

E3B G4260 **Food, Ecology and Globalization**

Syllabus (as of 1/17/15)

Tuesday, 6:10-8 pm, Room Schermerhorn Extension 1016 (10th Floor)

Professors: *Dr. Eleanor Sterling* (sterling@amnh.org) and *Dr. Sharon Akabas* (sa109@columbia.edu)

Teaching Assistants: *Rae Wynn Grant* (rjw2130@columbia.edu) and *Amrita Neelakantan* (an2601@columbia.edu)

Office Hours:

Drs. Sterling and Akabas: on request

Wynn Grant (Tuesdays, 2-3 pm, 10th Floor Schermerhorn Extension, Lobby area) and Neelakantan TBD

Course Overview:

This is a broad survey course within which students will gain an understanding of the variety of factors that influence food choice. We will examine the nutritional, environmental, and ecological needs and economic forces at local and global scales that have shaped human taste preferences and food consumption from deep history to present-day. As a class we will explore the question, "Why do we eat what we eat, and what are the implications of our consumption?" Through examining the systems that make possible contemporary food consumption, students will gain an understanding of how the nutritional problem of consuming a healthful diet is intertwined with environmental, ecological, and social realities.

To reinforce the concepts covered in class, students will analyze their own diets from a nutritional and ecological standpoint (micro and macro), reflecting on the ways that culture intersects with their own nutritional choices and ecological footprint.

Grading:

- 15% Class attendance and participation (questions/comments each week, and a brief assessment at the end of class) - *Readings for each session will be posted on Courseworks in Files and Resources for each week. Students are expected to complete the readings prior to each class.*
- 25% Individual diet assessment (Due February 10, uploaded by midnight to Courseworks)
- 30% Reflection piece – Why I eat what I eat (Due March 24, uploaded by midnight to Courseworks.)
- 30% Final Powerpoint and Essay Project (individual or group [up to 3 people in group] - Presentations April 14 & 28, Essay due May 1)

Class Lecture Schedule and Topics

Part I: Culinary territories: From nutrition to culture to agriculture

Session 1 - January 20

Drs. Sterling and Akabas

Topics: What is a healthful diet and why? What did Lucy eat, and how is it different from McDonald's? What do we need to know about history to inform our understanding of the current food system? What are the relationships between food, ecology, and globalization?

Session 2 – January 27

Part I: Dr. Sterling: *What are the upsides and downsides of domestication and agriculture? Or, natural versus artificial selection, market selection and trade through history.*

Part II: Guest Speaker: Jessica Fanzo, PhD, Assistant Professor of Nutrition, Columbia University

Topic: You are what you eat. Or, nutrition and food, changes in dietary pattern through time.

Global dietary patterns – where they started, where they are now, and how they affect our food choices. 19th and 20th c– how diet was understood, even 100 years ago, versus today. How have shifts in population, agriculture and food access changed food security and public health in different regions of the world?

Readings (files in Files and Resources):

International Food Policy Research Institute. 2014. *Global Nutrition Report 2014: Actions and Accountability to Accelerate the World's Progress on Nutrition*. Washington, DC.

(executive summary is required, the rest is recommended). Access via

<http://www.ifpri.org/sites/default/files/publications/gnr14.pdf>

Keats, S., & Wiggins, S. (2014). *Future diets: Implications for agriculture and food prices* (pp. 1–133). Retrieved from odi.org **please read Executive Summary and Ch.1&2, rest of report is optional

Popkin, B. M., Adair, L. S., & Ng, S. W. (2012). Now and then: The global nutrition transition: The Pandemic of Obesity in Developing Countries. *Nutrition Reviews*, 70(1), 3–21.
doi:10.1111/j.1753-4887.2011.00456.x.NOW

Session 3 – February 3rd

Dr. Sterling

Topic: Biodiversity and food systems 1. *What are the challenges of feeding 9 billion people? Ecological consequences of agriculture, biodiversity for agriculture.*

Readings

Zeder MA. 2006. Central questions in the domestication of plants and animals. *Evolutionary Anthropology: Issues, News, and Reviews* 15:105–117.

Peters, C.J., N.L. Bills, J.L. Wilkins, and G.W. Fick. 2009. Foodshed analysis and its relevance to sustainability. *Renewable Agriculture and Food Systems* 24: 1-7.

