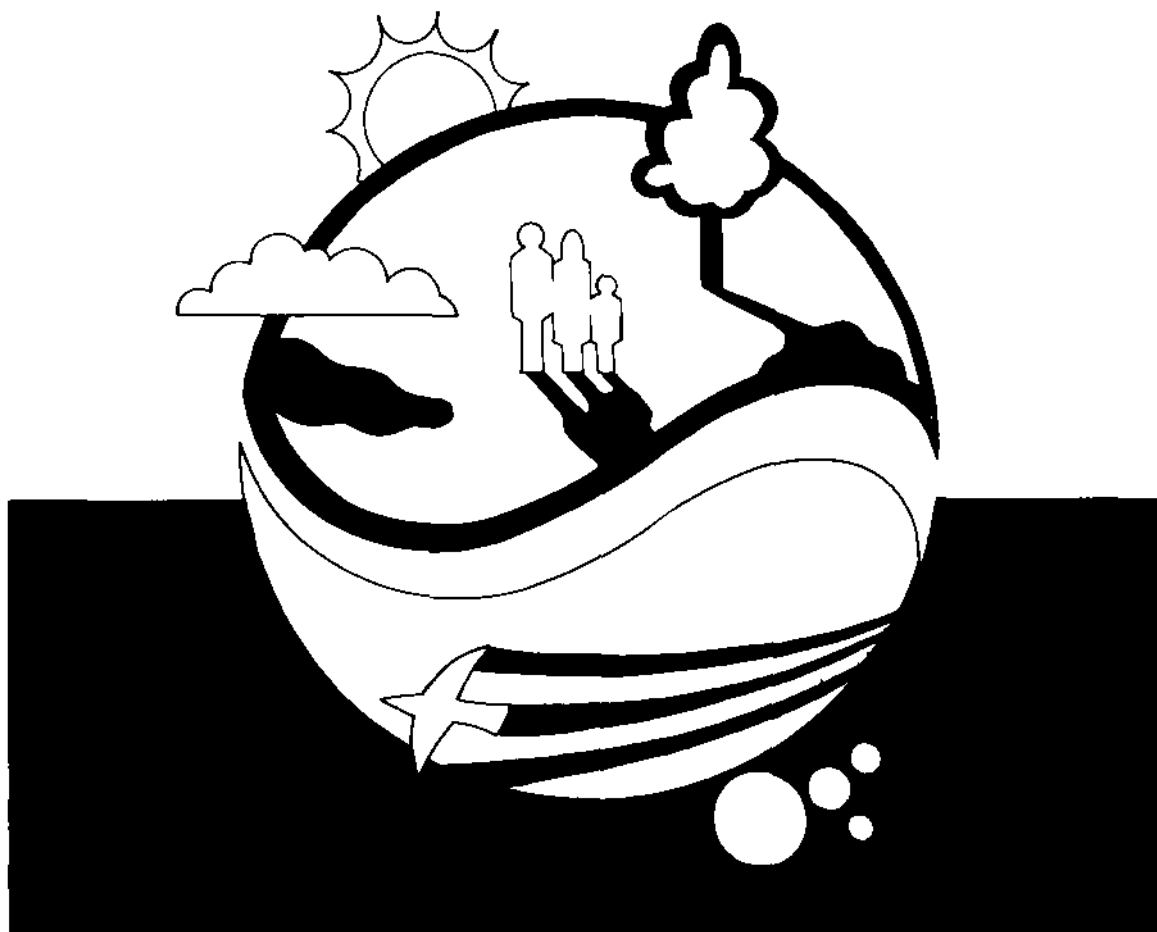


# ENERGY SOURCEBOOK

## JUNIOR HIGH



Tennessee Valley Authority  
Marketing Communications, Customer Group  
Environmental Education, Resource Group

June 1992

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# INTRODUCTION

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Energy production and use, resource conservation, environmental quality—these are topics that directly affect our lives. As such, they provide excellent learning opportunities for students. The "Energy Sourcebook - Junior High Unit" has been designed by teachers specifically for use in grades 7 through 9. The activities focus primarily on the sciences, but most of them incorporate work in other general subject areas, including math, social studies, and home economics. This broad treatment provides outstanding opportunities for students to learn how energy issues relate directly to many aspects of their studies and their lives.

