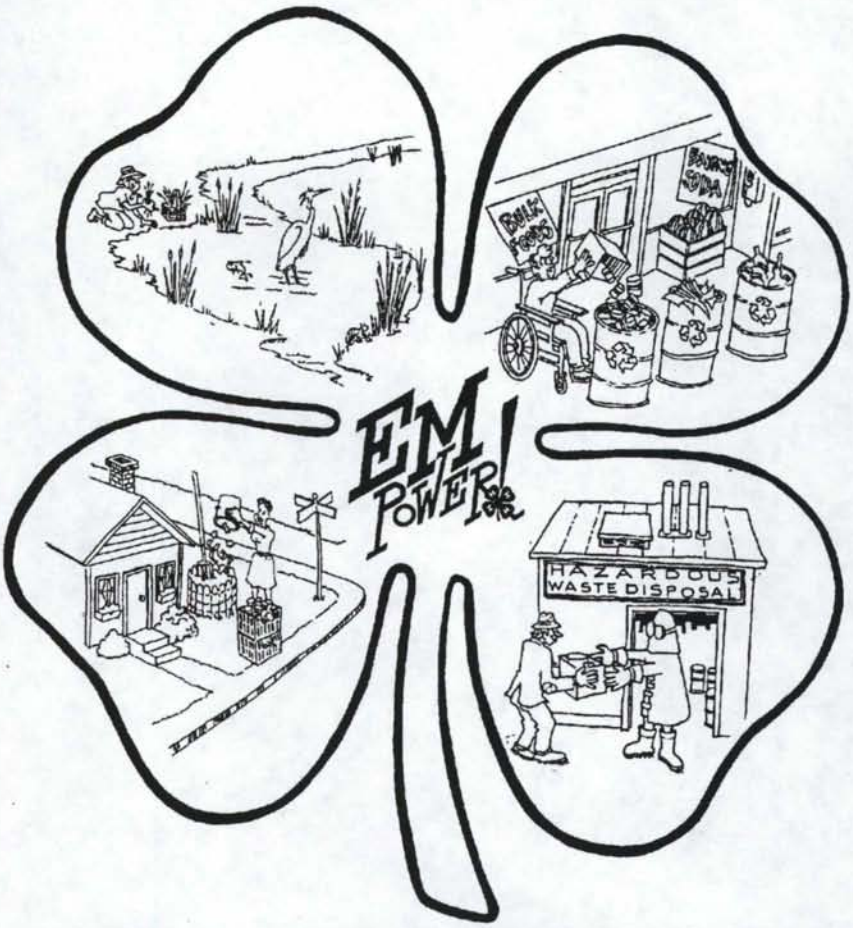


Environmental Management Power

4—H Youth Curriculum

Leader's Guide

DRAFT

Environmental Management Power

4–H Youth Curriculum

Leader's Guide

DRAFT

Curriculum written by:
Dorothea Kunz Shuman,
Idaho Water Resources Research Institute

Maureen Toomey,
University of Idaho Cooperative Extension 4–H Program

Jerry Newman,
Washington State University Cooperative Extension 4–H Youth Program

Funded by:
United States Department of Energy

December 1993

This project has been developed through a cooperative effort among:

Idaho Water Resources Research Institute, University of Idaho;
State of Washington Water Research Center, Washington State University;
University of Idaho Cooperative Extension System, 4-H;
Washington State University Cooperative Extension, 4-H Youth Program.

The project is supported with a grant from the Department of Energy through the National Water Resource Institutes.

Contents

Introduction 1
- Forward 1
- Purpose 2
- Background Information 2
- A Note About 4–H 3
- About this Curriculum 4
- Goals and Objectives 6
- Exploratory Learning Model 8
- Note to the Leader 9
- Characteristics of Sixth to Ninth Graders 10
- We Need Feedback! 11
- Feedback, Please! 13

Defining Issues and Action 15
- **Lesson 1**: Discovering EM Concerns and Action
  - Lesson Plan 17
  - Feedback, Please! 23
  - Lesson Materials 25
- **Lesson 2**: A Concern Becomes an Issue
  - Lesson Plan 43
  - Feedback, Please! 49
  - Lesson Materials 51
- **Lesson 3**: A Difference Being Made
  - Lesson Plan 55
  - Feedback, Please! 59
  - Lesson Materials 61

Going Local with Issues and Actions 73
- **Lesson 4**: Taking a Profile by Getting the Facts
  - Lesson Plan 75
  - Feedback, Please! 81
  - Lesson Materials 83
- **Lesson 5**: Issues, Issues
  - Lesson Plan 85
  - Feedback, Please! 93
  - Lesson Materials 95
- **Lesson 6**: Empowered to Action
  - Lesson Plan 105
  - Feedback, Please! 109
  - Lesson Materials 111

Appendices 119
- Glossary 121
- Reference Materials 133

Acknowledgements

Many thanks to the following people who provided editorial assistance and valuable input into the curriculum development through a forum that included brainstorming key concepts.

Ed Adams, Eastern Washington Water Quality Coordinator
David Belles, 4-H Member
Paul Blacker, EG&G, Inc.
Rich Broadsword, 4-H Member
Bob Closs, Wheelabrator
Jon Cruse, Westinghouse Hanford Company
Rene Derewetzsky, State of Washington Water Research Institute
Kathleen Pidjeon, State Soil Conservation Commission
Debbie Fluke, 4-H Volunteer Leader
H.Sid Fredrickson, City of Coeur d'Alene Composting Facility
Marlene Garrison, Asotin County Extension
Tami Geisler, 4-H Volunteer Leader
Terrie Goodman, 4-H Volunteer Leader
Paul Jehn, Idaho Water Resources Research Institute
Tom Karsky, Extension Farm Safety
Katherine Keen-Hoene, Idaho Water Resources Research Institute
Ann Lesperanch, Batelle
Bob Mahler, Extension Soil Specialist
Leslie Manning, Independent Consultant, Moscow, ID
Linda Milam, EG&G Idaho, Inc.
Tom Murdoch, Adopt-A-Stream
Corll Morrissey, Interactive Systems Design
Judy Nest, Extension Home Economist
Rich Olson, Whitman County Agriculture
Marianne Ophardt, BentonCounty Extension Agent
Donna Powaukee, Nez Perce Tribe
Bridget Robson, University of Idaho Continuing Education
Bob Rynk, Extension Farm Safety
Deborah Trader, Department of Energy
Pam Vorachek, Asotin County Extension
Gary Waltenbaugh, NW Power Planning Council
Elizabeth Wood, 4–H Volunteer Leader

Logo and Poster Illustrations:
Jim Engelhardt, Designer
Bellingham, WA 98225

Layout and Design:
Mark Patterson
Interpretive Media Productions
P.O. Box 8981
Moscow, ID 83843

Leader's Guide and Youth Journal Illustrations:
Jeff Shuman
919 S. Jefferson Street
Moscow, ID 83843

Pilot Program Evaluation:
Interpretive Media Productions
Nancy Medlin, Mark Patterson, Evan Holmes
P.O. Box 8981
Moscow, ID 83843

Forward

The US Department of Energy (DOE) recognized the need to provide a full spectrum of educational programs in environmental restoration/ waste management (ER/WM). The DOE ER/WM programs are ambitious and far–reaching. Their success will depend, in part, on an informed public with knowledge and an appreciation of environmental problems and their potential solutions.

In consideration of DOE's Office of Environmental Restoration and Waste Management outreach goals, a partnership was established between units (Technology Integration Program) of DOE and the National Institutes for Water Resources. One purpose of the partnership was to collaborate on issues of education.

The goals specific to the educational aspects of the partnership emphasized several areas. These areas included the development of: (1) training programs to increase and enhance the professional workforce available to state regulatory agencies; (2) educational programs to increase the pool of well trainedenvironmental engineers and scientists needed to staff DOE programs in environmental restoration and waste management; and (3) educational programs to improve public understanding about the causes and consequences of environmental problems, as well as the potential range of solutions to those problems.

In response to improving public understanding, the Idaho Water Resources Research Institute, University of Idaho, and the State of Washington Waster Research Center, Washington State University, joined with the University of Idaho Cooperative Extension System, 4–H to create ***EM*Power,*** *Environmental Management Power, 4–H Youth Curriculum.* This effort was conducted as a complement to DOE's Technology Integration Program outreach activities and considered the emerging needs of both the Department of Energy and a public who continues to seek knowledge and understanding, and play an active role in developing solutions.

Introduction

Purpose

The purpose of EM*Power (Environmental Management Power) is to provide 4-H youth (grades 6 - 9) with hands-on activities to gather factual information, make informed decisions about waste management concerns, and develop creative solutions including environmental restoration.

Background Information

Through funding from Department of Energy (DOE), the National Institutes for Water Research, specifically, the Idaho and Washington Water Resources Research Institutes are charged with *developing materials and a delivery system to teach youth about the importance of environmental protection through waste management*. The Idaho and Washington Water Resource Institutes and the Idaho and Washington Cooperative Extension 4-H, cooperated to develop the *EM*Power* curriculum. *EM*Power* is designed to heighten 4-H youth awareness of potential waste management concerns and solutions in their homes and communities; to lead 4-H youth to action.

The terms, environmental restoration and waste management, are important to the DOE as they manage waste problems and restore areas where hazardous waste has been manufactured and stored. The challenge for waste management is to treat, store, and dispose of different types of waste in ways that protect human health, safety, and the environment. After treatment and disposal or safe storage of the waste is completed, environmental restoration can occur. The challenges are great since there are not always clear answers about the types of waste that have been generated and how to treat, store, or dispose of it.

Introduction

DOE waste management sites may not exist in your community. However, as we conduct our daily routines, we produce and use many products that may have similar waste, treatment, storage, or disposal problems that could affect human or environmental health and safety. Because there are not always clear answers and management could be dangerous or cause damage to human or environmental health or safety, communities may consider conducting risk/ benefit analysis.

Searching for the proper ratio of risk to benefit is connected to many decisions, such as freedom, life-style, government, politics, business, and progress. The "acceptable risk" question is difficult to answer, but may be an interesting concept to address with your group as the project unfolds.

**DOE uses EM as an acronym for Environmental Restoration and Waste Management.*

A Note About 4–H

4-H is the youth component of the Cooperative Extension Service and has academic ties to land-grant universities.

Through 4-H youth develop the following life skills:

1) a positive self-concept,
2) effective interpersonal relations,
3) sound decision making abilities,
4) physical skills and abilities, and
5) practical skills for living.

The development of these life skills is dependent on positive and effective interaction between 4-H youth and their adult and teen leaders.

About this Curriculum

*EM*Power* uses a process approach to guide youth from acquisition of knowledge through application of a home or community action projects. Responsibility lies with the group to research and collect specific content information needed for completion of the action.

***EM*Power* is sequential in nature. Therefore, it is important for the group to complete each lesson before moving to the next.**

The two parts of the curriculum are:

Part 1: Defining Issues and Action

Part 2: Going Local with Issues and Action.

Part 1: Defining Issues and Action consists of three lessons that provide activities to develop a foundation for understanding waste management concerns; what makes a concern an issue and how to make a difference.

Part 2: Going Local with Issues and Action consists of three lessons that provide activities to research, develop, and conduct an action project.

Each of the six lessons consists of activities, discussion, and journalizing. A Leader's Guide and an *EM*Power* Youth Journal are provided with this curriculum.

*EM*Power* Youth Journal

Throughout the curriculum, youth will express their thoughts, views, feelings, and reactions in their journal. Youth are encouraged to provide verbal or pictorial reactions. The journal can be considered the 4-H record book or a part of the record book, depending on the local 4-H policy. As the group proceeds through the curriculum, there will be specific assignments to complete in the *EM*Power* Youth Journal.

4-H Project Requirements

Since project requirements vary from state to state, the *EM*Power* curriculum only provides Project Suggestions for each lesson. Some of the overall Project Requirements, may include:

1) Attend the majority of the group meetings.

2) Prepare at least one demonstration or illustrated talk that could be presented at a group meeting or local county event.

3) Write a 4-H Story. This would include all parts of Lesson 6.

4) Exhibit a drawing, model, or pictorial of their project at an Exhibit event. An Exhibit event may include an exhibit at school, in the community or in a mall, or at the community, county, or state fair.

Goals and Objectives

Goals:

- Identify waste management concerns and issues.
- Understand how waste management concerns can become issues.
- Be empowered to take action on a local waste management issue.

Defining Issues and Action

Lesson 1. Discovering EM Concerns and Action

Goal: To increase awareness of environmental restoration projects and waste management concerns that could exist within a community.

Objectives: After studying the *EM *Power* Poster, 4-H youth will:

1. Identify potential waste management problems and their solutions.
2. Classify potential waste management concerns and environmental restoration projects.
3. Describe the differences between waste management concerns and environmental restoration projects.
4. Verbalize examples of local environmental restoration projects or waste management concerns.

Lesson 2. A Concern becomes an Issue

Goal: To understand how a waste management concern becomes an issue.

Objectives: 4-H youth will :

1. Act out one opinion surrounding a specific waste management concern in a role play game.
2. Experience how difficult it is to come to agreement when faced with differing points of view.
3. Explain what makes a waste management concern an issue.

