

# Introduction

**A**T ECHO HILL OUTDOOR School, we explore and study a variety of natural and human environments. Our activities challenge students to observe, question, and evaluate how ecosystems form, sustain themselves, and evolve. We also seek to have students consider how ecosystems interrelate and how they are impacted by human activity. Students gain a heightened awareness of the interrelationship and interdependence of all living things.

Our approach to learning is experiential. It is based on the following premise:

*What the student "hears," he may forget.*

*What the student "sees," she may remember.*

*What the student "experiences," he/she KNOWS.*

We have created and collected a variety of projects that you can use to bring an experiential approach to aquatic studies into your classroom. Although any given activity may be geared towards a stream, pond, or estuary, many of them can be applied anywhere (ie; Water Sampling). Others are readily adaptable to different aquatic habitats (ie; customize the animal and plant list in the Estuary Food Chain Mural).

These projects include applications in science, math, language arts, geography, current events, history, and human development. In each case, we attempt to create an actual experience which allows students to explore, observe, respond, evaluate, and apply.

Overall, the aim of this manual is to:

1. Increase knowledge of aquatic ecosystems.
2. Increase knowledge about the biology of these ecosystems.

3. Heighten awareness of the interrelationships and interdependence of these ecosystems.
4. Heighten awareness about human interdependence and impact on surrounding environments.
5. Enable students to recognize their potential for implementing change in their home communities regarding environmental issues.

The following activities are intrinsically compatible with outcome-based learning goals. Each is based on real life situations incorporating core level thinking skills. They are meant to be conducted in small groups using an integrated approach.

Students play an active part in gathering and interpreting data, formulating questions, defining and discussing issues, and determining solutions. These activities demonstrate the interaction and interdependence of life through the gathering and interpretation of scientific information, foster positive attitudes towards science, and encourage the role of science in addressing environmental issues.

