

EDCI 372 B-0101, Fall, 2007 (Monday, 10:30am-12:20pm)
Elementary Science Education Calendar
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Note: The readings listed under each session should be **read in advance** for the day they are listed in this schedule.

Class Sessions

Topic

Session 1

(Date: 9/10/07)

Course Overview

Nature of Science activity

Case Study: Fish, B. (2006). Building on the natural wonder inherent in us all. In R.E. Yager & S.K. Enger (Eds.), *Exemplary science in grades pre-K-4, Standards-based success stories* (pp. 9-20). Arlington, VA: NSTA Press.

Session 2

(Date: 9/17/07)

The Nature of Science and Science Teaching

Reading 1: Buxton, C.A. & Provenso, E.F. *Teaching Science*: Chapter 1.

Reading 2: NSTA Pathways, pp. 14-17. Reaching for the professional development standards.

Reading 3: Pearce, C.R. *Nurturing Inquiry*: Chapters 1 and 2.

Reading 4: Gallus, K. *Talking their way into science*: Intro and Chapter 1.

Reading 5: Orlich, D.C. (1964). The dawn of scientific epistemology: 1564-1964. *Journal of Research in Science Teaching*: 2, 95-99.

Reading 6: Fritzer, P. & Bristor, V.J. (2004). *Science content for elementary and middle school teachers*. Boston, MA: Pearson.

DUE: Bring a copy of the Maryland State Voluntary Science Standards for your targeted grade level for discussion in class and preparation for the assignment for next week.

First FULL WEEK IN THE SCHOOLS (9/24-9/28/07)

Assignment Due:

Make observations about science teaching that you see this week and reflect on your observations. Compare and contrast your observations to both the state voluntary science standards (available on the internet at: <http://mdk12.org/mspp/vsc/index.html>) and the National Science Education Standards (available on the internet at: <http://www.nap.edu/catalog/4962.html> and in the *NSTA Pathways* textbook). Indicate in your reflection on your classroom observations the teaching strategies used, science content and how they are related to the standards.

If no science is being taught in your class, make arrangements through your school coordinator to observe science teaching in another classroom.

Related Reading : Buxton, C.A. & Provenso, E.F. *Teaching Science: Chapter 5*

Please submit your observations and reflections in Blackboard by October 1st.

Session 3

(Date: 10/1/07)

Inquiry based instruction

Reading 1: Buxton, C.A. & Provenso, E.F. *Teaching Science: Chapter 3*.

Reading 2: Pearce, C.R. *Nurturing Inquiry*: Chapter 3

Reading 3: Gallus, K. *Talking their way into science*: Chapter 2

Reading 4: Finkelstein, A. (2002). Questions. In *Science is Golden*. Michigan State Univ. Press. pp. 15-22.

Reading 5: *NSTA Pathways*, pp. 35-43. Science as Inquiry.

DUE: Prep to teach mini-lessons, small group discussions in class. Bring a copy of your lesson plan outline to share with others.

Session 4

(Date: Friday, 10/5/07)

Note date change

Science Talks

Reading 1: Gallus, K. *Talking their way into science*: Chapter 3.

Science Observation Skills

Reading 2: Buxton, C.A. & Provenso, E.F. *Teaching Science*: pp. 136-137.

Reading 3: Pearce, C. *Nurturing Inquiry*: Chapter 4.

Science Inquiry Lesson presentation #1

Assignment: Finalize mini-lesson preparation and implementation. Submit a draft of your plan to me for comments by email by October 8th.

Session 5

(Date: 10/15/07)

Diversity in the classroom

Reading 1: Terry, S. (1996). Working in Community. In (Ed.) Saul, W., & Reardon, J. *Beyond the Science Kit*. Portsmouth, NH: Heineman.

Reading 2: Tomlinson, C.A. (2001). The role of a teacher in a differentiated classroom. In *How to differentiate instruction in mixed-ability classrooms*. New Jersey: Pearson.

Reading 3: Buxton, C.A. & Provenso, E.F. *Teaching Science*: Chapter 4.

The 5 E Lesson Plan

Reading 4: Abell, S.K. & Volkman, M.J. (2006). *Seamless Assessment in Science: A guide for elementary and middle school teachers*. Portsmouth, NH: Heineman. pp. 12-27.

Reading 5: *NSTA Pathways*, Exploring the Assessment Standards. pp. 20-25.

DUE: Your mini lesson plan report. Be prepared to discuss your mini lesson plans in class in small groups.

Session 6

(Date: 10/22/07)

Making connections between science and reading/language arts:

Welcome to the Island of Silencia

Reading 1: Gallus, K. *Talking their way into science*: Chapters 3 and 4.