Foley, J.A. 2011. Can we feed to world & sustain the planet? *Scientific American* 60-65.

Robertson, G.P. and S.M. Swinton. 2005. Reconciling agricultural productivity and environmental integrity: a grand challenge for agriculture. *Frontiers in Ecology and Environment* 3(1): 38-46.

Tilman and Clark (2014). Global diets link environmental sustainability and human health. *Nature* (0:1-15) Godfray, H.C.J., *et al.* 2010. Food security: the challenges of feeding 9 billion people. *Science* 327: 812-820. (Optional)
Stix, G. 2007. A question of sustenance. *Scientific American* 54-58. (Optional)

Session 4 - February 10

Dr. Sterling

Topic: Biodiversity and food systems 2. *Green Revolution, GMOs, and other inventions. where did they get us?*

Session 5 - February 17

Dr. Sterling

Topic: Cultural aspects of food. *Taste as a social construction, biology of terroir.*

Session 6 – February 24

Guest Speaker: Dr. Ken MacDonald, University of Toronto

Topic: Food and culture: Say cheese – an ethnography of cheese, including understanding cheese marketing and branding, etc.

Session 7 - March 3

Guest Speaker: Dr. Andrew Huff, Ecohealth Alliance

Topic: Food pathogens in relation to food preference, environmental health, and systems-level food production challenges

Part II of course: Local, National and Global Solutions

Session 8 – March 10

Solutions I: Part I & II

Guest Speaker: Michael Conard, Urban Design Lab; Will Robb and Matt Stinchcomb, Etsy.

Topic: Part I: Systems approach to understanding and resolving problems.

Part II: Quantifying Food's Environmental Impact

Matt Stinchcomb, Vice President, Values and Impact, Etsy

Will Robb, Global Food Programs Manager, Etsy

March 17 – Spring Break

Session 9 - March 24

Drs. Sterling and Akabas

Recap and clarification of muddy points

Session 10 – March 31

Guest Speaker: Janet Collins, Crop Life America

Topic: Solutions II: Are Biotech and GMO a solution or a problem?

Session 11 – April 7

Guest Speakers: Kathy Lawrence (School Food FOCUS) Karen Washington (Garden of Happiness and President of the New York City Community Garden Coalition)

Topic: Solutions III: Examples of city/state/national initiatives to right the ship.

Session 12 - April 14

Student Powerpoint Presentations

Session 13 - April 21

Guest Speaker: Dr. Fred Kirschenmann, Distinguished Fellow at the Leopold Center for Sustainable Agriculture at Iowa State University

Topic: Food production and supply II: Organic, local, natural? What are they, says whom, who cares?

Session 14 - April 28

Student Powerpoint Presentations

ASSIGNMENTS

Assignment 1 (Parts a & b): Individual Food Assessment
Part 1a, Due by February 18, Part 1b, Due by March 24th
Both upload to Courseworks drop box by 12 midnight

Part 1a. For this assignment, you will track and analyze your diet using both qualitative and quantitative methods.

1. Record keeping
 - a. Record your **physical activity** and **everything you eat and drink** for three consecutive days: two weekdays, and one weekend day. To do this, you will need to create an account and use the tools at <https://www.choosemyplate.gov/SuperTracker/default.aspx> to record and track both your diet and physical activity.
 - b. To the best of your ability, track the costs of the food and drink you consumed during the days you track your diet. This may be an estimate based off of previous purchases, or it may be from actual receipts. What is the average weekday cost of your food and beverage purchases? What is your weekend cost? Using those numbers, estimate your total weekly food costs.
 - c. *Going Beyond (optional—brownie points)* Retain grocery store receipts and restaurant/ dining out receipts for one week, compare with your personal cost estimate and with the USDA thrifty food plan estimates.
2. Reports
 - a. Using the "my reports" function (<https://www.supertracker.usda.gov/myReports.aspx>), create reports for physical activity, food groups & calories, and nutrients for the period tracked.
 - b. Create a table that shows your estimated costs for breakfast, lunch, dinner, and snacks for the three days tracked. Include in the table the average weekday cost, the weekend cost, and the estimated weekly cost. Additionally, using the guidelines for official USDA food plans, determine the weekly cost of food at home (<http://www.cnpp.usda.gov/USDAFoodCost-Home.htm>) for the thrifty food plan for your age/gender/family status. Use the cost data for the most recent month. Note these are U.S. averages, and not NYC costs; the thrifty food plan costs form the basis of federal nutrition benefits. Include the weekly cost for food in your table.

