

The Living Environment Core Curriculum

Unit Plans with Lessons

Office of the Superintendent of
Manhattan High Schools

*“Each living creature must be looked at as a microcosm—
a little universe formed of a host of self-propagating organisms,
inconceivably minute and as numerous as the stars in the heaven.”*

--Charles Darwin

Office of the Superintendent of Manhattan High Schools

Welton L. Sawyer, Superintendent

Janice Medina, Deputy Superintendent of Instruction

Joan Perez, Deputy Superintendent of Organization

Regina Schlossberg, Director of Instruction

OVERVIEW

Science education today can be an exciting experience for both students and teachers. Effective science teachers are those who continue to build their base of science knowledge and develop a repertoire of current teaching techniques. They also stress real investigations and active learning. Many science educators will agree that science is a process of looking for order and patterns in nature and that *questioning* is the foundation of investigation and should guide scientific inquiries.

Although we have been having many conversations about standards, curricula, alternative assessments and, of course, the state mandated regents, we don't have as many opportunities to examine teaching and learning and link them to desired outcomes. Teachers rarely get to examine best practices and are seldom given teaching models to use. They need exemplary curriculum and resources.

The New York State Core Curriculum for the Living Environment is essentially a guide for writing curriculum. In this document we have begun writing curriculum units to address the concepts outlined in the NYS Learning Standards. Each unit represents one of the many ways in which the core could be interpreted to link learning experiences to desired outcomes. In writing the unit plans and lessons we were influenced by the curriculum design conventions used in Grant Wiggins' "*Understanding by Design*" and the "*Standards-Based Curriculum and Assessment Prototypes*" from the Center for the Study of Expertise in Teaching and Learning (CSETL).

We acknowledge the importance of questioning by using an ESSENTIAL QUESTION for each unit, and a series of GUIDING QUESTIONS to develop each of the concepts. For every Key Idea there is a overall Unit Plan, a Unit Sketch (map of the day-to-day lessons), and individual lesson plans.

The Unit Plan contains an overview of the following:

- Key Idea
- Desired Results (Enduring Understandings)
- Guiding Questions
- Skills and Knowledge
- Learning Activities
- Assessments

The Unit Sketch (map) contains a day-to-day overview of the following:

- Guiding Questions
- Learning Opportunities
- Assessments and Reflections
- Standards addressed

The Lesson Plans contain:

- Unit Topic/Essential Question
- Aim/Guiding Question
- Objectives
- New Terms
- Materials/Preparations
- Development of the lesson outlining time allotment, detailed instructions, and suggested instructional strategies
- Suggested homework
- Templates for handouts, readings
- Standards

The authors of this curriculum consider it to be a work-in-progress. In its current form it is intended for teachers as a resource. Teachers can use some of this material in its entirety or as a guide to help them design or refine their own plans. We are continuing to review and refine the work ourselves and welcome comments and suggestions.

ACKNOWLEDGEMENTS

Curriculum writers:

**Ingrid Buntschuh, Assistant Principal,
Seward Park High School**

**Anne Geiger, Project Coordinator
Assistant Principal
East Side Community High School**

**Ronald Newlon, Teacher
University Neighborhood High School**

**Omar Ramirez, Teacher
Park West High School**

**Pankti Sevak, Teacher
East Side Community High School**

We would also like to thank the following teachers for their contributions:

Terese Wojtowicz, Jacqueline Kennedy Onassis High School

Angela Sterling, Richard R. Green High School of Teaching

This project was initiated by Regina Schlossberg, Director of Instruction, who continues to support and encourage our work.

AUTHORS' NOTE

When we first met in June--a small handful of biology teachers--we spent a lot of time discussing what biology meant to us and we agreed that all living things, from the simplest forms to the most complex, are united in the way they work.

We were impressed with life's diversity, scale, patterns, energy, community, evolution, machinery, and feedback. Yet, the more we explored, the more we discovered that the overriding theme in biology was life's unity.

...And it is a strange thing that most of the feeling we call religious, most of the mystical out crying, which is one of the most prized and used and desired reactions of our species, is really the understanding and the attempt to say that man is related to the whole thing, related inextricably to all reality, known and unknowable. This is a simple thing to say, but a profound feeling of it made a Roger Bacon, a Charles Darwin, an Einstein. Each of them in his own tempo and with his own voice discovered and reaffirmed with astonishment the knowledge that all things are one thing and that one thing is all things—a plankton, a shimmering phosphorescence on the sea and the spinning planets and an expanding universe, all bound together by the elastic string of time.

--John Steinbeck in Log from the Sea of Cortez

TABLE OF CONTENTS

Overview.....

Standard 1

Key Idea 1, 2, 3 – Lesson Plans

Introduction to Inquiry

Standard 4

Key Idea 1.1, 6 – Unit and Lesson Plans

Ecology.....

Key Idea 1.2 – Unit and Lesson Plans

Organization and Maintenance.....

Key Idea 2 – Unit and Lesson Plans

Genetics.....

Key Idea 3 – Unit and Lesson Plans

Evolution.....

Key Idea 4 – Unit and Lesson Plans

Reproduction and Development.....

Key Idea 5 – Unit and Lesson Plans

Homeostasis.....

Key Idea 7 – Unit and Lesson Plans

Human Environmental Impact.....

Appendices

Appendix A – Lesson Plan Template

Appendix B – Jigsaw

Appendix C – Prediction Guide

Appendix D – Writing Informally in the Science Classroom