Lesson 3. A Difference Being Made

Goal: To understand that youth can make a difference.

Objectives: 4-H youth will:

1. Identify the components of the action planning process.
2. Recognize that their peers have made a difference.
3. Discover the impact other youth have had when completing an action plan.

Going Local with Issues and Actions

Lesson 4. Taking a Profile by Getting the Facts

Goal: To develop an understanding of the number and variety of home or community waste management concerns.

Objectives: 4-H youth will:

1. Survey home and/or community for waste management concerns.
2. Identify at least 5 different waste management concerns in their home or community.
3. Gather facts surrounding at least 3 concerns.
4. Choose one waste management concern for further investigation.

Lesson 5. Issues, Issues

Goal: To understand the differing points of view surrounding the local home or community waste management concern that was chosen in Taking a Profile by Getting the Facts.

Objectives: By focusing on one local waste management concern, 4-H youth will:

1. Identify people who may be affected by the concern.
2. Collect the opinions surrounding the concern.
3. Explain two or more points of view surrounding the concern.
4. Explain the difference between a fact and an opinion.

Lesson 6. Empowered to Action

Goal: To be empowered to make a difference by developing and implementing an environmental restoration or waste management action plan.

Objectives: 4-H youth will:

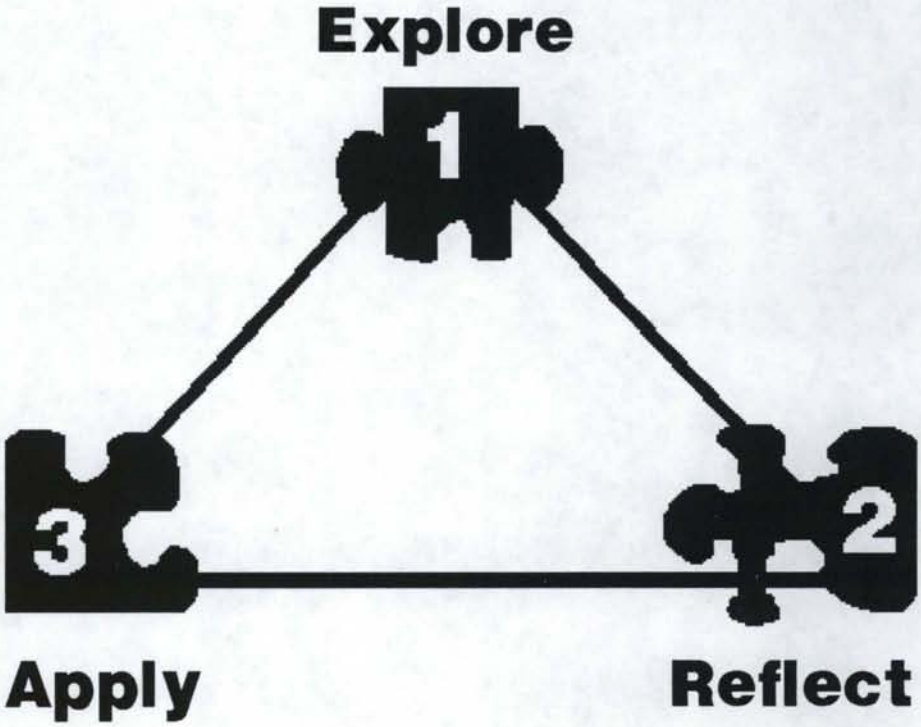
1. Describe the process required to take action.
2. Describe the importance of teamwork when developing and implementing an action plan.
3. Follow through on action plan and evaluate the project.

Exploratory Learning Model

*EM*Power* uses the Exploratory Learning Model that teaches 4–H youth to *learn by doing*. The model provides a framework for developing experienced–based, action–oriented learning.

Exploratory learning is expressed by EXPLORE, REFLECT, and APPLY. Youth "explore" or experience a learning activity. They "reflect" what they observed and felt about the activity. Youth then "apply" the activity to every day life and their community. This model is continuous; since application may lead to additional exploration and reflection.

The specific exploration, reflection, and application actions are described in each lesson.



Note to the Leader

You, the volunteer leader, are the key to this program. Your enthusiasm and desire to help youth grow and develop in a positive learning environment, will make *EM*Power* successful.

Although the program is outlined in sequential order, feel free to adjust the activities to meet the needs of your group. Since all youth are unique, adapt the program to meet individual needs.

Always consider the individual's reading and writing abilities when conducting the lessons. You may want to pair youth in such a way that their skills complement their strengths and weaknesses. Remember to encourage written or artistic renditions of concepts in their *EM*Power* Youth Journals.

Thank you for giving your time and effort to youth!

Characteristics of Sixth to Ninth Graders

At this age, youth experience many changes physically, emotionally, mentally, and socially. Rapid changes in physical appearance, such as growth spurts, acne, voice changes, and menstruation may make new teenagers uncomfortable or embarrassed. Changes in hormones may cause mood swings and emotional reactions.

Sixth to ninth graders begin to use more abstract thinking. If they are interested in a subject they will explore it intensely. Adult solutions to problems are often rejected in favor of developing their own solutions. However, during these years, values are also being tested. Spending time with understanding adults who are willing to talk about values and morals may have a lasting effect. It is important to avoid comparing young people with each other; instead, emphasize and support current accomplishments and successes.

Peer acceptance is very important. Working in pairs or small groups provides a comfortable environment for testing ideas and developing social and leadership skills. For most activities, boys still will cluster with boys, and girls with girls, although they will begin to be very interested in what the other group is doing. Opportunities are needed for boys and girls to mix without feeling uncomfortable. This works best if they plan the activities themselves.

We Need Feedback!

You are one of a small group of 4-H leaders using this new EM*Power curriculum. We need your ideas on its strengths and weaknesses, and on how it can be improved. Throughout this handbook you will find pages entitled "FEEDBACK, PLEASE!" where we'll ask you to answer a few questions about the lesson you've just completed. Please fill them out at the appropriate times during the course of the project, then remove them from the handbook and mail them, using the pre–addressed, stamped envelopes (The envelopes are in the binder pocket). *Your opinions are very important to us*, and will help us revise and improve this curriculum for its next users. Thank you very much!

Enrollment Form

Dear Leader,

Please fill out this form when you have a complete list of who is enrolled in the EM*Power Project.

1. Leader's name: _____
2. 4–H group name / number: _____
3. Number of 4–H members enrolled in EM*Power: _____
4. Please circle the gender (M or F) of each participant, and fill in their grade level.

member 1:	M	F	grade:_____
member 2:	M	F	grade:_____
member 3:	M	F	grade:_____
member 4:	M	F	grade:_____
member 5:	M	F	grade:_____
member 6:	M	F	grade:_____
member 7:	M	F	grade:_____
member 8:	M	F	grade:_____
member 9:	M	F	grade:_____
member 10:	M	F	grade:_____
member 11:	M	F	grade:_____
member 12:	M	F	grade:_____
member 13:	M	F	grade:_____
member 14:	M	F	grade:_____

After you have completed this form, please remove it from the binder, place in one of the pre-addressed, stamped envelopes, and mail it. Thank you!

Part A:

Defining Issues and Action

Lesson 1

Discovering EM Concerns & Actions

Goal

To increase awareness of environmental restoration projects and waste management concerns that could exist within a community.

Objectives

After studying the *EM*Power* Poster, 4-H youth will:

1. Identify potential waste management problems and their solutions.
2. Classify potential waste management concerns and environmental restoration projects.
3. Describe the differences between waste management concerns and environmental restoration projects.
4. Verbalize examples of local environmental restoration projects or waste management concerns.

Exploratory Learning Model Activities

1. When searching the poster, youth will **explore** the variety and number of potential management concerns and environmental restoration projects that may exist in a community.
2. Through a discussion, youth will **reflect** about the number and variety of waste management concerns depicted on the poster.
3. Youth will **apply** their understanding of waste management concerns and environmental restoration projects by identifying local concerns and projects featured in the local newspaper.

Lesson 1 Discovering EM Concerns & Actions

Time Needed

2, one–hour sessions or 1, two–hour session.

Background Information

We all create waste and there are opportunities to reduce, reuse, and carefully dispose of waste. This lesson heightens youth's awareness of potential waste management concerns and solutions. Youth will learn about potential environmental restoration projects and waste management concerns that could exist in their community by using the *EM*Power* Poster. The *EM*Power* poster is the primary teaching aid used for this lesson. It represents a composite of communities with a variety of waste management concerns, waste management solutions, and environmental restoration projects. The following definitions will aid you in preparing youth to explore the *EM*Power* Poster.

An **Environmental Restoration Project** is an activity that attempts to return damaged habitats as nearly as possible to the way they were before they were damaged, contaminated, or polluted.

A **Waste Management Concern** is a potential waste problem that could affect the human or environmental health and safety.

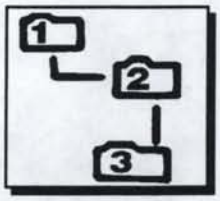
Waste Management is the process involved with proper treatment, storage, and disposal of toxic waste.

Environmental Restoration is the process *of attempting* to return damaged habitats as nearly as possible to the way they were before they were damaged, contaminated, or polluted.

MATERIALS

Poster
Poster Key
Fact Statements
Fact Chart(s)
Butcher paper, newsprint, or chalkboard (less waste with chalkboard)
Pencils and Notepads for each person in the group (or mini chalkboards)

Procedure



Step 1: Preparation

1. Copy and cut the Fact Sheets before the meeting.
2. Collect a local newspapers from a variety of days.

Step 2: Looking for Waste Management Concerns

1. Have youth gather around the *EM*Power* poster.
2. Ask youth to explore the entire *EM*Power* poster, looking for waste management concerns.
3. Ask these questions:
   - Where is waste being created?
   - How is waste created?
   - Who is creating waste?
   - How is waste being disposed of?

Suggestion: You may want youth to look independently or in pairs and write down what they find before they share with the other members in the group. This will encourage total participation from all members.

4. As a group, record all the concerns that were found and identify the most surprising concern.

Step 3: Journalizing

Have youth describe a waste management concern in words or drawings, giving some examples and describing the most unexpected concern that they identified on the *EM*Power* Poster.

Step 4: Looking for Solutions

1. With fresh eyes, have youth gather around the poster again, looking for any additional waste management concerns. If they identify additional concerns, add them to the list that they generated earlier.
2. Next have the youth, look for environmental restoration projects or waste management solutions in the same manner as they looked for concerns.

3. Ask these questions:
   - Can you find any positive actions taking place to solve waste management concern?
   - Can you find people trying to restore the environment?
   - Can you find people cutting down the amount of waste they create by reducing or reusing?
4. As a group, record on newsprint/board all the environmental restoration projects and waste management solutions that were found.

Step 5: Journalizing

Have youth describe in words or drawings, environmental restoration projects and waste management solutions in their journals. Examples should be given.

Step 6: Classifying and Clarifying

1. As a group, sort the items on the list generated into three categories: waste management concerns, environmental restoration projects, and waste management solutions.
2. Give each pair or group a key (Lesson Materials: Poster Key). Compare the sorted list with what is identified on the key.
3. Ask these questions:
   - How did you do?
   - Are there some waste management concerns, environmental restoration projects, and waste management solutions that were missed?
   - Do you agree with the sorting? WHY?

Step 7: Finding Facts

1. Divide the group into pairs.
2. Give each pair a group of concerns, environmental restoration projects, or waste management solutions.
3. Next,using the Fact Statements (see Lesson Materials) have youth find facts to support the various concerns, projects, and solutions that were identified..

SUGGESTION: Cut out facts and tape onto the flip chart paper. Keep these charts to post throughout the next meetings.

Step 8: Exploring Locally

Bring out a few editions of the local newspaper. Have youth work in pairs to find some articles in the local newspaper that describe environmental restoration projects and waste management concerns. Discuss the articles they found. Remember to pair youth based on their reading abilities.

Step 9: Journalizing

Have each pair cut out at least one article to photo copy to put in their journals. They can describe what makes the project interesting.

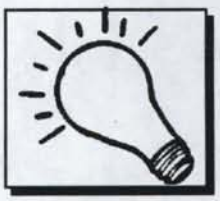
Step 10: Feedback, Please!

Your opinions are very important to us. Once you have completed this lesson fill out the "Feedback, Please!" Form. Remove the form from this Leader's Guide binder, place in one of the pre-addressed, stamped envelopes, and mail it. Thank you!

Additional Activities

Use charades to act out local waste management concerns and environmental restoration projects found in the newspaper.

Project Suggestions



Demonstration:

- Prepare a demonstration based on one or more of the concerns in the poster.

Exhibit:

- Make a photo display of local waste management issues.

Feedback, Please!

Lesson 1

Discovering EM Concerns and Action

Dear Leader,

Please answer these questions after your group has completed Lesson 1: "Discovering EM Concerns and Action."

1. 4–H group name / number: _____

2. Number of members present during this session: _____

3. In your opinion, how enjoyable was this lesson for the participants? (*Please circle one number.*)

1	2	3	4	5
extremely enjoyable	very enjoyable	enjoyable	somewhat enjoyable	not enjoyable

4. What were the strong points of this lesson? (*Please be specific.*)

5. How could this lesson be improved? (*Please be specific.*)

6. Any other comments? (*Use the back of this form or additional paper if needed.*)

After you have completed this form, please remove it from the binder, place in one of the pre-addressed, stamped envelopes, and mail it. Thank you!

