teacher Candidates: Teacher candidates accurately assess and analyze student learning, make appropriate adjustments to instruction, monitor student learning, and have a positive effect on learning for all students.

North Carolina Professional Teaching Standards (NCPTS)

Elementary teachers know, understand, and use fundamental concepts in the subject matter of science including life, physical and earth sciences. They also know and understand concepts in science and technology science in personal and social perspectives, the history and nature of science, the unifying concepts of science, and the inquiry processes that scientists use when discovering knowledge that can be used to build a base of scientific and technological literacy.

Indicator 1: Teachers have knowledge of basic life science concepts.
Indicator 2: Teachers have knowledge of basic physical science concepts.
Indicator 3: Teachers have knowledge of basic earth science concepts.
Indicator 4: Teachers have knowledge of controversial issues and how they impact learning, including evolution and genetics.

10. Teaching Strategies: Teaching strategies for this course include lecture, class discussion, group work, student presentations, field-based activities, lab work and teaching simulations.

11. Evaluation Methods and Guidelines for Assignments: The following grading scale will be used to determine letter grades.

		A	94-100%	A-	90-93
B+	87-89	B	83-86	B-	80-82
C+	77-79	C	73-76	C-	70-72

D+	67-69	D	63-66	D-	60-62
		F	59% or less		

Each assignment, which is described in this section, is worth the following percentage of your total grade:

Science Content Midterm Exam	10%
Science Content Final Exam	10%
Inquiry Project	20%
Curriculum Survey/Lesson Plan	20%
Critical Performance - Lesson Study	20%
Professionalism/Participation	10%
Blackboard Reading Quizzes	10%

Science Content Midterm and Final Exam
Each exam will cover the science content discussed during the first half of the semester (midterm exam-**October 5th**) and during the last half of the semester (final exam-**Dec. 7th**). After each class session, I will post content questions on BB. You are responsible to access these questions and determine answers. The exams WILL NOT be open book or open notes.

Science Inquiry Project **Due Nov. 16th**
Select one of the goals from the NCSCOS for your grade level (not the one associated with any of your other assignments). You may work on this assignment as a grade level team or on your own (no more than two people in a group). See description of assignment below.

Curriculum Survey/Lesson Plan **Due October 19th**
Select a different goal from the NCSCOS for your grade level (not the one associated with your inquiry project or lesson study project). *Starting* in the TRC, begin a survey of elementary science curriculum materials. You must include an STC item, an AIMS or GEMS item, a FOSS item, a TRACS (BSCS) item, 5 age-appropriate Internet Sites, a WebQuest site, educational software (1), lesson idea from your textbook (1), two items of your choice, 2 recommendations from our OSTE, two articles from *Science and Children* and 10 examples of age-appropriate science tradebooks or children's fiction related to the topic. I will post a form on blackboard for you to work from. For each item include the name of the material and where you found the resource. Provide a brief description (Enough so that another person would have a good idea about this item). Answer one of the following questions: I like this item because… OR I do not like this item because… You should also submit a lesson plan showing how you might use **one** of these items to teach your students. Please use the lesson plan format (5E) provided on blackboard. You may work on this assignment as a grade level team or on your own (no more than three people in a group). "Divide and Conquer" may be a good plan IF you will get back

with each other to share and discuss what you have found. [If you work as a grade level team on the survey, the lesson plan must be written individually. In other words, your grade level team can turn in one curriculum survey, but each individual must turn in a different lesson plan to go with the survey.]

Critical Performance – Lesson Study Project **Due Nov. 9th**
More information about this assignment at a later date.

Professionalism/Participation **Throughout the Semester**
Professional teachers are rarely absent, always arrive on time, contact the school in a timely manner when they are going to be absent, turn in work that is on time and meticulously done and are active, well prepared participants in staff development and other opportunities for intellectual growth. As soon-to-be professional teachers, I expect the same behaviors in this class. If you must miss class I expect you to get notes, assignments, and handouts from a classmate by the next class period. Missing more than one class for ANY reason will result in a deduction of 5 points on your final grade in the class. We are a community of learners where the ideas, voice and actions of everyone affect and transform the way we all think, feel and act. You are important to every class meeting. Together, we will "explore and construct ideas and explanations of the natural world within a supportive community of learners" (Carin, Bass & Contant, 2005).

Blackboard Reading Quizzes **Throughout the Semester**
Each week I will post a quiz on Blackboard about the content of the required weekly readings. You must complete these quizzes before coming to class on the assigned day. The quizzes for each week will be posted by Thursday afternoon of the previous week. You will be allowed to use your book but I do expect that you will take the quiz individually. The quiz format may include multiple choice questions, true/false questions, and/or short answer questions and should take you no longer than 15 to 30 minutes to complete (at most) if you have done careful reading. The maximum time allowed once you start the quiz will be one hour. Feel free to let me know at any time if this time limit is too short. The purpose of the quizzes is to insure that you are doing the required reading, allow you to connect the ideas in the readings to class activities and discussions, and give me a chance to understand the knowledge you're constructing as we proceed through the course.

