INTRODUCTION

The value of clean, safe water for individuals, communities, businesses, and industries can't be measured. Every living thing depends on water. The economy requires it. Water issues should be everyone's concern, but most people take water quality and availability for granted. After all, clean, safe water is available to most Americans every time they turn on the tap. Water issues do not become a concern until there is a crisis such as a drought or wastewater treatment plant failure. Educating citizens who must make critical water resource decisions in the midst of a crisis rarely results in positive change. Developing awareness, knowledge, and skills for sound water use decisions is very important to young people, for they will soon be making water resource management decisions. Properly equipping them to do so is essential to protect water resources.

WATER SOURCEBOOK PROGRAM

The Water Sourcebook educational program is directed specifically toward the in-school population. The program consists of supplemental activity guides targeting kindergarten through high school. Water Sourcebooks are available for primary (K-2), elementary (3-5), middle (6-8), and secondary (9-12) levels. Materials developed in the program are compatible with existing curriculum standards established by State Boards of Education throughout the United States as well as national standards in science, social studies and geography. Concepts included in these standards are taught by using water quality information as the content.

The Water Sourcebooks include five chapters—Introduction, Drinking Water and Wastewater Treatment, Groundwater, Surface Water, and Wetlands.

DEVELOPMENT

The Water Sourcebooks are developed in three stages. First, classroom teachers are selected to write the activities with assistance of education specialists. Teams of teachers are given the task of developing and writing the activities for each of the five instructional chapters. The second step involves testing activities in the classroom and technical reviews by water experts. From the evaluations provided by the testing teachers and technical reviewers, revisions are made. Finally, editing, and illustrations are complete and the Water Sourcebook is published.

ACTIVITY DESIGN

All of the activities include "hands-on" components and are designed to blend with existing curricula in the areas of general sciences, language arts, math, social studies, art, and in some cases, reading or other areas. Each activity details (1) objectives, (2) subjects(s), (3) time, (4) materials, (5) background information, (6) advance preparation, (7) procedure (including activity, follow-up, and extension), and (8) resources. Fact sheets and a glossary section are

included at the end of the guide to help equip teachers to deal with concepts and words used in the text which may be unfamiliar.

ORGANIZATION OF INDIVIDUAL ACTIVITIES

Each activity is organized in the same way, detailing objectives, materials needed, background information, and procedures. Following is a brief summary of what you should expect to find in each activity.

OBJECTIVES: Describes what the student should be able to do when the activity is completed.

SUBJECT: The general subject(s) to which the activity applies: Sciences, Mathematics, Social Studies, Language Arts, and so on.

TIME: The approximate number of minutes needed to complete the main exercise(s). More time may be needed for the follow-up and extension exercises. Some activities or follow-ups may require collecting data over several days/weeks, but will only need major time blocks at the beginning and end of the activity to explain, present information, and reach conclusions.

MATERIALS: List of materials needed to complete activity. Alternatives and optional materials are listed where appropriate. If the basic materials are not immediately available in your classroom, they can often be borrowed from other classes in the school, or local college or university science departments, local government agencies, or area businesses.

BACKGROUND INFORMATION: Background information specific to the activity. This material is suggested as a basis for teacher lecture and/or student discussion when the found in the Fact sheets located in the back of the guide.)

ADVANCE PREPARATION: Directions for the teacher/student to prepare materials in advance.

PROCEDURE: Complete directions to conduct the entire activity, including follow-up and extension ideas. Includes teacher sheets, student sheets, and teacher keys.

Setting the Stage Introduction of the main ideas of the activity to the students. This section may use student discussion questions/topics, sharing the pertinent background information, a demonstration or activity, or a combination of these.

Activity	Step-by-step instructions on how to do the activity. This sometimes ends with questions to demonstrate that students understand what they have done.
Extension	Suggestions for extending the activity into other subject areas and/or suggestions for other related activities. This part of the activity is optional. Some may be used as ongoing projects, while others may be used as additional classroom work for advanced students or for extra credit.
RESOURCES:	Reference materials used either in developing the activity or to provide additional information and addresses for ordering materials used in the activity.

ACTIVITY PREPARATION

Once you have decided on the activity(ies) you will be doing, check the materials list. You will need to take into account the number of students or student teams in your class(es). Many materials are readily available, but some may need to be borrowed or purchased ahead of time.

Prepare copies of all the needed student handouts and/or transparencies or other materials for your use. Most activities contain ready-made masters for these. Teacher and student sheets can be easily removed from the binder and replaced after photocopying or producing a thermofax master for print duplication. Some activities also contain suggestions to make a transparency for use with an overhead projector. Transparencies may be made by a thermofax, a photocopier, or by tracing.

If you plan to have the students do part or all of the extension suggestions, you will want to add additional materials to your list. You may also need to locate other sources of information or telephone numbers to complete the extension. Many resource names and numbers can be found in the back of this book. Some extensions can be started simultaneously with the regular activity.

As you read through the activity, decide whether you will do optional suggestions. Check the suggested time for completion of the activity and add time needed to do any extension activities. The time needed may vary from class to class. These activities have all been field tested in secondary school classrooms. However, you might want to do a trial run of the activity yourself to evaluate the time needed and areas where minor problems might occur. It is also a good idea to mark points in the text where natural breaks can be taken to divide the activity into class periods.

The fact sheets included in the back of the guide and the background material included in each activity should provide the information necessary for your preparation. Further reading may be found in the list of resources at the conclusion of each activity. If these resources are not readily available, lists of additional resources are provided at the back of this Sourcebook.

PAGINATION

Each chapter is page-numbered separately and is designated with an appropriate chapter number. For example, the “Introduction” chapter begins with page 1-1, the “Drinking Water and Wastewater Treatment” chapter begins with 2-1, and so on.