Poster Key

Use this key with step 6.

This key provides a list of the scenarios that are depicted on the *EM*Power* poster. They are grouped into two categories: waste managment concerns and waste management solutions. Some scenarios may be found on both lists. Your group will use this to check off the WMC's they find.

It is important to remember that there are no single causes for any of the concerns as well as no single solutions. New technologies are being developed each day to aid in the cleanup and control of waste management and production. Reducing the amount of waste generated and practicing good housekeeping measures are important steps toward solving waste management concerns.

Waste Management Concerns (WMC's)

___ 1. Abandoned Storage Tank
___ 2. Building on Wetland
___ 3. Car Batteries
___ 4. Car Wash Runoff
___ 5. Coal Plant
___ 6. Contour Farming
___ 7. Crop Dusting
___ 8. Disposal of Household Cleaners
___ 9. Disposal of Paint
___ 10. Disposal of Tires
___ 11. Dry Cleaners
___ 12. Dump
___ 13. Gas Leaking
___ 14. Heavy Traffic
___ 15. Herbicide/Pesticide Spray
___ 16. Illegal Dumping
___ 17. Lawn Mowers
___ 18. Leaking Storage Tank
___ 19. Livestock Waste
___ 20. Logging
___ 21. Nuclear Power
___ 22. Oil from Auto Repair Shop
___ 23. Oil Spill
___ 24. Oil Well and Drill Rigs
___ 25. Photoprocessing
___ 26. Radio Batteries
___ 27. Sewage Discharge in the Stream
___ 28. Sewage Treatment
___ 29. Smoke Stacks with Excessive Pollution
___ 30. Storage of Home Chemicals
___ 31. Wood Pile

Poster Key–2

Your group will use this list to check off the WMS's they find. Use this key with step 6.

Waste Management Solutions (WMS's)

___ 1. Baking Soda
___ 2. Biking to Work/School
___ 3. Bulk Foods
___ 4. Car Pooling
___ 5. Cloth Grocery Bags
___ 6. Composting
___ 7. Contour Farming
___ 8. Crop Dusting
___ 9. Hazardous Waste Disposal
___ 10. Insulation on Home
___ 11. Manure Lagoon
___ 12. Mass Transit
___ 13. Methane Burning at Landfill
___ 14. Nuclear Power
___ 15. Recycling
___ 16. Reprocessing of air pollutants
___ 17. Roof Top Garden
___ 18. Sanitary Landfill
___ 19. Selective Cut Forest
___ 20. Sewage Treatment
___ 21. Solar Panels
___ 22. Statue of John Muir
___ 23. Stenciling Storm Drains
___ 24. Tree Planting
___ 25. Watering with Treated Waste Water
___ 26. Wetland Restoration
___ 27. Wind Power
___ 28. Wood Pile

Fact Chart–WMC's facts 1-15

Use this chart to check which fact is related to which WMC.

Waste Management Concerns (WMC's)

Concerns \ Facts	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Abandoned Storage Tank												•			
Building on Wetland										•					
Car Batteries	•	•													
Car Wash Runoff															
Coal Plant			•												
Contour Farming															
Crop Dusting															
Disposal of Household Cleaners											•				
Disposal of Paint															
Disposal of Tires	•	•													
Dry Cleaners					•										
Dump													•	•	•
Gas Leaking	•	•													
Heavy Traffic	•														
Herbicide/Pesticide Spray															
Illegal Dumping											•				
Lawn Mowers	•														
Leaking Storage Tank												•			
Livestock Waste															
Logging															
Nuclear Power															
Oil from Auto Repair Shop		•							•						
Oil Spill															
Oil Well and Drill Rigs															
Photoprocessing						•									
Radio Batteries								•							
Sewage Discharge in the Stream															
Sewage Treatment															
Smoke Stacks with Excessive Pollution			•												
Storage of Home Chemicals											•				
Wood Pile															

Fact Chart–WMC's facts 16-30

Use this chart to check which fact is related to which WMC.

Waste Management Concerns (WMC's)

Concerns	*Facts* 16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Abandoned Storage Tank					•										
Building on Wetland															
Car Batteries															
Car Wash Runoff						•						•			
Coal Plant									•						•
Contour Farming				•											
Crop Dusting						•									
Disposal of Household Cleaners						•						•			
Disposal of Paint						•						•			
Disposal of Tires															
Dry Cleaners															
Dump	•	•	•					•						•	
Gas Leaking						•						•			
Heavy Traffic						•	•					•			
Herbicide/Pesticide Spray						•						•			
Illegal Dumping															
Lawn Mowers							•								
Leaking Storage Tank					•										
Livestock Waste										•					
Logging															
Nuclear Power									•						•
Oil from Auto Repair Shop						•						•			
Oil Spill						•			•			•			
Oil Well and Drill Rigs						•			•						•
Photoprocessing															
Radio Batteries															
Sewage Discharge in the Stream													•		
Sewage Treatment													•		
Smoke Stacks with Excessive Pollution									•						
Storage of Home Chemicals												•			
Wood Pile															

Fact Chart–WMC's facts 31-46

Use this chart to check which fact is related to which WMC.

Waste Management Concerns (WMC's)

Facts

Concerns	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
Abandoned Storage Tank																
Building on Wetland																
Car Batteries																
Car Wash Runoff																
Coal Plant		•														
Contour Farming																
Crop Dusting																
Disposal of Household Cleaners	•			•												
Disposal of Paint	•			•												
Disposal of Tires					•											
Dry Cleaners																
Dump			•													
Gas Leaking																
Heavy Traffic																
Herbicide/Pesticide Spray																
Illegal Dumping																
Lawn Mowers																•
Leaking Storage Tank																
Livestock Waste																
Logging						•										
Nuclear Power																
Oil from Auto Repair Shop																
Oil Spill									•							
Oil Well and Drill Rigs		•					•									
Photoprocessing																
Radio Batteries																
Sewage Discharge in the Stream	•			•												
Sewage Treatment																
Smoke Stacks with Excessive Pollution																
Storage of Home Chemicals																
Wood Pile						•										

Fact Chart–WMS's facts 1-15

Use this chart to check which fact is related to which WMS.

Waste Management Solutions (WMS's)

Solutions \ *Facts*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Baking Soda															
Biking to Work/School	•														
Bulk Foods													•		
Car Pooling	•														
Cloth Grocery Bags													•		
Composting													•	•	
Contour Farming															
Crop Dusting															
Hazardous Waste Disposal											•		•		
Insulation on Home							•								
Manure Lagoon															
Mass Transit	•														
Methane Burning at Landfill													•		
Nuclear Power															
Recycling													•		•
Reprocessing of Air Pollutants			•												
Roof Top Garden				•											
Sanitary Landfill													•		
Selective Cut Forest															
Sewage Treatment															
Solar Panels			•												
Statue of John Muir															
Stenciling Storm Drains															
Tree Planting				•											
Watering with Treated Waste Water															
Wetland Restoration										•					
Wind Power			•												
Wood Pile															

Fact Chart–WMS's facts 16-30

Use this chart to check which fact is related to which WMS

Waste Management Solutions (WMS's)

Facts

Solutions	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Baking Soda															
Biking to Work/School							•								
Bulk Foods	•													•	
Car Pooling							•								
Cloth Grocery Bags		•						•							
Composting			•												
Contour Farming															
Crop Dusting															
Hazardous Waste Disposal						•						•			
Insulation on Home															
Manure Lagoon						•				•					
Mass Transit							•								
Methane Burning at Landfill															
Nuclear Power															
Recycling	•	•	•												
Reprocessing of Air Pollutants															
Roof Top Garden															
Sanitary Landfill															
Selective Cut Forest															
Sewage Treatment													•		
Solar Panels															•
Statue of John Muir															
Stenciling Storm Drains						•						•			
Tree Planting															
Watering with Treated Waste Water													•		
Wetland Restoration															
Wind Power									•						
Wood Pile															

Fact Chart–WMS's facts 31-45

Use this chart to check which fact is related to which WMS.

Waste Management Solutions (WMS's)

Facts

Solutions	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Baking Soda	•			•											
Biking to Work/School															
Bulk Foods															
Car Pooling															
Cloth Grocery Bags															
Composting															
Contour Farming															
Crop Dusting															
Hazardous Waste Disposal															
Insulation on Home															
Manure Lagoon										•					
Mass Transit															
Methane Burning at Landfill			•												
Nuclear Power		•													
Recycling															
Reprocessing of Air Pollutants															
Roof Top Garden															
Sanitary Landfill			•												
Selective Cut Forest						•									
Sewage Treatment	•			•											
Solar Panels															
Statue of John Muir											•				
Stenciling Storm Drains															
Tree Planting															
Watering with Treated Waste Water								•							
Wetland Restoration															
Wind Power															
Wood Pile															

Fact Statements–1

Photocopy and cut out Fact Cards and tape next to concerns, solutions, or restoration projects on the flipchart. See Step 7 in the lesson.

FACT

In just four years (1980-1984), Americans increased their driving by almost 2 billion vehicle miles. Burning gasoline gives off pollutants into the air we breathe and contributes to acid rain and smog. Acid rain is formed when pollutants combine with precipitation (rain, snow, or fog).

1

FACT

Wastes found at automotive repair shops include used oils, antifreeze, carburetor cleaners, degreasing solvents, and spent hot dip tank solutions. If not disposed of and handled properly, they can pollute soil and ground water and add to air pollution problems. Used oil is the largest single source of pollution (40%) in our nation's waterways.

2

FACT

When fossil fuels (oil, coal, and gas) are burned to power machines or to produce electricity, they give off pollutants that contribute to acid rain and smog. Two of these pollutants are nitrogen oxides and sulfur dioxides which combine with precipitation to produce sulfuric acids and nitric acids, the two main components found in acid rain.

3

FACT

Dry cleaners and photo processors are sources of air pollution. Through storage and use of chemicals, toxic chemicals gases and particulates may be vented into the air or liquids may be spilled. The EPA knows very little about the specific health and environmental effects of most airborne toxins, but they can be inhaled, taken up by crops, animals, and fish, or contaminate our ground water. Alternatives to dry cleaning are being developed, which use heat, steam, pressing, and biodegradable soaps.

5

FACT

Underground storage tanks hold many toxic materials and often leak due to age and burial in damp soil. They must be removed and contaminated soil cleaned up to stop the pollution.

20

Fact Statements–2

Photocopy and cut out Fact Cards and tape next to concerns, solutions, or restoration projects on your flipchart. See Step 7 in the lesson.

FACT

Urban tree planting projects can bring down city temperatures and save energy by reducing the need for air-conditioning. Well-positioned trees can shade buildings and reduce energy use by up to 50 %. This will lead to less use of coal, oil, and gas.

4

FACT

Wastes produced by photoprocessing and printing shops include spent photographic developer and fixers, cleaning solvents and sludge, and wastewater containing heavy metals, inks, and solvents. These are dangerous wastes that if disposed of improperly could be taken up by crops, animals, and fish, or contaminate ground water.

6

FACT

Almost half the energy used in the home is spent on heating. Proper insulation of homes, along with energy efficient windows, lighting, furnaces, water heaters, and appliances can greatly reduce energy consumption. Utility companies often offer energy saving devices and programs for their customers.

7

FACT

Uncontrolled disposal of hazardous waste can lead to ground water contamination, explosions, and present dangers to people and the nearby environment. The commonly used ways of disposing of hazardous wastes include injection wells, pits, ponds, and lagoons. Seventy percent of the injection wells, pits, ponds, and lagoons have no liners to protect the surrounding soil and ground water. Only eleven percent of hazardous waste is recycled.

11

FACT

Good farming practices, like contour farming, can preserve soil moisture, soil loss, and reduce the amount of irrigation water needed.

19

Fact Statements–3

Photocopy and cut out Fact Cards and tape next to concerns, solutions, or restoration projects on the flip chart. See Step 7 in the lesson.

FACT

In one year, American consumers buy more than 2.5 billion dry cell batteries. Batteries contain heavy metals such as lead, cadmium, lithium, manganese, silver, nickel, zinc, and mercury. If not disposed of properly, batteries an harm human health and the environment. However, few recycling centers accept dry cell batteries.

8

FACT

Over 265 million gallons of used motor oil were dumped in sewers, drains and on land resulting in water pollution. Used motor oil should always be disposed of in a way that it can be recycled. Used motor oil can be used as fuel in furnaces for factories, apartments and other buildings.

9

FACT

Wetlands are used for flood control, wildlife habitat, ground water recharge, education and recreation. In the United States the annual loss of wetlands to urban and agricultural development equals the size of the state of Rhode Island.

10

FACT

In 1990, paper and paperboard was the largest category of solid waste discarded in landfills. However, paper recycling is on the rise. Recycled paper pulp can be used to make a variety of paper products, including stationary, newsprint, paper bags, gift wrap, note cards, paper towels, and toilet paper. Every ton of newspaper made from old newspaper saves 3 cubic yards of landfill space.

17

FACT

Wind power is an important alternative source of energy. Wind turbines can now be installed at costs that are competitive with some conventional electrical power plants.