12. Required Textbook:
Carin, A.A., Bass, J.E., & Contant, T.L. (2005). *Teaching Science as Inquiry* (10th Ed.). Upper Saddle River, NJ: Merrill Prentice Hall.

13. Topical outline: See attached course schedule

14. Other Information:

All assignments should be WORD-processed, spell-checked, checked for grammatical errors, double-spaced and be submitted on time. All materials prepared for this course must include attention to both the National Science Education Standards (NSES) as well as NC's Standard Course of Study (SCOS). All class members will abide by the UNCG Academic Honor Policy. Please be sure to read this policy at http://saf.dept.uncg.edu/studiscp/Honor.html.

15. Recommended Text(s) and/or Readings:

Bourne, B. (2000). *Taking Inquiry Outdoors: Reading, Writing, and Science Beyond the Classroom Walls*. Portland, MA: Stenhouse Publishers.

BSCS (1999). *Teacher's How-To Handbook: Strategies and Methods Across the Curriculum.* Dubuque, Iowa: Kendall/Hunt Publishing Company.

Doris, E. (1991). *Doing What Scientists Do: Children Learn to Investigate Their World.* Portsmouth, NH: Heinemann.

Kelsey, K and Steel, A. (2001). *The Truth About Science: A Curriculum for Developing Young Scientists*. Arlington, VA; NSTA Press.

Rutherford, F. and Ahlgren, A. (1990). *Science for All Americans.* NY, NY: Oxford University Press.

16. Assignment Alignment with Course Goals: See course goals and objectives and individual assignment descriptions for further alignment to state and national standards.

Assignments	**Course Objectives**								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Content Exams	**X**	**X**							
Inquiry Project	**X**	**X**				**X**			
Curriculum/LP	**X**		**X**	**X**	**X**	**X**	**X**		**X**
Critical Performance/ Lesson Study	**X**	**X**	**X**	**X**	**X**		**X**	**X**	**X**
Participation	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**	

Tentative Course Schedule:

Session Date	Topic	Readings and Assignments are due the following week unless otherwise stated
Session 1 Aug. 17	Children, Science and Inquiry	What is Science? Who does Science? Review of Syllabus • HW: Print NC Science Standard Course of Study for assigned grade level. • HW: Read Chapter 1 • HW: Read Chapter 2 & A3-A14. Take BB quiz before 11AM on Wed., Aug. 24
Session 2 Aug. 24	Processes of Science and Scientific Inquiry	**BB Quiz for Ch. 2 & A3-A14 due before 11AM** • HW: Read Chapter 3. Take BB quiz before 11AM on Wed., Aug. 31.
Session 3 Aug. 31	Learning Science with Understanding	**BB Quiz for Ch. 3 due before 11AM** • HW: Read Chapter 4. Take BB quiz before 11AM on Wed., Sept. 7.
Session 4 Sept. 7	Teaching Science Through Inquiry	**BB Quiz for Ch. 4 due before 11AM** • HW: Read Ch. 7. Take BB Quiz before 11AM on Wed., Sept. 14.
Session 5 Sept. 14	Preparing for Inquiry Instruction	**BB Quiz for Ch. 7 due before 11AM** • HW: Read Ch. 5. Take BB Quiz before 11AM on Wed., Sept. 21.
Session 6 Sept. 21	Questioning Strategies for Inquiry Teaching	**BB Quiz for Ch. 5 due before 11AM** • HW: Read Ch. 8. Take BB Quiz before 11AM on Wed., Sept. 28.
Session 7 Sept. 28	Connecting Science with Other Subjects	**BB Quiz for Ch. 8 due before 11AM**
Session 8 Oct. 5		**SCIENCE CONTENT MIDTERM EXAM** • HW: Read Ch. 6. Take BB Quiz before 11AM on Wed., Oct. 12.
Session 9 Oct. 12	Assessing Science Learning	**BB Quiz for Ch. 6 due before 11AM** • HW: Read Ch. 10. Take BB Quiz before 11AM on Wed., Oct. 19.
Session 10 Oct. 19	Educational Technology and the Science Curriculum	**CURRICULUM SURVEY/LESSON PLAN DUE on Blackboard in 'Assignments'.** **BB Quiz for Ch. 10 due before 11AM**
Session 11 Oct. 26	Educational Technology and the Science Curriculum	• HW: Read Ch. 9. Take BB Quiz before 11AM on Wed., Nov. 2.