Sample Table

	Weekday 1	Weekday 2	Weekend day 1	Average weekday cost	Weekly cost (Av weekday*5 + weekend*2)	Thrifty food plan cost
Breakfast						
Lunch						
Dinner						

3. Analysis

- a. Write a three-page, single or 1.5-spaced, 1" margins, Times New Roman, reflection about the experience. This is an analytical exercise—we expect you to take your records, reports, *and* personal experience, and use them as support for demonstrating what you learned through this process. This analysis must include a reflection on why you eat what you eat, and what are the primary factors that impact your choices. Additional components could include a critique of the website, a critique of your own eating habits within the larger context of the class, an analysis of the societal or structural limitations that affect your eating in contrast to the Thrifty Food Plan, etc. A-grades will only be given to papers that use the information from the reports to inform an in-depth analysis.
- b. Attach to your analysis your reports for physical activity, food groups & calories, nutrients, and your cost-estimate table.

Part 1b. Due March 24

- a. Weekly submission on Web:
You will be assigned to a group of your classmates and will respond to a global prompt that requires them to write a brief paragraph after each lecture to reflect on how the lecture influenced your thinking about food. In response to the prompt, you should also reflect on whether what you learned will result in a change in your food purchasing and eating habits. If there is a shift in purchasing and eating, be specific about the change.
- b. Summary paper due March 24th:
Write a two-page, single or 1.5-spaced, 1" margins, Times New Roman. This can include components of your weekly reflections but should be more integrative across the whole course. The paper should include what they learned in the class that will influence your way of thinking about Food, Ecology and Globalization, and actions that you have taken or plan to take as they relate to what you learned.

Assignment 2. Presentation and Essay. Presentation either April 14 or April 28, all essays uploaded to Courseworks by midnight May 1

Final Project: Essay and Presentation

Presentation and Essay Format

Choose and research a topic that addresses the **intersection** of Food, Ecology, and Globalization (at minimum linking two of these three areas) and prepare a science-based essay and related presentation. Your research should be based on original science research/literature, not secondary sources such as web sites, books, or newspaper articles. You should include at minimum five references from the primary literature (i.e. peer-reviewed journals). The presentation should have an introduction, methods and results (if appropriate, otherwise provide synthesized evidence that assesses your question) and discussion section. If you are working **individually**, the essay should be **3-4 pages single-spaced (not including references)**; if you are working in a **group**, your essay should be **3-4 pages single-spaced for each group member (i.e. a 3-person group would produce a 9-12 page paper with at least 15 references)**.

Your presentation should be a 5-minute powerpoint presentation, and should provide broad context showing why your question(s) is/are interesting, outlining the data relevant to answering your question(s), providing an overview of your results, and then putting your results into a broader context in terms of the concepts and literature we explored during the class.

In an effort to respond to the varied backgrounds and interests of the class, we have compiled a broad spectrum of topics from which to choose your final project; these suggested topics are meant to provide a sense for what might make a reasonable project topic, and you may propose your own topic. The final project will comprise 30% of your final course grade.

After completing this assignment, you will have gained experience in searching, reading, and synthesizing the primary science literature; writing a well structured research paper; properly citing the literature and using a citation manager; and, finally, in presenting at a scientific meeting.

Deliverables: the final project essay is due on May 1 and an in-class powerpoint presentation will be given on April 14 or 28 (you will sign up for specific dates in class); individual components are due as follows, with the percentage of the project grade that they are worth in parentheses and detailed descriptions below:

(1) On March 13 you must submit to TAs your topic for approval. You should include:

1. An informative title for your essay
2. 1 paragraph introduction summarizing the topic, ending with the explicit statement of 1-3 key questions that you will answer
3. A references section with at least 5 references from the primary literature that provide an idea of the scope of literature you will need to review to answer your questions (5% of total project grade)

Please feel free to meet with TAs ahead of the due date so you can focus your topic search effectively.

(2) By March 31, you must upload a draft outline to your Courseworks dropbox folder (see details below) (5% of total project grade)

(3) On April 14 or 28 each student will give a 5-minute presentation describing his/her major questions and findings. Groups will be given 5'/student. (30% of total project grade)

(4) On May 1, a final essay is due (3-4 pages single-spaced not including references; 60% of total project grade).