24

Fact Statements–4

Photocopy and cut out Fact Cards and tape next to concerns, solutions, or restoration projects on the flip chart. See Step 7 in the lesson.

FACT

There are about 1.4 million underground gasoline type storage tanks used in the United States. At least 15 % of them leak petroleum products and cancer–causing chemicals into the ground.

12

FACT

In 1990, landfills contained garbage made up of 37.5% paper, 17.9% yard trimmings, 8.3% plastics, 6.7% food, 6.3% wood, and 8.3% other materials. About 1/3 of the garbage is packaging and 3/4 of the garbage is recyclable. However, we only recycle about 10% of our garbage.

13

FACT

More than half of the garbage your family throws away every year is organic. Organic garbage, such as yard waste and food scraps, can be composted. Any garbage that is made out of material that was once living will decompose in a compost pile. Compost makes excellent fertilizer for your garden.

14

FACT

Improper disposal of household hazardous wastes can cause problems for the entire community. Wastes can be explosive or highly flammable. Sewers have exploded and garbage trucks have burned because people have carelessly discarded flammable or reactive wastes. Household hazardous wastes include things such as bug sprays, furniture polish, metal polish with solvent, fertilizer, artists' paints, paint thinner, mercury batteries, swimming pool acid, shoe polish, moth balls, etc.

31

FACT

Storm sewers carry runoff from miles of city streets and rooftops into the waterways. Urban storm runoff is seldom treated.

27

Fact Statements–5

Photocopy and cut out Fact Cards and tape next to concerns, solutions, or restoration projects on the flip chart. See Step 7 in the lesson.

FACT

According to industry sources, about 60% of the aluminum found in solid waste is beverage cans. Aluminum can be recycled and there is no limit to the number of times that it can be recycled. Making new aluminum from recycled aluminum scrap instead of bauxite ore costs one-third as much and cuts energy consumption and pollution by more than 90%.

15

FACT

Each American throws away about 60 pounds of plastic packaging every year. Plastic containers are popular because they are lightweight and unbreakable. Plastics manufacturers have recycled in-plant scrap materials for decades. However, currently only about 4.5% of all used plastics that are manufactured in the U.S. are recycled.

16

FACT

Between 1972 and 1987, overall recycling has increased by 122%. A successful recycling effort requires separation of recyclable materials from trash; collection and transport; a market for recyclable materials; and funding to operate the program.

18

FACT

Nuclear power plants are fueled with uranium. The uranium atoms split - a process called "fission" - producing heat that boils water to produce steam. The steam spins a turbine to produce electricity. A nuclear power plant cannot explode, because the uranium fuel is not concentrated enough. But nuclear plants do contain radioactive material - produced by the nuclear fission process.

32

FACT

About 1/3 of all garbage is packaging. Less packaging means less garbage.

29

Fact Statements–6

Photocopy and cut out Fact Cards and tape next to concerns, solutions, or restoration projects on the flip chart. See Step 7 in the lesson.

FACT

Rain and melting snow carry "runoff" containing pollutants picked up from the land, parking lots, airport runways, and streets into the nearest body of surface water, often by way of a storm drain. Runoff picks up sediments, organic wastes, nutrients, heavy metals, phosphates, and bacteria.

21

FACT

Toxic air emissions are released when gasoline is pumped. In Wisconsin, any gas station that dispenses more than 10,000 gallons per month must install pumps with vapor recovery nozzles. This will cut down on the amount of toxic air released into the air.

22

FACT

When you bring your own cloth or canvas bags to the store to carry home groceries, you are practicing what is called "source reduction." This means that you are reducing the production of waste at the source.

23

FACT

Household hazardous wastes, such as bug sprays, furniture polish, metal polish with solvent, fertilizer, artists' paints, paint thinner, mercury batteries, swimming pool acid, shoe polish, moth balls, etc. can pollute in many ways. Some of the chemicals cannot be treated at the sewage treatment plant. Therefore they end up in lakes and streams. Luckily, many alternative cleaners, such as baking soda, can be used to replace these hazardous wastes.

34

FACT

Every year 3 - 6 metric tons of oil pollute the world's oceans.

39

Fact Statements–7

Photocopy and cut out Fact Cards and tape next to concerns, solutions, or restoration projects on the flip chart. See Step 7 in the lesson.

FACT

In the United States, livestock produce nearly 2 billion tons of waste annually. Much of the nitrogen in the waste is converted into nitrates, which can be a source of contamination of ground water and surface water.

25

FACT

Phosphates, found in fertilizers and some detergents, cause plants to grow well. The plants may be land or water plants. If plants in water grow too well, they use up much of the oxygen in the water, causing other organisms in the water to die due to lack of oxygen. Phosphates may wash into a waterway in silt or untreated household wastewater.

26

FACT

Sewage treatment plants remove many pollutants from wastewater. Then they dump the treated water back into the river or spray it on crops. If the water is treated it is not considered to be a contaminant. Treatment plants do not remove all pollutants, but they must remove enough to maintain a certain water quality.

28

FACT

Ground water makes up 97% of all the fresh water that is not trapped in the ice that forms glaciers. Because ground water is so plentiful, we might believe that there is an endless supply of it. But, water is a finite resource and some places in the country are using faster than it can be cleaned and replenished. Water conservation practices and alternative solutions of using waste water can cut down on the amount of water we use each day.

38

FACT

Good livestock management practices include the use of farm lagoons to collect animal waste from beef cattle feed lots, swine production, and dairy production.

40

Fact Statements–8

Photocopy and cut out Fact Cards and tape next to concerns, solutions, or restoration projects on the flip chart. See Step 7 in the lesson.

FACT

Solar panels are made of silicon and can convert sunlight into electricity. They are considered to be the cleanest and most environmentally safe of any energy source. However, solar panels cover a large amount of land.

30

FACT

Methane is a colorless and potentially explosive gas that is produced when waste decomposes. It spread through the landfills. New landfills capture this methane and burn it off. Sometimes it is used to produce steam or electricity.

33

FACT

Old tires are ground into tire crumb rubber and can be used in asphalt for paving roads. By 1994, 5% of roads paved with asphalt must contain rubber modified asphalt. Old tires can also be recycled into fuel.

35

FACT

(Find your own fact.)

FACT

One hour of using a gas powered lawn mower produces the same amount of pollution as driving a car 50 miles.

46

Fact Statements–9

Photocopy and cut out Fact Cards and tape next to concerns, solutions, or restoration projects on the flip chart. See Step 7 in the lesson.

FACT

Logging provides lumber, paper products, fuel, and medicine. Logging can improve forest health by weeding out diseased trees. However, some logging practices have the potential to cause erosion, thus effecting water quality of streams and to endanger habitat, thus affecting animal and plant species.

36

FACT

Forty-two percent of the U.S. energy source is oil. When fossil fuels (oil, coal, and gas) are burned to power machines or to produce electricity, they release pollutants that contribute to acid rain and smog.

37

FACT

John Muir was one of the most important conservationists and naturalists in America's history. Muir was born in Scotland in 1838. At age 11 he moved with his family to Wisconsin. He moved to the California wilderness. He spent the rest of his life studying and writing about nature. Muir's writings helped preserve the Yosemite Valley as a national park.

41

FACT

(Find your own fact.)

FACT

(Find your own fact.)

Lesson 2

A Concern Becomes an Issue

Goal

To understand how a waste management concern becomes an issue.

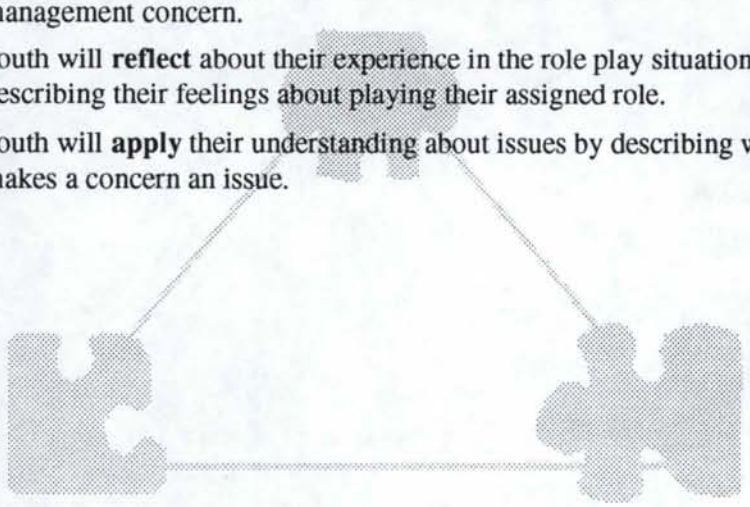
Objectives

4-H youth will:

1. Act out one opinion surrounding a specific waste management concern in a role play game.
2. Experience how difficult it is to come to agreement when faced with differing points of view.
3. Explain what makes a waste management concern an issue.

Exploratory Learning Model Activities

1. Youth will **explore** varying points of view surrounding a waste management concern.
2. Youth will **reflect** about their experience in the role play situation by describing their feelings about playing their assigned role.
3. Youth will **apply** their understanding about issues by describing what makes a concern an issue.



Lesson 2 A Concern Becomes an Issue

Time Needed

Approximately 1 hour.

Background Information

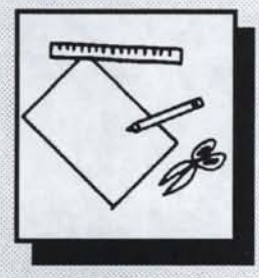
Human problems arise when a situation or condition exists in which someone or something is threatened.

Environmental problems exist when people become aware that some part of the environment is changing, usually in a negative way or a way that they do not like.

Environmental problems become *issues* when two or more people or groups of people disagree about the scope, seriousness, or the appropriate solution to a problem. The position taken by a person on an issue is directly related to *personal beliefs* and *values.* Beliefs are ideas that a person believes are true, even though in reality they may not be true. Often a person's beliefs are strongly related to his or her values. A *value* is the comparative worth a person places on something. Each individual has personal values that develop in response to past experiences. Values may involve money, beauty, prestige, or other things. Beliefs and values help people make decisions and choices when the possible answers are not clearly right or wrong.

Opinions are based on logic, emotions, or philosophy. Often opinions can be based on misinformation.

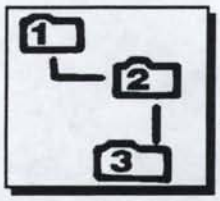
This background information is borrowed from: Alaska Model Science Curriculum, AK Department of Education, Juneau, AK.



MATERIALS

Role Play Cards
(copied before the activity)
Role Play Scenario
Master List from Lesson 1
(with facts attached)
Optional: gavel for calling the meeting to order

Procedure



In this activity, youth will be assigned roles that they will act out in a town meeting role play situation. You, as leader, will act as the mayor, guiding the discussion. Depending on the maturity and skill of your group members, you may need to spend time reviewing the cards and giving examples of how to "play the role." The steps below specifically describe how to run the town meeting role play. **The object of the role play is to make recommendations for what the mayor should do.**

Step 1: Preparation

There are six different town meeting role play cards. Copy and cut enough role play cards so that each member in your group can have one. (It is OK for more than one youth to have the same role.)

Step 2: Introduce the Town Meeting Role Play

1. Choose a waste management concern that the group would like to use for the town meeting role play. You can use one from the list they generated earlier from the poster.
2. Review the facts describing the chosen concern with the group.
3. Randomly, hand out the town meeting role play cards to the youth. Remember, more than one youth may play the same role.
4. Allow time for youth to read the cards and ask many questions, privately. Youth should keep the information on the cards to themselves.

A Note On Working In Pairs: *If you think it would be beneficial to work in pairs, allow time for the youth to discuss the role with a partner. However, during the town meeting role play, have each person carry out a role individually. If you don't have enough youth in your group or if you would like to introduce all of the roles first, try this. As a group:*

- *Read each town meeting role play card.*
- *Brainstorm ideas on how to act out the role.*
- *Then have youth pick and paly a role for the town meeting role play.*

Step 3: Begin the Town Meeting Role Play

1. Read, or have one of the youth volunteer to read, the role play scenario description to the group (Lesson Materials: Role Play Scenario).
2. Begin the town meeting role play and continue, preferably, 20 - 30 minutes. Use the questions below to direct the discussion.

As leader during the town meeting role play, you will take on the role as the mayor of the community. As mayor, your role is to keep things moving, insure that everyone has an opportunity to share their point of view, and encourage the youth to answer the following questions:

a. How serious is the waste management concern? (clarify the issue)

b. Should we really be concerned about it?

c. What should we do? (Get advice from council on what action, if any, should be taken.)

NOTE: It is helpful to take notes (on flip chart paper) so that everyone can see that their point of view is represented.

3. The following questioning strategies will stimulate discussion during the town meeting role play.

a. As the mayor you may want to identify the specific concern the group is addressing and state the facts, again.

b. Focus on the positive at first.

c. Have all sides state their interpretation of the concern, for example:

1. As an advocate of this position, how would you describe the problem?

2. As someone who is not worried, how would you describe the concern?

d. When youth make statements, ask questions like:

1. Can anyone add to that?

2. How does that make you feel?

3. How could you state that differently?

Step 4: Ending the Town Meeting Role Play

1. To bring closure to the town meeting role play, ask the group to give the mayor clear direction on what action to take. Describe the importance of compromise.