Session 12 Nov. 2	Science for All Learners	**BB Quiz for Ch. 9 due before 11AM**
Session 13 Nov. 9		**CRITICAL PERFORMANCE-LESSON STUDY PROJECT DUE**
Session 14 Nov. 16		**INQUIRY PROJECT DUE-POSTER PRESENTATION**
Nov. 23		NO CLASS – THANKSGIVING HOLIDAY
Session 15 Nov. 30	8AM – 3PM	Project WILD
Dec. 7		**SCIENCE CONTENT FINAL EXAM**

Additional Readings Assigned as Needed.

Science Inquiry Project

Fall 2005

Rationale for this assignment

"Authentic science" activities for K-12 students is a priority of the American schooling agenda (Science for All Americans (AAAS, 1990); The National Science Education Standards (NRC, 1996); Inquiry and the National Science Education Standards (NRC, 2000). These documents describe inquiry as investigations in which students generate authentic questions from their own experiences. Students should not only "engage in aspects of inquiry as they learn the scientific way of knowing the natural world, but they should also develop the capacity to conduct complete inquiries" (NRC, 1996, p. 23).

Purpose

We have previously looked at inquiry as an instructional method. We are now going to experience inquiry as a mode of science learning. The major purpose of this inquiry assignment is for you to gain experience in the real world of science, to learn to think, work and approach life like a scientist. I hope you will uncover and develop your curiosities and instincts regarding the natural world. This assignment is about doing science not just doing a project. There is a difference. My goal is to promote a different kind of participation in science- a more active, scientifically authentic participation that will allow you to gain scientific literacy, not just isolated facts but a genuine understanding of the scientific process.

Science Inquiry and Objects of Wonder

The best science inquiry project really involves answering a question about something that makes you curious and using evidence to show others that your interpretations of that evidence are valid. There are really only two parts: do the science and then communicate what you did and learned from the process. The best beginning to an inquiry project is curiosity. Unfortunately, sometimes the way we have done science in school tends to suck that curiosity right out of us. Our goal as teachers is to rekindle that wonder and curiosity in ourselves and our students.

Step One: Initial Ideas

Start developing a research idea, begin preliminary research on your topics of interest. I would suggest children's books as a starting point. You will need to write a 2-3 page research paper (double-spaced) to describe the existing scientific models or theories regarding your chosen topic. You should also describe your theoretical perspectives on your subject. What do you know or already believe about this topic? Why did you choose this topic? Our theoretical and disciplinary commitments, beliefs, prior knowledge, training, experiences and expectations will influence our work; therefore, you should make this transparent to those reviewing your work. Contrary to popular belief, science never starts with neutral observations. A bibliography should go with this paper and it should be formatted in APA style (see APA quick reference at http://library.uncg.edu/depts/ref/handouts/apa.html). This research paper should also have a reference to the NCSCOS goal you are working from as well as the corresponding National Content Standard.

Step Two: Inquiry Question and Design

Remember you only want to consider one question (or investigate one thing) at a time. You need to define your single question that you want to investigate. A good science inquiry question often takes the form of: "What is the effect of _____ on _____?" Or, "Which _____ does _____ better?" The task of crafting a question that is meaningful, consistent with existing theory and testable is a complex problem for most students.

Chapter 2 in your textbook gives a nice description of how to develop a hypothesis and design an investigation. Each hypothesis (tentative explanatory framework for your question) should have a 'because'. The reason should be grounded in some type of scientific theory or model or some other accepted relationship in natural phenomena. Ask yourself: What is already known about his phenomena? How does what is already known help you shape your hypothesis? This explanatory framework should come at the very beginning of the inquiry process. Failure to frame investigations using hypothetical models or existing scientific theory undermines inquiry's connection with science content. Make sure you are conducting a fair test (p. 45). You should specifically state your variables: manipulated, responding and control. You should also develop a good hypothesis (make sure to read p. 46).

Science Conference

This will be a time where you will share your understandings concerning what you are doing with your inquiry project and how you are developing your own meanings of what it means to be a science person. As a community you will act as learning resources for each other. You each have different interests, hold varied viewpoints and will make diverse contributions to the activity. Your main goal will be to help your team-mates to sharpen their understandings.

The best way to develop proficiency at solving simple experimental problems in science is to actually design and conduct an experiment on your own. Every problem on the list below will require you to carefully design and conduct an investigation. Completing this assignment will help you lead your students to successful science fair participation. Choose an experiment below related to subject matter covered in your grade level or suggest your own experiment and request approval to conduct that experiment.