Below you will find details on potential topics, the expected format of the essay and presentation, general project guidelines, suggested search engines and citation managers, outline submission guidelines, and recommended citation style.

Topics

This list of topics provides a sense for what types of projects are appropriate so that you can pick a project of interest to you but that also addresses the nexus of food, ecology, and globalization. You could write directly on one of these topics or choose a topic of interest to you that is appropriate based on your review of this list. Working in groups is acceptable, but the contributions of each group member must be explicitly stated when you send the initial outline to TAs (deliverable #1), and the requirements for the project are on a per/student basis (i.e. a group with 3 members will produce a 12-page final paper and a 15 minute presentation).

1. Trace a food (for instance, tomatoes, corned beef, apples) from its origins to current pattern of production and distribution in the United States, looking at ecological and social implications of the product.

Sample Question: Do apples that are from upstate NY and are sold in NYC green markets have a smaller carbon footprint than those shipped from Washington State to NYC?

2. Trace a particular brand (e.g., one of the Greek yogurts, Sabra hummus, Fleishner's grass-fed beef) from source of main ingredients through distribution and consumption in the US, looking at ecological and social implications of the products.
3. Research the dietary pattern of an indigenous people and how that has changed over time with the industrial revolution, green revolution, and globalization of the food supply.
4. The social and environmental consequences of colonial history on the sustainability of production, trade, and marketing of a particular food source.
5. Case studies of individual genetically modified crops and the criteria for determining their safety

Sample Questions: Do the pro-poor benefits of GMOs (i.e. drought/pest resistant crops) outweigh the negative aspects of corporate monopolies over such technologies?

6. The healthfulness of a vegan diet and its resource imprint

Sample Question: How can you quantify the health and environmental benefits of a vegan diet?

7. A comparison of organic vs conventional raising of (choose one)
 - fish
 - chickens
 - hogs
 - cows
 - some kind of fruit or vegetable

Sample Question: Does organic farming necessitate higher prices for produce and/or meat than conventional farming?

8. Compare and contrast the costs and benefits of local agriculture of a certain crop to conventional agriculture
9. Research organic standards in at least 2 countries and compare them to the US
10. Show projected impact of climate change on brands that are tied to a region through some kind of *terroir* marketing program
11. The semiotic and ecological production of a particular product. How is the product made desirable? Who advertises it? What images and symbols are used to make the product valuable? How is the product packaged? Where is it packaged? What are the ecological effects of packaging? ? Is there congruence or a disconnect between the images and symbols used to produce it and ecological consequences?
12. Explore how a product is grown/produced in a particular country. Who does the labor? What ecological services support the production and what effect does its production have on the surrounding biodiversity/environment/health of people? What are the labor relations and labor politics of its production?

Sample Question: Do Fair Trade coffee growers in Guatemala actually get better returns for their product and is it better for the environment?

13. Explore marketing question in NYC. Compare and contrast advertisements in bodegas/delis in 2-3 different places in Manhattan. Analyze product placement, amount of SKUs (shelf real estate) allocated to different food sources and identify patterns such as targeting individuals from particular socio-economic or cultural backgrounds.

Sample Question: Are food advertisements in low-income areas more geared towards unhealthy food choices?

14. Benefits and disadvantages of localizing food systems, with reference to a particular area.
15. Bodega Interventions and food deserts: Review efforts such as bodega intervention programs to alleviate food deserts.
16. Green Fund Proposal: Chose a topic related to the class that can satisfy the Green Fund criteria

(<http://www.environment.columbia.edu/sites/environment.columbia.edu/files/Green%20Fund%20Guidelines%20Application%20Guidelines.pdf>); work with TAs to ensure that

it also satisfies the class project criteria, and write your paper in the format of a grant proposal.

17. Other – you choose a topic but be sure to vet it with TAs. Have a back-up topic from the list in case your topic is not suitable.

General Project Evaluation

In order to provide more detail about what we hope you will get out of this project, we have included a rubric that demonstrates the general categories on which you will be evaluated, including a rubric demonstrating how we will evaluate your success in addressing each category.