2. Debrief from the town meeting role play by asking the following questions *(Debriefing is when youth explain how they felt about the role play).*
   a. *How did each person feel about their role?*
   b. *Did you think the roles described real points of view?*
   c. *Did any one opinion win out? Why?*
   d. *How does your personal opinion compare to the one you role played?*

Step 5: Journalizing

In their journals, have youth describe in words or drawings:

1. The concern used in the town meeting role play.
2. How they felt about the role they played.
3. What makes the concern the group addressed a waste management issue.

Step 6: Feedback, Please!

Your opinions are very important to us. Once you have completed this lesson fill out the "Feedback, Please!" Form. Remove the form from this Leader's Guide binder, place in one of the pre-addressed, stamped envelopes, and mail it. Thank you!

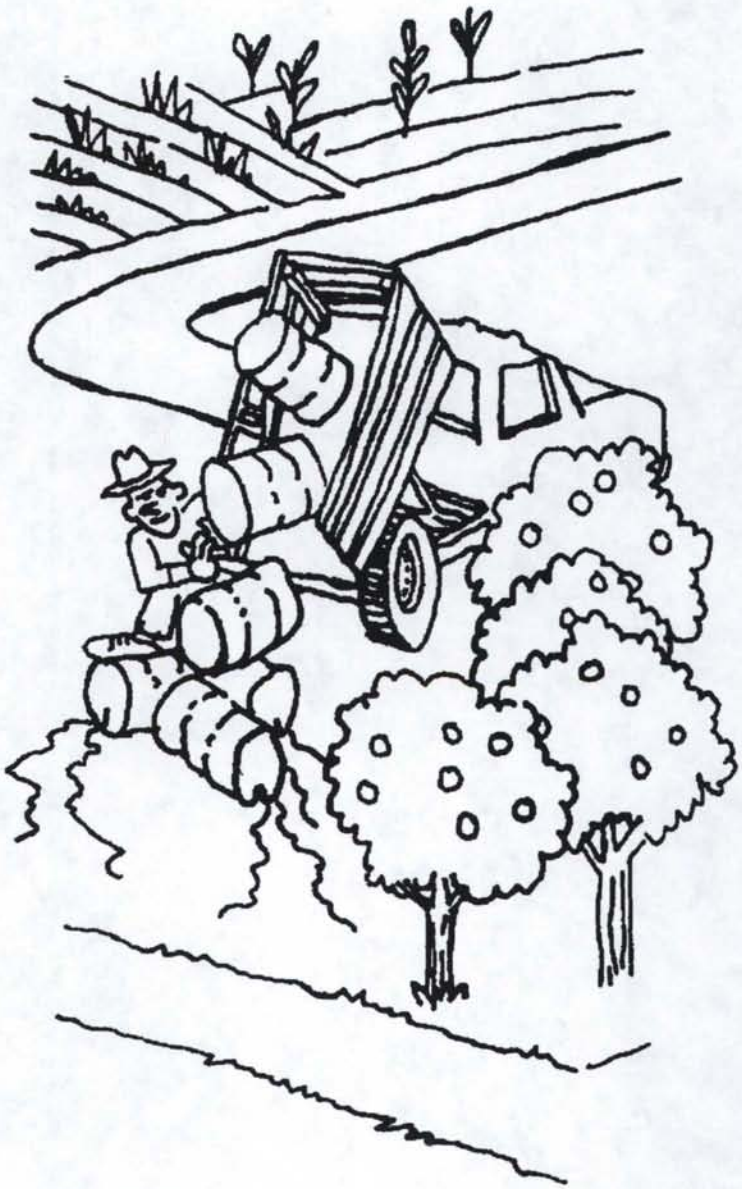
Additional Activities

- Select a local waste management issue and discuss the varying positions.
- Have youth make up their own role play cards and act out the same scenario.
- Re-enact the role play scenario numerous times with different concerns and have youth play various roles.

Project Suggestions

Demonstration:

- Present the scenario for parents, school, city council, or other community demonstration.
- Prepare a demonstration based on one or more of the waste management concerns, solutions, or environmental restoration projects.



Feedback, Please!

Lesson 2

A Concern Becomes an Issue

Dear Leader,

Please answer these questions after your group has completed Lesson 2: "A Concern Becomes an Issue."

1. 4–H group name / number: _____

2. Number of members present during this session: _____

3. In your opinion, how enjoyable was this lesson for the participants? (*Please circle one number.*)

1	2	3	4	5
extremely enjoyable	very enjoyable	enjoyable	somewhat enjoyable	not enjoyable

4. What were the strong points of this lesson? (*Please be specific.*)

5. How could this lesson be improved? (*Please be specific.*)

6. Any other comments? (*Use the back of this form or additional paper if needed.*)

After you have completed this form, please remove it from the binder, place in one of the pre-addressed, stamped envelopes, and mail it. Thank you!

Role Play Scenario

Read this before you begin the town meeting role play.

The mayor of your community (your leader) has received complaints about waste management **concern X** (the concern you chose from the poster). The mayor has called a meeting of the community leaders (the assigned roles) to find out what you think about the concern. Your goal for the meeting is to **develop a plan of action** addressing what to do about the concern.

You may choose:

Option 1

- **How to take action to improve this waste management problem.**

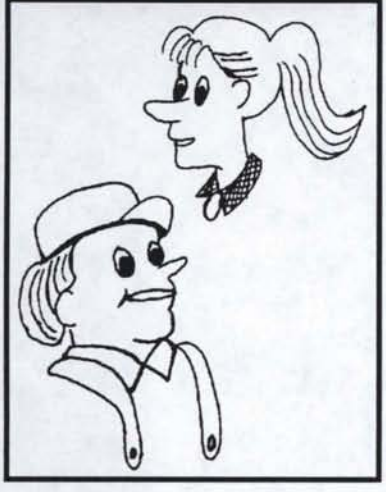
Option 2

- **How to determine the seriousness of the problem.**

Role Play Cards

Photocopy enough of these so that you will have enough roles for the number of youth in your group. More than one person may play the same role but try to have as many roles represented as possible.

Citizen A



Who are you?
You represent people who put a high value on the ability of modern technology. You think you are an expert on the technical aspect of the problem and prefer to use scientific terms.

Who do you blame?
You like the lifestyle that you live and want to continue using all modern conveniences, but you realize that you and the rest of society are somewhat at fault.

What should be done?
You feel that modern technology and industry have all the answers. You don't worry much because you know technology will eventually solve the problems.

Citizen B

Who are you?
You are an elderly person who has lived in the community for a long time. You grew up recycling things in war times and wonder why we don't reuse more things, anyway.

Who do you blame?
You put all the blame for the community's waste management problems on industry. You think they just want to make more money and don't care about clean water or air.

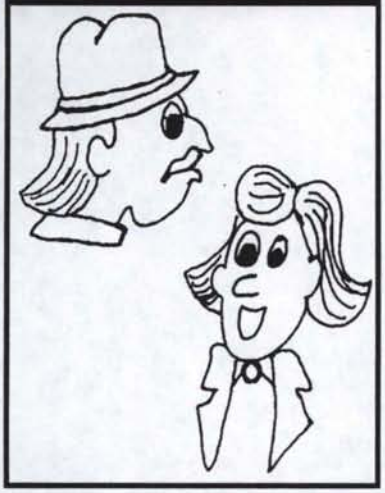
What should be done?
You feel that since industry created the problems that they should have the responsibility for cleaning them up. Industry can afford to pay for the cleanup.

Note: This is only one opinion that elderly people may have.

Role Play Cards–2

Photocopy enough of these so that you will have enough roles for the number of youth in your group. More than one person may play the same role but try to have as many roles represented as possible.

Citizen C

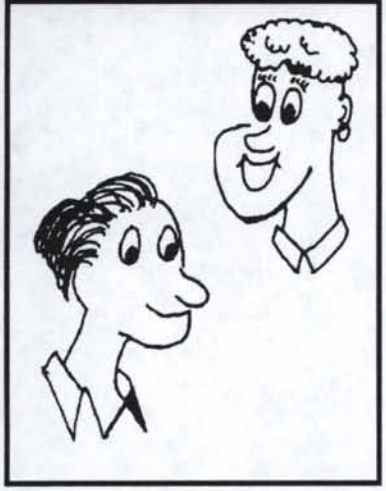


Who are you?
You represent people who put all the blame for waste management problems on people's own greedy behaviors and lifestyles (wanting all the modern conveniences).

Who do you blame?
You feel that we are all at fault for wasting resources and being unwilling to change lifestyles.

What should be done?
You think we should take action now to identify the cause of the problems and then boycott and take other civil action against companies and industry who cause waste problems. You also support changing lifestyles.

Citizen D



Who are you?
You represent people who are not concerned because you don't believe that there really is a problem. The community seems very prosperous and healthy.

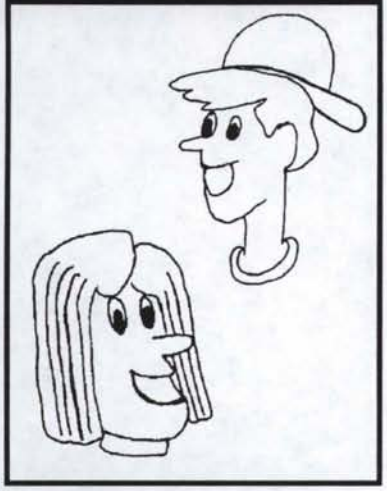
Who do you blame?
You don't blame anyone, because you don't think there is a problem. You feel people are blowing things out of proportion without knowing the facts.

What should be done?
You don't really worry about it and feel that the community should not spend any money to further investigate problems that aren't there.

Role Play Cards–3

Photocopy enough of these so that you will have enough roles for the number of youth in your group. More than one person may play the same role but try to have as many roles represented as possible.

Citizen E



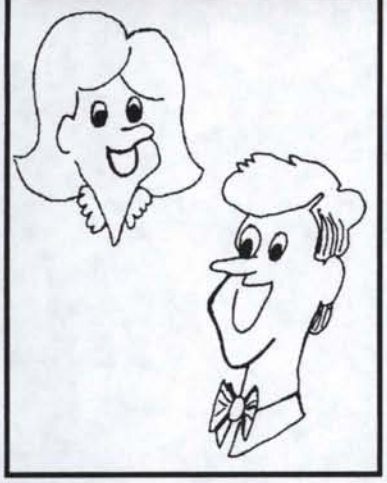
Note: This is only one opinion that middle school students may have.

Who are you?
Middle School Students

Who do you blame?
We all have contributed to the communities waste management problems. Placing blame on one group or another doesn't help solve the problem.

What should be done?
Through working together, you feel waste management problems can be solved. You want "something" where everyone can do their share to make things better. You support taking action right away.

Citizen F



Note: This is only one opinion that local industry may have.

Who are you?
You represent the local industry and are the major community employer. Your company pays a large amount in taxes to support the community.

Who do you blame?
Society is at fault, because they can't live without modern conveniences. The fact is waste problems are a result of the production of modern conveniences.

What should be done?
The people who use services that are producing waste need to be willing to pay more so that industry can comply with the newest waste management standards.

Lesson 3

A Difference Being Made

Goal

To understand that youth can make a difference.

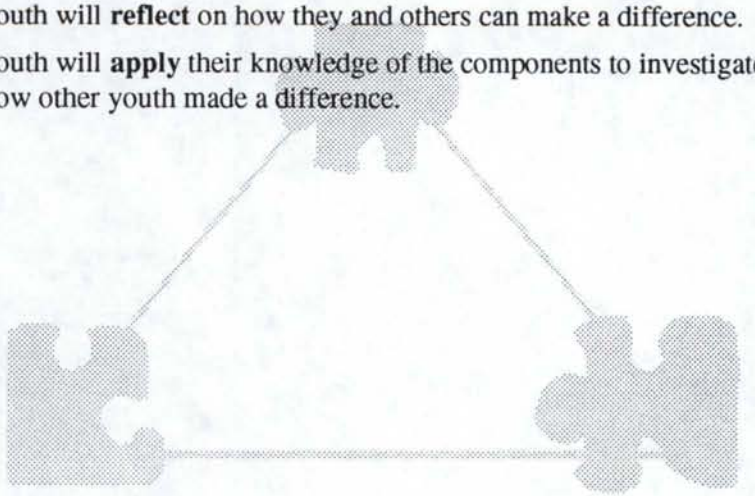
Objectives

4-H youth will:

1. Identify the components of the action planning process.
2. Recognize that their peers have made a difference.
3. Discover the impact other youth have had when completing an action plan.

Exploratory Learning Model Activities

1. Youth will **explore** how others have taken action in their home, community, or county.
2. Youth will **reflect** on how they and others can make a difference.
3. Youth will **apply** their knowledge of the components to investigate how other youth made a difference.



Lesson 3 — A Difference Being Made

Time Needed

Approximately 1 hour.

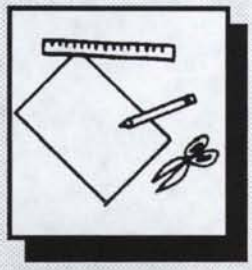
Background Information

Youth are making a difference in restoring our environment and managing waste through a variety of activities and projects. Youth organizations are adopting highways and streams, developing environmental parks, setting up recycling programs, etc. The key to their success is that they organized and planned out their action. The youth took a leadership role in the action and followed through.

