



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute  
1996 Volume II: Environmental and Occupational Health: What We Know; How We Know; What We Can Do

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## Introduction

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Eleven extraordinarily motivated and accomplished teachers joined our maiden journey to explore the health consequences of human labor and environmental exposures. Our goal was to translate modern scientific and social scientific theory into practical curricula, as part of the broad public agenda of increasing scientific literacy and environmental awareness. As I told the class at the outset, the idea of teaching environmental health as part of primary and secondary education has been proposed by many, yet accomplished by none! And so we began.

We divided our time together into two distinct components. First, since the teachers themselves had minimal science backgrounds, we spent 6 sessions on the fundamental principals of toxicology, epidemiology and risk assessment, trying to answer the questions: How do we know what we know? How will we learn about those things we don't know? How can we estimate the impact of a hazard when the amount of information is small? It was a hectic ride for instructor and participant alike, but after these sessions we developed the model which became the working theory for the group: a text consisting of 100,000 pages delineating all the toxic effects of all chemical, physical and biological hazards in our environment. The bad news: most of the pages are either blank or have minimal, questionably correct data on them. The good news: the book has a very thoughtful introduction, with basic principals which can be applied whenever gaps and vacancies are found.

From science we moved to social science. The fundamental issue was to determine how society, and its major players government, industries and individuals can, should and do function to protect human health from environmental harm. Two weeks were devoted to behavior at each level, with the group role playing and otherwise trying to fathom how to answer thorny dilemmas. In the end we came to the startling understanding that virtually every issue has complexities, and that many perspectives and points of view need to be considered before deciding the right thing to do. Even recycling has its costs and risks!

In the pages which follow the teachers have responded to this experience by producing an incredible array of teaching ideas, to bring our experiment to life. For the youngest grades are the projects which raise basic awareness of the close connectedness that all living things have with one another, and the harm which will be caused when we tamper with that, however good the reasons. Special attention to air pollution, lead, and pesticides provide real examples of hazards, which young urban children and their families are exposed to.

For the middle schoolers, curricula have been developed which raise the ante further. Remarkable projects focusing on the hazards of tobacco, the relationships between risk and benefit and the serious and highly relevant problem of environmental racism are developed in ways which will both enhance knowledge as well

as provoke thoughtful discussion and reasoning.

Our high school faculty have taken the process yet a step further. From Career High are three integrated projects looking at different aspects of the environmental consequences of war. Designed to be highly multi-disciplinary and provocative, these projects will force students not only to confront uncertainty, but to develop strategies for selecting among sources of information to discriminate solutions. The project on stress especially demands that students think about their environments and the impact upon them, while mastering some basic techniques of statistical reasoning. Similarly, the project on the textile industry, an example of one in which advances in health and safety have contributed, in part, to the loss of a whole industry to other parts of the world where clothing can be made more dangerously and cheaper, provokes students to confront realities of our society and the important interconnectedness of science and policy.

This experiment has just begun, but it is a highly auspicious beginning. We anticipate there will surely be further developments as we await the responses of the students when these fabulous products are unveiled next fall.

Mark R. Cullen, M.D.

Professor of Medicine and of Epidemiology and Public Health

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