The following are some ideas for you to consider. Explore the relationship between one of the following:

1. Size of a shadow caused by an object and the distance of that object from a light source.
2. Size of an object based on the shadow that the object projects.
3. Mass of a toy car and the time it takes to roll down an inclined plane.
4. Mass of a pendulum bob and the amount of time it takes to complete one cycle.
5. Angle of incline of a surface and the time it takes a drop of water to run down the surface.
6. Relationship between physical activity and heart rate.
7. Effect of temperature, over time, on the volume of air in a balloon.
8. Agonistic behavior of *Betta splendens* when confronted wit various stimuli.
9. Effect of temperature on evaporation rate.
10. Effect of changing temperatures (and changing states of matter) on a given volume of water.

11. Effect of rate of vibration of an object on its pitch.
12. Effect of varying hours of light exposure on growth rate in plants.
13. Effect of soil type on water retention capacity.
14. Effect of volume (l x w x h) and weight on ability of objects to sink or float.
15. The effect of various irregularly shaped objects on water displacement.
16. Effect of heat on the rate of decomposition.
17. Effect of type of material on its ability to conduct heat.
18. Effect of distance on a magnet.
19. Effect of substances on a magnet.
20. Effect of increasing voltage on brightness.
21. Effect of temperature on condensation.
22. Other upon approval.

Step Three: Conduct inquiry

There are many types of acceptable inquiry, but for this assignment you must conduct either an experiment or survey. Experimental investigations are nicely defined in your text (ch. 2). A survey often takes the form of asking people questions or counting people, animals, actions, or things. When conducting a survey sample size is very important (the larger your survey population, the more powerful your evidence). You will still need to identify types of variables, although your variables may not be measurable. Remember to keep a logbook documenting your procedures, data collected and thoughts generated.

Step Four: Present Findings

Prepare a tri-fold display board that communicates basic information about your experiment. You will display your board at our poster presentation session. I will give you some suggestions for this later.

Inquiry Project Rubric

Research Paper

	Possible Points	Earned Points
Format 2-3 pages, double-spaced	4	
Existing scientific models or theories stated	8	
Your theoretical perspective stated (what you know and believe)	4	
Reasons for choosing topic stated (relevance)	4	
Bibliography (APA format)	4	
Connection to National and State Standards stated	4	
Total Points for Research Paper	28	

Inquiry Project

Question *Related to natural world? *Empirical? *Causal/Functional? *Focused, limited, manageable?	5	
Hypothesis *Related to question? *Has a "...because…"	5	
Variables Identified *Independent (Manipulated) *Dependent (Responding) *Controls	5	
Procedures *Logical/tied to question *Empirical/Experimental *Skillfully carried out *Replication	10	
Data *Recorded in log book *Measurable *Charted (organized) *Connects to question *Appropriate units of measurement *Graph(s)	5	
Results *Explanations tied to evidence *Inferences logical *Interpretations of graph reasonable	5	
Analysis *Provides a possible cause for effect		

*Other reasonable explanations considered *Consistent with experimental & observational evidence *Claims relate to original question *Connections to what is scientifically known about topic *What new knowledge have you gained? *Your final thoughts and feelings	5	
Total Points for Inquiry Project	40	

Presentation Board

The following should be displayed on your board: Question Hypothesis Variables Procedures Data (charts/graphs) Results Analysis	14	
Neat	5	
Creative	5	
The following should be displayed with board but not on board: Log book Research Paper	8	
Total Points for Presentation Board	32	

Overall Scores

Research Paper	28	
Inquiry Project	40	
Presentation Board	32	
Total Score	100	

Curriculum Survey Project

NCSCOS Goal –
National Content Standard –

STC (1)	
AIMS or GEMS (1)	
FOSS (1)	
TRACS (BSCS)	
Internet Sites (5)	
WebQuest Site (1)	
Education Software (1)	
Lesson Ideas from text (1)	
Items of your choice (2)	
Recommendations of OSTE (2)	
Science and Children Articles (2)	
Science Tradebooks (10)	

For each item include the name and where you found the resource. Provide a brief description (Enough so that another person would have a good idea about this item). Answer one of the following questions: I like this item because… OR I do not like this item because…

Lesson Plan Format for Curriculum Survey

Science Inquiry Lesson

Grade Level:

Source:

Time Allotment:

Context: (How does this lesson fit in with student previous experiences?)

Connections: How does this topic connect to the lives of the children in your class? In other words, why should they care about what you are going to teach them?

Standards

- Correlation to National Science Standards
- Correlation to North Carolina Standard Course of Study

Lesson Objectives: (These should be very specific and performance based. In other words, what do you want students to be able to do at the completion of the lesson to demonstrate that they have understood what you are teaching?)

Materials:

Guiding Inquiry Question(s):

Steps of Lesson/Procedures: (This should be done in bullets or numbered)

- Engage
- Explore
- Explain
- Elaborate
- Evaluate

Plans for Individual Differences:

Extension of Lesson: (Alternative activities-emergency fillers)