In *Empowered to Action* (Lesson 6), youth will be developing an action plan of their own, therefore it is important that they understand the components of an action plan. This lesson will introduce those components and provide real examples of other youth using action plans to make a difference.

The components needed to make a difference are:

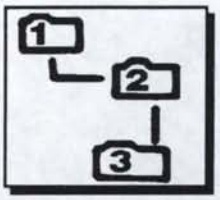
1. Identify the issue, get the facts.
2. Identify an action to take.
3. Develop a timeline and make assignments.
4. Determine funding needs and sources.
5. Identify community resource people.
6. Publicize the action.
7. DO IT NOW!



MATERIALS

Empowered to Action
Game Cards & Rules
Action Plan Key
Copies of News Articles
Yes! Yes! I Have ... Sheet
Optional: bell

Procedure



Step 1: Preparation

1. Copy Empowered to Action Game Cards on card stock and cut.
2. Copy news articles, one per pair.

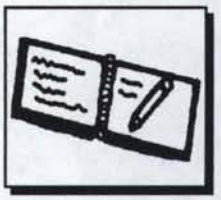
Step 2: Play the Empowered to Action Game

1. Introduce and explain the Action Plan components needed to make a difference.
2. Play the Empowered to Action Game. See Lesson Materials: Empowered to Action Game Rules for set up and rules.
3. At the end of the game, ask the youth to list the components of an Action Plan.

Step 3: Examining News Articles

Working in pairs, have the youth read news articles from Lesson Materials: News Articles. Ask them to share with the group how the youth in the articles took action in their communities. Can they identify the components in the news articles? See Additional Activities for alternatives.

Step 4: Journalizing



Have youth describe in words or drawings how other youth made a difference by using the action plan components.

Step 5: Feedback, Please!

Your opinions are very important to us. Once you have completed this lesson fill out the "Feedback, Please!" Form. Remove the form from this Leader's Guide binder, place in one of the pre-addressed, stamped envelopes, and mail it. Thank you!

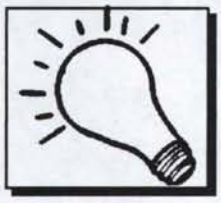
Additional Activities

- Play the **Yes! Yes I Have...** game to demonstrate that the group may be already involved in waste management or environmental restoration projects.

  Each youth gets a copy of the YES! list and places a check by the items they have participated in. The last three lines on the sheet may be filled with other items not listed that the youth has participated in. Form a circle with chairs, with one less chair than number of participants. One person begins by standing in the middle. The other members are seated in the circle. The person in the middle reads one item checked on their list. Any one with the same item checked must stand up and switch chairs (at least three chairs away). The middle person tries to sit down as the others are switching. Hopefully, a different person will be left standing. The game continues in the same manner.

  Close the game with each youth sharing one item that they have participated in. If time permits the youth can share how they participated.

- Using a discussion format ask the group if they know of youth in their community who are making a difference. Find a news article or some other description of what has been done. Can they describe the action plan components in the example?



Project Suggestions

Demonstration:

- Give a presentation on the different youth action plans already happening in the community.
- Share the EM*Powered to Action Game with another group.
- Share what your family is doing to cut down on waste production.

Feedback, Please!

Lesson 3
A Difference Being Made

Dear Leader,

Please answer these questions after your group has completed Lesson 3: "A Difference Being Made."

1. 4–H group name / number: _____

2. Number of members present during this session: _____

3. In your opinion, how enjoyable was this lesson for the participants? (*Please circle one number.*)

1	2	3	4	5
extremely enjoyable	very enjoyable	enjoyable	somewhat enjoyable	not enjoyable

4. What were the strong points of this lesson? (*Please be specific.*)

5. How could this lesson be improved? (*Please be specific.*)

6. Any other comments? (*Use the back of this form or additional paper if needed.*)

After you have completed this form, please remove it from the binder, place in one of the pre-addressed, stamped envelopes, and mail it. Thank you!

Empowered To Action Game Rules

Empowered To Action Game Rules

Setup for the game:

1. Must have a minimum of 3 people to play the game.

2. On card stock (available at local photo copy center), photo copy and cut one set of the cards for each player in the game. Copy and cut one solution and one waste card per deck.

3. Thoroughly shuffle the cards and deal cards to the players. Place the KEY in the middle of the table.

Guidelines for playing the game:

4. Each player sorts his/her cards and determines which cards are missing to make a complete set. (HINT: suggest that they organize by the point value on the cards.) The object of the game is to compile a full set of the 7 action component cards.

5. "Ready for Action" is called by the first player who is ready to trade game cards. (NOTE: This may be called before everyone has completed sorting. That is OK.)

6. After "Ready for Action" is called, every player begins trading without waiting for a turn.

7. Players trade cards one at a time as quickly and as often as needed. Each player shouts the name of the card he/she is trading. Each player trades cards he/she does not want, in hopes that he/she will receive cards to compile a full set. NOTE: When a person wants a card being called, the person giving it away MUST trade with the person wanting it.

8. When a player has a full set of the 7 action component cards, he/she shouts: "EMPOWERED TO ACTION," rings the bell, and wins that round. Play another round immediately and continue playing rounds until one person scores 1,000 points.

(Continued on next page)

Empowered To Action Game Rules–2

9. **Scoring:** The winner scores a full set equal to 280 points. This value will change if the SOLUTION and WASTE cards are used (see below). The first player to tally 1,000 points wins the game!!

10. **OPTIONAL:** Use the WASTE and SOLUTION cards.

    a. To play with the WASTE and SOLUTION cards, add one of each to the deck before dealing. Two players will have an extra card when the cards are first dealt.

    b. WASTE and SOLUTION cards can be traded at any time. WASTE and SOLUTION cards can be traded in two ways:
    - they can be traded alone by calling out a name of another card or,
    - they can be camouflaged under another card when trading.

    Scoring with WASTE and SOLUTION cards:
    If the winning player holds the SOLUTION card when he/she calls "EMPOWERED TO ACTION" and he/she has the complete set, he/she scores 560 points (double the value of the cards) and wins the round. The solution card may take the place of any of the 7 action component cards.

    If a loosing player is holding the WASTE or SOLUTION cards when EMPOWERED TO ACTION is called he/she loses points; 50 points are lost for the WASTE card and 60 points are lost for the SOLUTION card.

11. **At the end of the game check to see if the group can list the 7 components needed to make a difference.**

Empowered to Action Key

Empowered to Action Key

10 Identify the **issue**, get the facts. 10

20 Identify an **action** to take. 20

30 Identify community **resource** people. 30

40 Determine **funding** needs and sources. 40

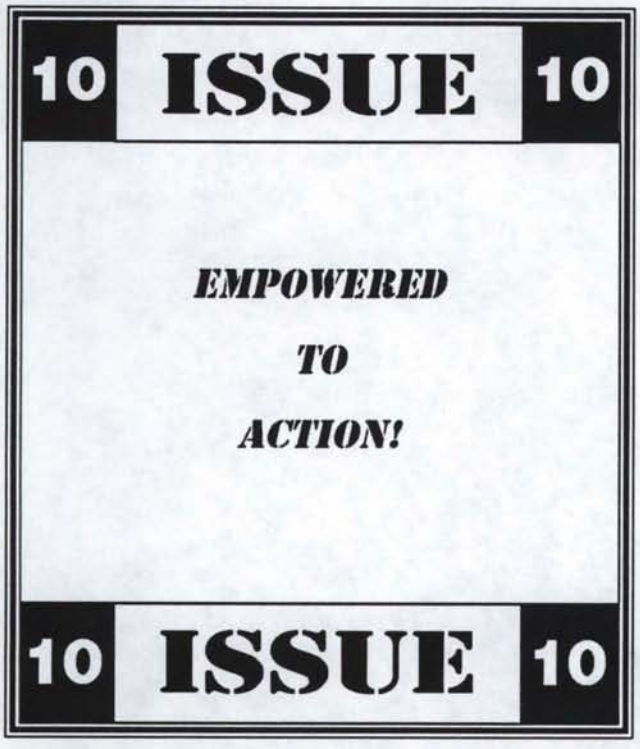
50 Develop a **timeline** and make assignments. 50

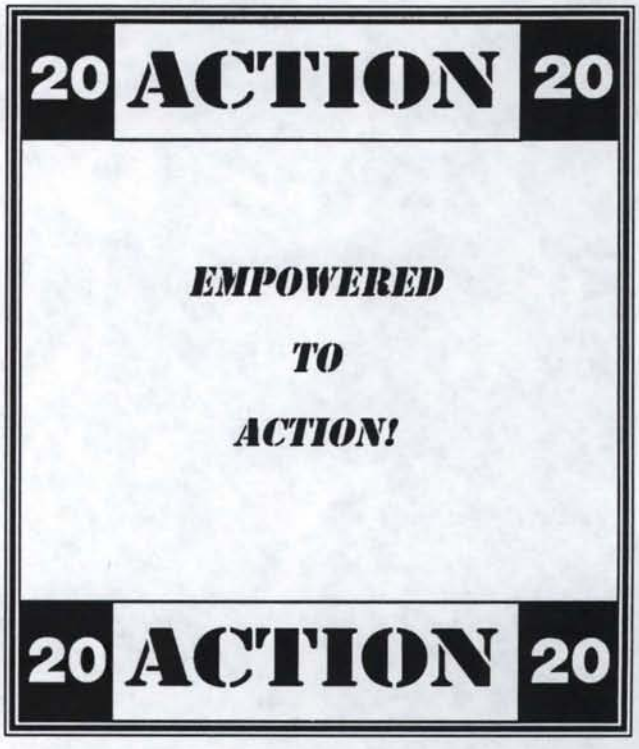
60 **Publicize** the action. 60

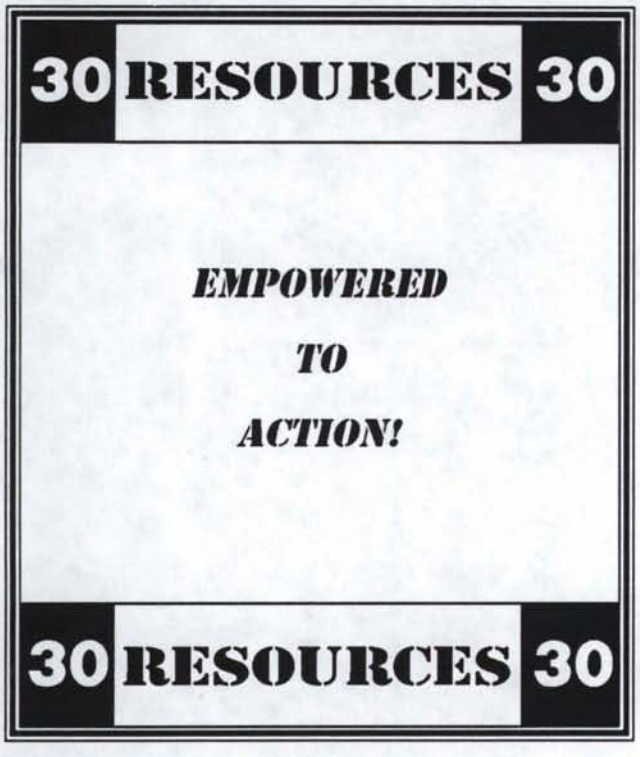
70 **Do It!** 70

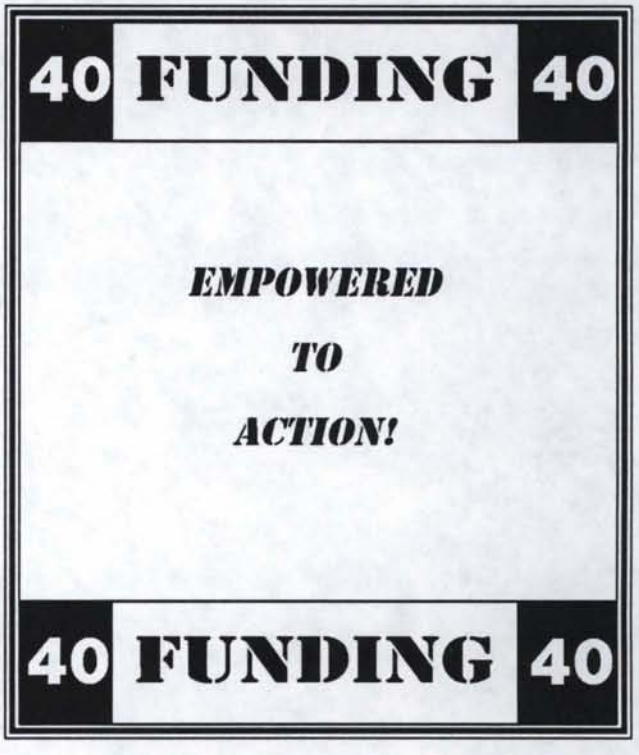
Empowered to Action Game Cards

Photocopy on card stock, one set per player.



