Introduction to the K–3 Module of *Closing the Loop: Exploring Integrated Waste Management and Resource Conservation*

The lessons in *Closing the Loop: Exploring Integrated Waste Management and Resource Conservation* encourage students to be positive role models by examining their waste management habits and by voluntarily participating in projects that improve their school and community. The lessons in *Closing the Loop* (*CTL*) create a laboratory for learning. Students learn concepts and explore issues concerning natural resources and integrated waste management and apply the concepts to the world outside their school.

This unit was rated "number one" by a committee of teachers who evaluated nearly 100 curricular and activity guides for the 1999 edition of *Environmental Education Compendium for Integrated Waste Management and Used Oil*.

The K–3 Module of the 2000 edition of *Closing the Loop* is composed of five units. A tab on the right-hand side of each right-facing page identifies the module and unit number. Each of the first four units contains five lessons, and Unit 5 is made up of three lessons. The titles of the units are:

- Unit 1: Conserving Natural Resources
- Unit 2: Reducing, Reusing, and Recycling Classroom Waste
- Unit 3: Vermicomposting
- Unit 4: Proper Disposal of Waste
- Unit 5: Proper Management of Household Hazardous Waste

The overview of each unit contains the following components:

- The unit's concept(s)
- Each lesson's title, concept(s), and overview
- A book or a list of books required to implement each unit (and sometimes additional books recommended for the unit)
- Projects that students can do and examples of classes participating in specific projects

By using *CTL*, teachers will be following recommendations from California's newly adopted content standards and from curricular frameworks in a conceptual, interdisciplinary, and hands-on manner. If a teacher wishes to replace an activity described in *CTL* with another activity from another curricular guide, this can be done easily. However, it is important that the main concept of each lesson be preserved, or the lesson will no longer fulfill the intent of its original design.

The California State Board of Education's content standards from the following documents were used in the *CTL* lessons:

- *Science Content Standards, Grades K–12*, Prepublication Version, August 26, 1999
- *English–Language Arts Content Standards for California Public Schools, Kindergarten Through Grade Twelve*. Sacramento: California Department of Education, 1998
- *Mathematics Content Standards for California Public Schools, Kindergarten Through Grade Twelve*. Sacramento: California Department of Education, 1999

Note that only a prepublication version of the *Science Content Standards* was available at the time that this curriculum was written. However, all cited science content standards have been adopted by the California State Board of Education.

The following state frameworks are also cited in the *CTL* lessons:

- *Science Framework for California Public Schools, Kindergarten Through Grade Twelve*, 1990
- *History–Social Science Framework for California Public Schools, Kindergarten Through Grade Twelve*, 1988
- *The Visual and Performing Arts Framework for California Public Schools, Kindergarten Through Grade Twelve*, 1996

It is recommended that Unit 1 on natural resources be taught first, so students can get background information on natural resources and why they are important and so that students can understand the connection between integrated waste management and the conservation of natural resources. This unit sets the stage for understanding why reducing, reusing, and recycling are so important.

Ideally, the five units in the K–3 Module should be taught in the order presented. Within the units, the lessons should also be taught in the order presented. However, it is understood that some teachers prefer to select lessons to incorporate in their curriculum; therefore, an attempt was made to make each lesson stand on its own (although sometimes connections to other lessons are suggested).

Each lesson provides step-by-step instructions on how to implement the activities in the lesson. More experienced teachers may choose not to follow this lengthier explanation of the activities. Instead, they can use the overview of each unit as an outline of what they will have their students do in each lesson. They might wish to develop their own activities with the lesson's concepts in mind. As needed, they can review the instructions specified in the lessons and use parts of these instructions when developing their own instructional strategies.

In the K–3 Module, it has been suggested that certain activities be conducted with children in kindergarten and first grade, while other activities will be more appropriate for older students in grades two and three. The teacher can best judge which activities will provide the most meaningful experiences for his or her students.

Whenever possible, the authors recommended that reused materials be used in the lessons. It is also important for teachers to model reducing, reusing, and recycling classroom materials, including buying products made from recycled materials. In most lessons, when teachers develop a list with their students, they have the option of writing the list on a chalkboard or on butcher paper. Using the chalkboard conserves paper. However, if a list needs to be kept and used again in future lessons, the butcher paper provides a more permanent alternative and eliminates the possibility that the contents will be erased. It is recommended that both sides of the butcher paper be used for writing, and then the paper can be used in art projects, composted (or vermicomposted), or recycled.

It is highly recommended that the teacher encourage students to participate in a variety of projects. A project is a task or problem that usually groups of students work on to supplement and apply what they have learned in the classroom. Allow students to plan and design their projects.

In this curriculum students have opportunities to engage in many different types projects. Some projects are relatively simple, such as making note cards out of recycled paper to give as gifts or decorating cardboard boxes for gathering items that can be reused in the classroom and for those that can be recycled. Other projects are much more involved, such as maintaining a vermicomposting bin in the classroom or presenting a play to other classes about the importance of natural resources. And still others will take large amounts of time and dedication, such as planting seedlings, shrubs, and wildflowers on the school campus or in a nearby park or participating in a coastal cleanup of litter.

Examples of projects and classes participating in some of the projects are listed in the "Overview" for each unit. For more information on project-based learning, see "Tips for Implementing Projects." Also, the Autodesk Foundation provides information for educators interested in project-based learning. The Foundation's website is www.autodesk.com/foundation.

Make public what your class is doing when implementing *Closing the Loop* and publicize some of its recommended projects. Have students design presentation panels, submit photographs and news articles to local newspapers, tape conversations with students about their projects, videotape brainstorming sessions, and show students' work during the school's open house.