Reading 2: Pearce, C. *Nurturing Inquiry*: Chapter 7.

Poetry and Science?

Reading 3: River of Words by Mary Pardee. (2005). Volunteer Monitor.

Reading 4: Children, Science and Books? A Teacher Explains. (1991). In W. Saul, W. & S.A. Jagusch (Eds.), *Vital Connections: Children, science and books*. Portsmouth, N.H.: Heinemann. pp. 117-125.

Science Inquiry Lesson presentation #2

DUE: Please send me a draft of your 5E Core Assignment Lesson plans via email. I will send comments to you to assist in your process.

Session 7

(Date:10/29/07)

Science Process Skills: Inferring and Predicting*Reading 1:* Buxton, C.A. & Provenso, E.F. *Teaching Science:* pp. 136-137.*Reading 2:* NSTA Pathways, Science and Technology: Content Standard E. pp. 81-88.**Science Inquiry Lesson presentation #3****Session 8**

(Date:11/05/07)

Making Connections Between Science and Mathematics*Reading 1:* Monroe, E.E. & Nelson, M. (2004). Say “Yes” to Metric Measure by Eula E. Monroe and Marvin Nelson In *Stepping Up to Science and Math*. National Science Teacher’s Association (NSTA).*Reading 2:* Breit, F. (2004). Graphing is Elementary. In *Stepping up to Science and Math*. National Science Teacher’s Association (NSTA). P 37-40.**Science Inquiry Lesson presentation #4****Second FULL WEEK IN THE SCHOOLS (11/12-11/16/07)****Session 9 Water Quality activity day**

(Date: 11/19/07)

Reading 1: Buxton, C.A. & Provenso, E.F. *Teaching Science:* pp. 182-199.*Reading 2:* Pearce, C.R. *Nurturing Inquiry:* Chapter 5.**Science Inquiry Lesson presentation #5****Due: The 5 E Lesson Plan teaching assignment should be completed in the classroom by the end of November.****Session 10**

(Date: 11/26/07)

Concept maps and “Mapping” concepts*Reading 1:* Buxton, C.A. & Provenso, E.F. *Teaching Science:* pp. 72-77.*Reading 2:* Activities #2, #15, #16 from Mapping by Gary Benenson and James L. Neujahr. (2002). Portsmouth, NH: Heinemann**Differentiation of Instruction in Elementary Science Education***Reading 3:* Tomlinson, C.A. (2001). The rationale for differentiated instruction in mixed-ability classrooms. In *How to differentiate instruction in mixed-ability classrooms*, Chapter 2. New Jersey: Pearson.*Reading 4:* Tomlinson, C.A. (2001). Differentiating content. In *How to differentiate instruction in mixed-ability classrooms*, Chapter 11. New Jersey: Pearson.*Reading 5:* Tomlinson, C.A. (2001). Differentiating Process. In *How to differentiate instruction in mixed-ability classrooms*, Chapter 12. New Jersey: Pearson.*Resources:* NSTA Pathways, Appendix E: Science for All: Including each Student. Appendix E. pp. 147-160.**Science Inquiry Lesson presentation #6**

Session 11(Date: 12/3/07)**Introducing Project Based Learning and 2nd Case Study discussion**

Case Study: Foss, M. (2006). Finding out what...and how they know. In R.E. Yager (Ed.), *Exemplary science in grades 5-8: Standards-based success stories* (pp. 59-68). Arlington, VA: NSTA Press.

Reading 1: Uyeda, J., Madden, L.B., Left, J. & Washburne, J. (2002). Solving Authentic Science Problems. *Science Teacher*. pp. 24-28.

Reading 2: Tracy, J. & Glaser, K. (1999). Ecology Project Learning. *Green Teacher*. Vol 59. p 5-9.

DUE:

For the Project GLOBE discussion: explore the website at: <http://www.globe.gov>

Also go to the Carnegie Foundation website, explore Emily Wolk's work, and post your discussion points in Blackboard. <http://gallery.carnegiefoundation.org/collections/index-K12.htm>

Reading 3: NSTA Pathways, Science in Personal and Social Perspectives: Content Standard F. pp. 89-101

DUE: The 5 E lesson plan report, including the mentor teacher evaluation rubric is due on or before December 3, 2007.

Session 12

(Date: 12/10/07)

Last Class Session:

Due: Submit a copy of your final Science Inquiry Project summary paper.

Be prepared to give (with your fellow collaborators) a presentation either in poster or powerpoint format to our class that summarizes your Inquiry project.