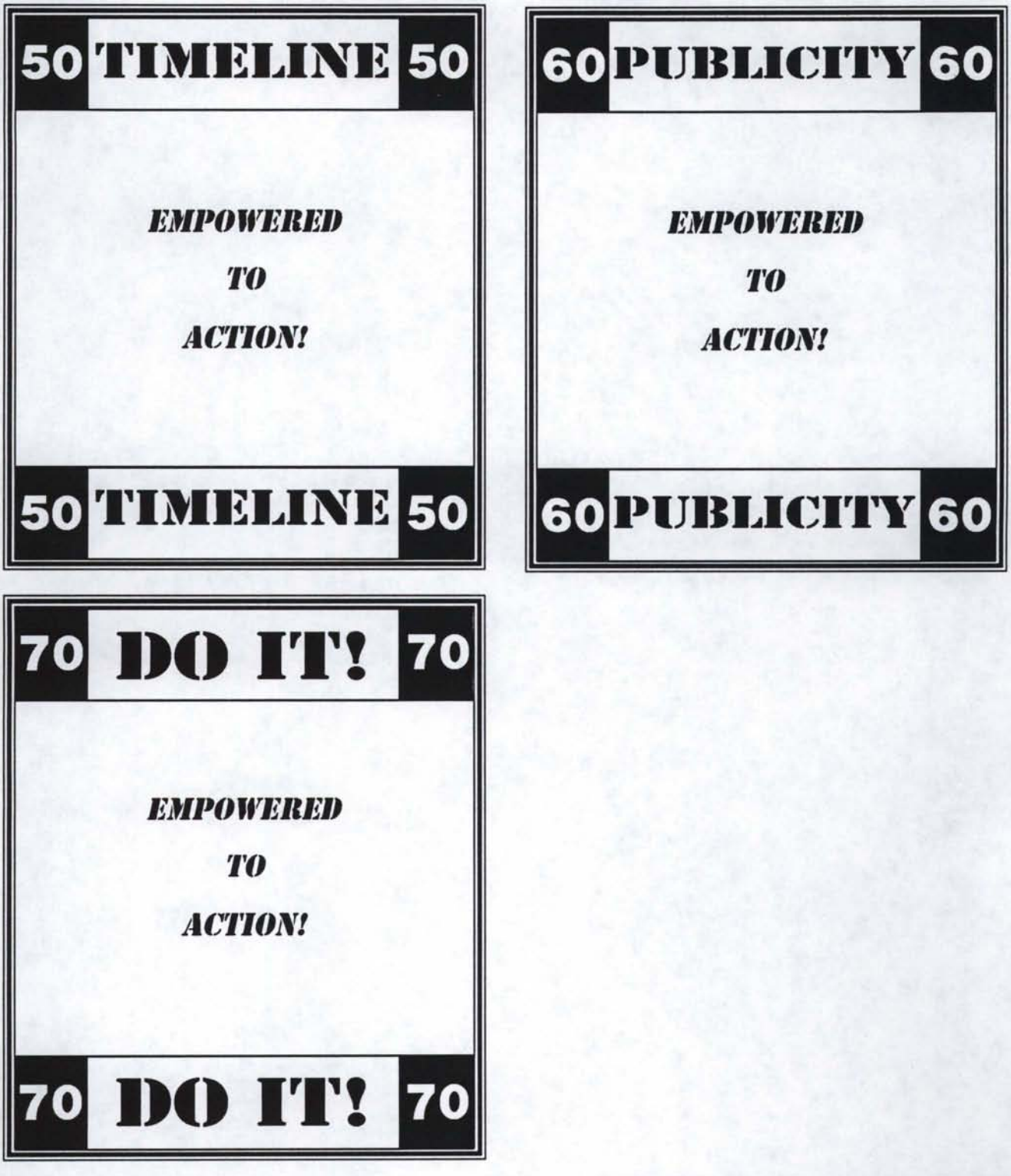






Empowered to Action Game Cards–2

Photocopy on card stock, one set per player.



Empowered to Action Game Cards–3

Photocopy on card stock, one waste and one solution card for the game.

-50 **WASTE!** -50

EMPOWERED

TO

ACTION!

-50 **WASTE!** -50

-60 **SOLUTION!** -60

(or double the value)

EMPOWERED

TO

ACTION!

(or double the value)

-60 **SOLUTION!** -60

News Article

MONDAY GROUP
Purchase and Protection of a Six Mile Cypress Swamp

This is a summary of a project that was undertaken by a high school Environmental Action of Investigative class at the Lee County Public and private schools in Fort Myers, Florida. Their group was called the MONDAY GROUP, since they met on Mondays. William F. Hammond and Randolph Tully were the environmental educators that worked with the students. The idea of the MONDAY GROUP is written up in the Project WILD manual.

A project undertaken by students resulted in the acquisition of the Six Mile Cypress - a 2,500 acre cypress stand that flows through the eastern boundary of the City of Fort Myers. The swamp had been proposed for public acquisition under federal law. It also had been designated as a potential state park area, but it had moved no closer to purchase. Students who had waded through the swamp, as a part of the Monday Group, felt that it was too unique to see chopped up into short-term-use farm fields and real estate development. They were concerned about over drainage conditions and general degradation due to lack of any kind of coordinated planning or protection for the swamp.

After considerable research, the students determined that the state and federal government would not be able to buy the swamp. They conducted a biological survey, an ownership survey, a geological survey, a hydrological survey, and a land use survey. All their information was compiled into a booklet on Six Mile Cypress Swamp. This was the project for Monday Group: the compilation of an extended knowledge base about Six Mile Cypress Swamp.

The students decided that the Six Mile issue was very important to them, and their major project for that year would be to try to get a public referendum. The students prepared their ballot presentation. They did their homework. They lobbied with each individual County Commissioner using teams, and proceeded to work throughout the year in trying to get the Six Mile Cypress issue placed on a referendum ballot. After having lobbied individually with the five County Commissioners, the students found they had the support of four. With what they thought were four votes in place, the students presented their plan to the County Commission at an open public meeting. Much to the students' surprise, the County Commissioners turned them down three to two, on the issue of placing the referendum on the ballot for the voters.

The students came back, mumbled a bit, and immediately started to work to figure out how to overcome that negative vote. They were successful. The students worked to meet all the parts that the County Commissioners had placed in objection. Within one week, a new vote of County Commissioners was held, and the five commissioners unanimously supported placing the referendum on the ballot for the public to vote on.

The students were also able to influence the wording of the ballot for the referendum. They were the ones to select at what public ballot, the issue would be placed before the voters. They were intimately involved in the critical political decisions affecting this referendum issue.

News Article–2

MONDAY GROUP
Manatee Survey

This is a summary of a project that was undertaken by a high school Environmental Action of Investigative class at the Lee County Public and private schools in Fort Myers, Florida. Their group was called the MONDAY GROUP, since they met on Mondays. William F. Hammond and Randolph Tully were the environmental educators that worked with the students. The idea of the MONDAY GROUP is written up in the Project WILD manual.

NOTE: Manatee are large salt water mammals.

The Project that students worked on for a few years was a survey of the manatee population in the Orange River. The survey led to the group interacting during a controversy between the Environmental Protection Agency (EPA) and the Florida Power and Light Company. The Environmental Protection Agency discovered that Florida Power and Light, at its local generating plant, had created a block in the Orange River. A temperature barrier was created that prevented the manatees from migrating up into the headwater of the Orange River to reach their nursery and spawning grounds. The Environmental Protection Agency had provided request to Florida Power and Light to redesign their canal discharge system and redirect it into the Calooshatchee River.

Such a project would have cost millions of dollars and consequently placed a great burden on local residents. Florida Power and Light requested that the Monday Group review the situation, with the hope that they would support Florida Power and Light's position.

One of the guiding principles of the Monday Group is that in all projects students were exposed to both sides of any issue, or as many sides of an issue that exists. Students were given an opportunity to interact with the officials and biologists from Florida Power and Light, and they were then given the opportunity to interact with the officials of the Environmental Protection Agency in Atlanta, who had placed this injunction on Florida Power and Light. The students concluded that the EPA rules were excellent and well–founded.

The students also decided, after having done some research, that special circumstances in the Orange River existed that perhaps overshadowed the intent of the EPA request. That is, they discovered that the key index species the EPA was concerned about were no longer able to reproduce significantly or carry on nursery function in the Orange River because previous development in the headwaters of the Orange River had already altered that system. Secondly, they discovered that the manatee population in the Orange River was far greater than anyone had anticipated or counted previously. Their students' logic was that if the canal system was shifted from the Orange River into the Caloosahatchee River, those manatees—an endangered species—would be placed in further jeopardy of their ultimate survival.

News Article–2 (continued)

The students' legal research indicated this to be contrary to both the Marine Mammals Protection Act and the Endangered Species Act, creating an illegal situation. The EPA could not, as a federal agency, create a new condition that would further threaten an endangered species.

Agreeing with Florida Power and Light, the students requested a public administrative hearing. EPA granted that hearing and the students testified on behalf of Florida Power and Light, also strongly expressing the view that the EPA policies and regulations which guided the injunction in the first place were excellent. The students emphasized that this case in Lee County should in no way weaken those regulations. They emphasized the unusual nature of the extenuating circumstances of upland development in the river system and, more specifically, of the unique manatee population that had come to winter in the Orange River complex due to the power-heated effluent.

This was a classic case of a group of high school students reviewing all sides of an issue, resulting in their being able to contribute to the resolution of a community problem of economic, political, and ecological significance. As a result of their recognizing the lack of protection for manatees in the Orange River, the students proceeded to work with the County Commissioners to post signs in the Orange River. The students raised funds.

They had signs at every marina warning people involved in boat traffic about the need to protect the manatee. In addition to signs on the Orange River, they had signs at every marina on the Caloosahatchee River and the adjacent tributary streams where manatees were known to spend time. The students got Lee County to post the park that is adjacent to Florida Power and Light effluent canal, heavily used by winter fishermen, warning people of the manatees in that canal system and of the penalties for harassing or harming the manatees in any way.

This action was the forerunner of Florida's state manatee laws—supported by another Seminar student group two years later, as the laws were being created by the Florida state legislature.

News Article–3

THE DAILY CALIFORNIAN

WEDNESDAY, JUNE 16, 1993, BERKELEY, CALIFORNIA

Fourth-graders blast their cafeteria's bad food, waste

by Susanne Marmion

Approximately 50 fourth-graders at Columbus/Cragmont School in West Berkeley held a press conference yesterday to reveal the miserable conditions of their cafeteria and present their environmentally responsible solutions.

Beginning with a tour of the cafeteria and the contents of its garbage cans, the nine and ten year-olds exposed problems with the cafeteria, its waste, and the meals it serves.

Student Charles West described the cafeteria as 'dumb, dismal, dirty, disgusting—and stinky."

Several students asked press and school board members attending, "Would you want to eat here?" and later offered visitors samples of cafeteria food.

In a chorus of complaints, students denounced dim lighting, cracked concrete floors, broken seats, and food variously described as "unrecognizable," "like dog food," and "sometimes still frozen."

The biggest concern of the class was the amount of food and recyclable material found in the school's waste.

Pointing to a full garbage can, fourth-grader Daniel Larsh explained how lunches are served on aluminum trays that are thrown away each day. "In one year we could fill three classrooms with the aluminum we waste," he said.

Katherine Freeburg, who teaches the class, said she likes to introduce her students to environmental issues. She said children who learn awareness early tend to remain environmentally responsible.

For two months, the class consulted with environmental educators to formulate solutions to the school's waste problems.

The students proposed installing a basketball hoop over the aluminum bin and a clear plastic chute over the glass bin to make recycling more fun.

As a result of the students' suggestions, Columbus/Cragmont Principal Beverly Smith-Miller has agreed to institute a recycling program next year.

Freeburg explained that children rarely have the opportunity to control their environment. "We send them to ugly buildings, treat them like cattle, seat them at long tables where they have to scream at each other to be heard, and then we tell them not to scream."

While redesigning the cafeteria, students learned about two essential subjects: environmental awareness and how to make measurements.

Freeburg said by measuring the existing cafeteria, the children used many skills in context.

"Sometimes the math became advanced. One of my fourth-graders said, "Excuse me, Mrs. Freeburg, but this is sixth grade math.'"

The students suggested installing sky lights to make use of natural lighting and save energy, and recommended using solar panels to heat the school's water.

They also proposed using washable dishes rather than disposable containers.

Students volunteered to wash dishes and serve food, but Food Services Manager Elsie Lee-Szeto discouraged the idea. She said the district would need to hire dishwashers to comply with local health ordinances.

Fourth-grader Jamila Riddlesprigger responded, "There are people out there without jobs, you know."

Although Freeburg said she did not expect the students' design for a new cafeteria to be built, the class will submit recommendations to the Board of Education.

Yes! Yes I Have ...

(Copy one form per youth.)

Yes! Yes I Have ...

Place a check by the items that apply to you and your family.