## Design

Flexibility is built into the "Energy Sourcebook," making it adaptable to a wide range of teacher, student, and school needs. Each of the six instructional chapters contains 6 to 9 activities relating to a general topic. However, each activity is written as a free-standing lesson and can be used alone or in various combinations with lessons from different chapters. The activities employ various approaches and have built-in content and scheduling options.

## Chapter Organization

The "Sourcebook" has six chapters of classroom activities: Electric Power Production, Energy Conservation, Energy and the Environment, Renewable Energy Resources, Transportation, and New Energy Technologies. Many topics appear in activities in several chapters; treatment of specific topics varies with the general subjects of the chapters. You may find useful activities on any given topic in several different chapters. For example, a unit on trees might include "Let Trees Do the Trimming" (from the Energy Conservation chapter) and "Warmth with Wood" (from the Renewable Energy Resources chapter).

At the back of the Sourcebook is a chapter entitled "Factsheets." This chapter contains 11 brief factsheets summarizing some of the key concepts in energy topics. This information is included for your use; it will aid your preparation.

Each chapter is page-numbered separately and designated with an appropriate letter. For example, the Electric Power Production chapter begins with page P-1 and the Energy and the Environment chapter begins with page EN-1.

## Choice of Methods

The activities in the "Energy Sourcebook" involve several different types of exercises: pencil and paper activities, outdoor activities, home-based activities, role-playing activities, laboratory and/or experimental activities, construction activities. Students have the opportunity to explore subjects using different approaches, and you can pick the activities best suited to your students' needs and your teaching environment.

Most of the activities explore a very specific subject in several different ways. However, some chapters contain overview activities that will help students see how several aspects of the same topic fit together; these are likely to be most useful after the students have done other activities in those chapters. For example, the Electric Power Production chapter has an activity, "Your Choice," in which the students role-play a public hearing held to determine what kind of power plant a community will build.

## **Activity Content**

The first part of each activity contains its objectives, appropriate subject areas, approximate time requirement, and a comprehensive materials list. This information will help you determine how best to utilize the activities with your students.

Each activity is divided into three major sections. The "Background Information" section provides information specific to the activity for your use. The detailed lesson plan appears in the "Procedure" section. Each Procedure begins with "Setting the Stage" (an introduction) followed by the detailed "Activities." The third part of the Procedure, "Follow-Up," may be utilized for evaluation and corresponds to the stated objectives. Some activities include a fourth, optional part entitled "Extension." This part of the activity is optional. Some Extensions may be used as ongoing projects, while others may best be used as additional classroom work for more advanced students or for extra credit. The last major section of the activities, "Resources," includes books, brochures, and other publications used in the development of the activities. These may also serve as sources of further information.

Each activity contains ready-made masters for the handout materials required for its completion. These masters are easily removed from and replaced in the binder for photocopying, producing a thermofax master for spirit duplication, or making a transparency for use with an overhead projector.

## **Development**

The "Sourcebook" was developed in three stages. Junior high school teachers were selected and given the task of developing and writing the activities with the assistance of education specialists. The second step involved testing the activities in the classroom. More teachers were selected to use the activities in their classrooms. From the evaluations provided by the testing teachers, revisions were made. Finally, technical reviews, editing, and illustrations completed the "Energy Sourcebok - Junior High Unit."

## **Curriculum Framework**

The "Curriculum Framework" serves to correlate concepts or objectives stated by the Department of Education with the activities, identifying those that teach the specified concepts or objectives. These correlations are included to aid you in choosing activities appropriate for your students.