1. Is there a substantive central question?
2. Are arguments logical and based on good and relevant evidence?
3. Are arguments sufficiently supported with literature?
4. Are the essay and presentation well organized and easy to follow?
5. Are the essay and presentation prepared in a careful way, without typos or grammatical errors?
6. Are the findings in the essay and presentation placed into the broader context of the field, as outlined over the course of the class?

Rubric

	1	2	3	4
Organization	Presentation/essay are very hard to follow, with no evident organization.	Presentation/essay somewhat organized, but not easy to follow. Several ideas seem out of place or irrelevant.	Presentation/essay clearly organized, easy to follow. Ideas are introduced coherently, and results are comprehensively described.	Presentation/essay clearly organized and easy to follow, with a specific introduction and conclusion. Well written, and no information seems out of place or irrelevant.
Content and Supporting Evidence	The content is not directly relevant to the assigned topic. Presentation/essay do not include adequate evidence supporting the author's arguments or includes irrelevant evidence. Student does not	Some of the content is not relevant to the assigned topic. Some of the arguments/results are insufficiently supported by evidence or research seems insufficient. Some of the evidence used seems	Most of the content is directly relevant to the topic. Sufficient, supporting evidence included for each argument. Inaccuracies, if present, are minor. Most evidence properly cited, but	All of the presentation/essay is clearly related to the topic. All evidence brought to bear on the question seems accurate, from high quality sources, and relates to the topic, allowing greater understanding of

	provide sources of evidence.	inaccurate, from poor quality sources, or is unrelated to the topic. Student does not provide sources for all the evidence.	of mixed quality or from a limited variety of sources.	both the results and their place in the context of the field and class. Includes a variety of high quality and relevant supporting evidence, properly cited.
Student Comprehension (Reflected/supported in the essay)	Student displays minimal understanding of the subject, provides no explanation, or a minimal explanation, of any supporting evidence, and fails to leave audience with clear and comprehensive take-home message.	Student displays some understanding of the subject, attempts to explain supporting evidence but does so incompletely or erroneously in some cases, and/or provides audience with a take-home message that is not sufficiently clear or comprehensive.	Student displays near-complete understanding of the subject, clearly explains most of the supporting evidence, and provides the audience with a clear, comprehensive take-home message but fails to place the project in a broader context.	Student displays a complete understanding of the subject clearly explains all of the supporting evidence and ends with a clear, comprehensive, and compelling take-home message grounded in the broader literature and class.
Visual Aids	Presentation includes many images/ diagrams that are confusing, irrelevant to the topic, or detract from presentation clarity.	Presentation includes some images/ diagrams that are confusing, irrelevant to the topic, or detract from clarity.	With 1-2 exceptions, the presentation includes clear, relevant images and diagrams that enhance understanding of the topic.	All of the images/diagrams are clear, relevant, visually pleasing and enhance understanding of the topic and convey information effectively.

Search engines and citation managers

As you begin to brainstorm on project ideas and read on diverse topics, consider the following tips on search engines and citation managers.

Useful search engines:

Web of Knowledge

PubMed

Google Scholar

Access PubMed and Web of Knowledge through Columbia Libraries website:

<http://library.columbia.edu/>

click on “Databases”, search for:

Web of Science (also known as ISI web of knowledge, Web of knowledge, Institute for Scientific Information web of science): bibliographic information and cited references across all disciplines.

PubMed: comprises more than 22 million citations for biomedical literature from MEDLINE, life science journals, and online books. Columbia offers workshops to learn to search PubMed with speed and skill. Columbia Library offers introductory classes on Tuesday (12-1), Wednesday (12-1) and Thursday (1-2). Registration not required. Check website for details and updates.

(<http://library.cumc.columbia.edu/calendar/month>).

Working with too many references?

You may want to adopt a citation manager that allows you to easily store your references, produce bibliographies and citations in various styles, download and index full text resources, and share search results with colleagues.

If you are not already using a tool with these capabilities, consider using Zotero

(<http://www.zotero.org/>) or Endnote, free to Columbia students (<http://endnote.com/>).

Final project outline submission guidelines

Due March 31: Upload to your outline to your dropbox folder on courseworks.

Your outline should be 1 page maximum (not including references) and your references should be in the style of your choice (e.g., MLA, Chicago, etc.).

If you are working in a group, your individual contributions to the project have to be explicit and documented in your outline and final research paper and the project needs to be robust enough to show the effort of multiple people.

In your outline, you should subdivide topics by a system of numbers and letters, followed by a period; all the headings should be expressed in complete sentences. Remember that an outline shows the order of the various topics, the relative importance of each, and the relationship between the various parts. Example:

I.

A.

B.

1.

2.

a.

b.

II.

A.

B.

You should have at least three main sections in your outline: 1) introduction, 2) analysis and results, and 3) conclusions, discussion, and recommendations. In each of these sections, you should address the following points:

· **Introduction**

- Concise and relevant background
- Describe the problem (i.e. the issue, controversy, conflict, confusion that you are addressing)
- Importance of the problem
- Your research question or thesis statement

Methods & Data

**This section is only relevant to those students that are using GIS, conducting interviews, producing a database, etc. **

- What methods you used, sources of data, why your methodology is appropriate, limitations.

· **Body of your paper: Analysis and Discussion**

- Present evidence and ideas from sources
- Concepts are organized by sub-topics
- Grouping may be related to research questions

· **Key Conclusions, Discussion, and Recommendations**

- Identify and synthesize findings
- Systematically answer your research questions
- Provide recommendations for
 - Future research
 - Policies
 - Other warranted situations

Citation style for the essay

We will follow the citation style used in the Journal of Conservation Biology. Use the following format for literature citations in the text: (Buckley & Buckley 2000; Pacey 2004). Arrange strings of citations in chronological order (oldest first). At the end of your document, include a "Literature Cited" section; this last section will not count towards the word limit.

If you are using Zotero, Endnote, or Mendeley, adding references and a literature cited section should be simple.

Footnotes

Do not use footnotes in the body of the manuscript.

Literature Cited

Provide the full names of all journal titles. Do not italicize titles.

Use boldface for the journal's volume number and the colon following the volume number. Do not provide an issue number unless pages in a volume are not numbered consecutively from the first issue to the last issue.

Remove *Inc.*, *Co.*, and so forth from references in the text and Literature Cited. For example, (SAS Institute 1998), not (SAS Institute, Inc. 1998).

If there are more than 10 authors, use et al. (Howard, G., et al.) instead of listing the names of all authors.

Papers in review and personal communications should not be included in the Literature Cited.

Proceedings and abstracts from conferences may be cited only if they have a "publisher" and the location of the publisher (or the organization from which the document may be obtained) can be provided.

Example Citations

Journal articles:

Christensen, N. D., and J. Eu. 2003. Ecology of cranberry bogs: a case study. *Ecology* **59**:1147–1167, 1178–1187.

Author, F. M. 2001. Title of paper. *Journal* **13**(supplement 1):172–180.

If a paper is in press, the "in press" follows the volume number: *Ecology* **112**: in press.

Institutions as authors: Spell out name of the institution and include the publisher's location (or the location of the institution, if the institution issued the publication). The way the institution is cited in the text and in the Literature Cited must be the same.

Institution is spelled out in the text: World Wildlife Fund (WWF). 2002. Home ranges of giant pandas. WWF, Washington, D.C.

Institution is abbreviated in the text: WWF (World Wildlife Fund). 2002. Home ranges of giant pandas. WWF, Washington, D.C.

Edited books: Cran, B., C. Boy, and L. Shi. 1911. Native forest birds of Guam. Pages 4–8 in T. Wu and L. Lee, editors. *Flora and fauna of Guam*. 2nd edition. Tell Books, Ace, Ohio.

Reports: Barnes, J., and S. Craig. 2003. Conservation status of riparian areas in southeastern Oregon. General technical report N-24. U.S. Fish and Wildlife Service, Portland, Oregon.

Online journals:

No digital object identifier (DOI): Sandringham, J. 2006. Effects of urbanization of agricultural land on an endemic moth, rosemary pink. Ecology and Society 3: [http://EcologySociety . . . /art5](http://EcologySociety.../art5).

Has DOI: Hunstanton, V. 2008. Effects of deep-sea injection of carbon dioxide. Deep Ocean Research DOI: 1976xxi27in2.

No access dates are needed for citations of online journals.

Internet sources other than journals: Include the name of the organization hosting the website, their geographical location, and an access date.

Carne, A. 2003. The art of leaving well enough alone. National Science Teachers Association, Washington, D.C. Available from <http://www.nsta.org/art2/scienceandchildren> (accessed March 2002).