_____ Use both sides of the paper when taking notes.
_____ Turn off the light when leaving a room.
_____ Plant a tree native to the area.
_____ Recycle.
_____ Ride a bike for transportation.
_____ Recycle _____ at home.
_____ Recycle _____ at school.
_____ Compost at home.
_____ Take my own bag to the store for my purchases.
_____ Participate in an environmental project.
_____ Take hazardous waste to a collection center.
_____ Use baking soda as a cleaning agent.
_____ Use the comics for wrapping paper.
_____ Use containers to store food rather than plastic wrap.
_____ Use cloth napkins at home.
_____ Take used car oil to a proper disposal site.
_____ Car pool.
_____ Use compact fluorescent light bulbs at home.
_____ Stencil storm drains.
_____ Clean up highway or streams.
_____ Use recycled fabric for sewing projects.
_____ Make rags out of old t-shirts and socks.

_____
_____
_____
_____

Part B:

Going Local with Issues and Action

Lesson 4

Taking a Profile by Getting the Facts

Goal

To develop an understanding of the number and variety of home or community waste management concerns.

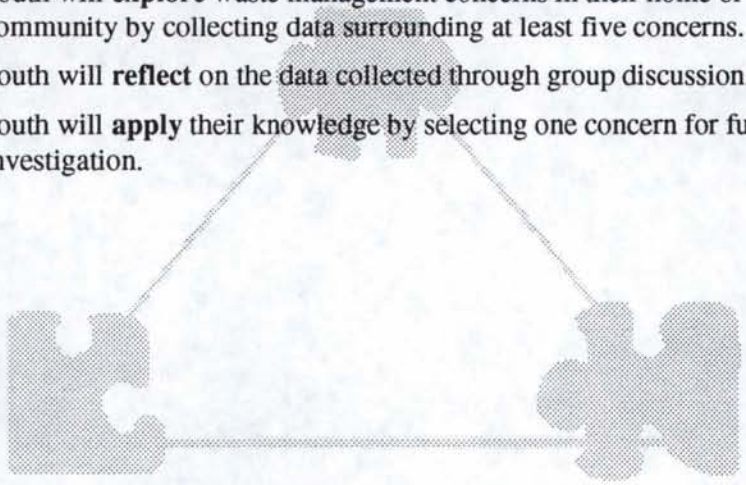
Objectives

4-H youth will:

1. Survey home and/or community for waste management concerns.
2. Identify at least 5 different waste management concerns in their home or community.
3. Gather facts surrounding at least 3 concerns.
4. Choose one waste management concern for further investigation.

Exploratory Learning Model Activities

1. Youth will **explore** waste management concerns in their home or community by collecting data surrounding at least five concerns.
2. Youth will **reflect** on the data collected through group discussion.
3. Youth will **apply** their knowledge by selecting one concern for further investigation.



Lesson 4 Taking a Profile by Getting the Facts

Time

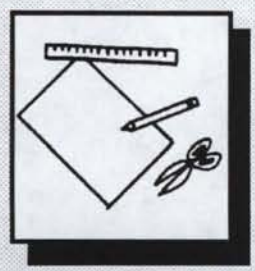
This lesson may take up to 3 hours.

Background Information

In order for youth to take effective action they need to identify waste management concerns that exist in their community or home. Identifying waste management concerns requires mapping (their home, a block, school, or community) and collecting factual information surrounding the concerns. Discernment of facts and opinions is an important skill when collecting data. This lesson focuses on collecting factual information and learning to discern facts from opinions.

A *fact* is information based on absolute certainty. For this lesson youth will record only facts, not opinions.

An *opinion* is a belief based on logic, emotions, or philosophy, not on absolute certainty. Opinions will be more closely investigated in *Issues, Issues* (Lesson 5).



MATERIALS

- Photocopies of Data Information Sheet
- Telephone book or community map
- Paper, pencil, & ruler
- Bright markers or dot stickers

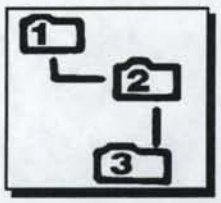
Procedure

Step 1: Preparation

Copy the data information sheet, one per pair.

Step 2: Mapping

1. The group must decide on the size of the area that they are interested in investigating. For example, a home, a neighborhood block, section of the city, etc. You may want to suggest that the larger the group, the larger the investigation area.
2. Obtain a map for the group if the group selects an area larger than a neighborhood block. You could use a city or street map from the local telephone book. Local Chamber's of Commerce often have free city maps.
3. Divide the group into pairs to investigate waste management concerns and mark the concerns on a map.



4. Youth will draw a map of the selected area, including major buildings, streets, natural features. Pairs of youth will map at least 4 potential waste management concerns in the area, based on the knowledge gained from the *EM*Power* poster. Youth may want to review the poster at this time. Place a bright dot or sticker on the map to indicate the location of the potential concern. Take a walking tour or use the yellow pages in the telephone book to map such places as gas stations, dry cleaners, the local landfill, etc.
5. Each pair of youth should identify the type and number of concers they found in the mapped area.
6. Youth should select one concern from their map to further investigate.

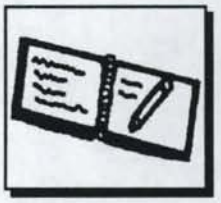
Step 3: Collecting Facts

1. Copy one Data Information Sheet for each pair.
2. Have youth use the Data Information Sheet as a guideline in collecting facts. Taking personal visits or field trips, inviting guest speakers, writing letters, and phone calling are methods to use to collect the data from the various sources. The list below, and the resource list in the back of this guide provides sources from which to collect factual information.

Sources: *Dictionary; encyclopedias; community resource people; 1-800 numbers on commercial products; state Poison Control; EPA; Library; Science teachers; Extension Office; Department of Energy ; Water Resources Research Institute Centers; Soil Conservation Service, Commission or Districts; Environmental or Special Interest Groups, local phone book, etc.*

3. After each pair has collected facts surrounding the selected concern, have them share the information with the group. Sharing may take place as a demonstration.

Step 4: Journalizing



Record factual information on the concern they investigated in their journals by inserting a copy of the Data Information Sheet.

Step 5: Selecting One Concern for Further Investigation

1. Using a chalkboard or newsprint, list all of the concerns that the pairs of youth investigated. Have youth indicate if they think the concern is a potential issue. Discuss which of the concerns the group would like to further investigate. Select one.
2. Organize a Data Information Sheet that clearly describes the selected concern. This should be a group project. If there is missing information, continue the collection of information. The data will be needed in the next lesson, I*ssues, Issues*.

Step 6: Feedback, Please!

Your opinions are very important to us. Once you have completed this lesson fill out the "Feedback, Please!" Form. Remove the form from this Leader's Guide binder, place in one of the pre-addressed, stamped envelopes, and mail it. Thank you!

Additional Activities

Sources of information may be field trips or guest speakers:

Field Trips *(We highly recommend a trip to one of these.)

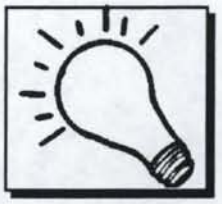
Paper factory
* Sewage treatment plant
* Landfill
Old dump
Nuclear plant
Waste to energy plant
Recycling center
University research centers
Goodwill center
Compost demonstration site
Chemical / fertilizer company
Fuel company

In-house recycling programs

Speakers

Environmental Group Spokesperson
Waste Management Technician
Scientist
Business representative
Government Agency Spokesperson: Forest Service, Bureau of Reclamation, Environmental Protection Agency, Soil Conservation Service, Division of Environmental Quality, Department of Health and Welfare.

Project Suggestions



Demonstrations:

- Graph the data and present it to other groups or the community.
- Share the field trip the group experienced.

Exhibit:

- Make a photo essay of the community waste concerns identified.
- Develop a photo essay describing the field trips.
- Use the graphs produced from the data to develop an exhibit.

Feedback, Please!

Lesson 4

Taking a Profile by Getting the Facts

Dear Leader,

Please answer these questions after your group has completed Lesson 4: "Taking a Profile by Getting the Facts."

1. 4–H group name / number: _____

2. Number of members present during this session: _____

3. In your opinion, how enjoyable was this lesson for the participants? (*Please circle one number.*)

1	2	3	4	5
extremely enjoyable	very enjoyable	enjoyable	somewhat enjoyable	not enjoyable

4. What were the strong points of this lesson? (*Please be specific.*)

5. How could this lesson be improved? (*Please be specific.*)

6. Any other comments? (*Use the back of this form or additional paper if needed.*)

After you have completed this form, please remove it from the binder, place in one of the pre-addressed, stamped envelopes, and mail it. Thank you!

Data Information Sheet

Photocopy one sheet per pair.

Data Information Sheet

Collect accurate and useful data — the FACTS!

- How many times did concerns appear on the map? _____
- How many people live in the mapped area? _____
- Is the mapped area a neighborhood, section of a town, or city community area?
- Do people live in the mapped area?
- Do people shop in the mapped area?
- Do people work in the mapped area?
- Sources of data we will use are:
  (The sources could include books, newspapers, city, county, state, and national agencies or groups.)
- What concern would you like to work on? _____
- How is the concern a potential threat to the community?
- The specific facts we gathered are:
  (Use the back of this sheet if you need more space.)

Lesson 5

Goal

To understand the differing points of view surrounding the waste management concern that was chosen in Lesson 4.

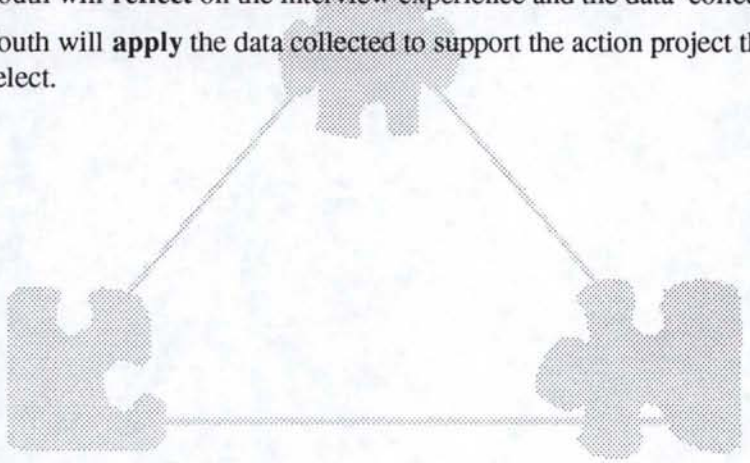
Objectives

By focusing on one local waste management concern, youth will:

1. Identify people who may be affected by the concern.
2. Collect the opinions surrounding the issue.
3. Explain two or more points of view surrounding the concern.
4. Explain the difference between a fact and an opinion.

Exploratory Learning Model Activities

1. Youth will **explore** the views of their families and communities surrounding a waste management concern.
2. Youth will **reflect** on the interview experience and the data collected.
3. Youth will **apply** the data collected to support the action project they select.



Lesson 5 Issues, Issues

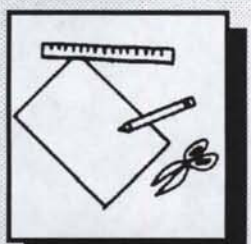
Time Needed

Approximately 2 hours plus additional time for data collection.

Background Information

Review the background information in *A Concern Becomes an Issue.* Personal beliefs (important ideas) and values (worth placed on things) affect the way people respond to environmental problems and shape the attitudes people hold in relation to the problem. Opinions are based on logic, emotions, or philosophy. Often opinions can be based on misinformation.

Waste management issues reflect differing human values. In fact, if there weren't different sets of values, there would not be any issues. If some people did not value clean space, there wouldn't be anyone complaining about litter. If people didn't throw gum wrappers, match covers, and beer cans along the roads and in the streets (or parks), we would have little concern about littering. If all utility companies used effective emission control devices on their smoke stacks, few people would complain about air pollution caused by electric utilities. If all towns and cities had good sewage treatment plants, there would be little need for health officials (and others) to be concerned about the pollution of streams and rivers. This list could go on and on. Some of the values that may be tied up in opinions about environmental concerns are listed below:



MATERIALS

Questionnaires, copied
Summary sheets, copied
Fact / Opinion Cards
Fact / Opinion Statements

<u>Value are sometimes based on the following ideas:</u>

Aesthetic: the appreciation of form, composition, and color through the human senses.

Economic: the use and exchange of money, materials, and/or services.

Ecological: the maintenance of natural systems.

Educational: the collection, use, and communication of knowledge.

Egocentric: a focus on self-centered needs and fulfillment.

Environmental: human activities in terms of quality of natural resources, e.g., plant and animal species, air, water, soil, etc.

Ethical/Moral: present and future human responsibilities, rights and wrongs, and ethical standards.

Ethnocentric: a focus on the fulfillment of ethnic/cultural goals.

Health: the maintenance of positive human physiological conditions.

Legal: relating to national, state, or local laws; law enforcement; law suits.

Political: the activities, functions, and policies of governments and their agents.

Recreational: pertaining to human leisure activities.

Religious: the use of belief systems based on faith or dogma.

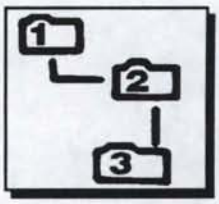
Scientific: concerning the process of empirical research; knowledge gained by systematic study.

Social: pertaining to shared human empathy, feelings, and status.

This background information is borrowed from Investigating and Evaluating Environmental Issues and Actions: Skill Development Modules, Harold R. Hungerford, Ralph A. Litherland, R. Ben Peyton, John M. Ramsey, and Trudi L. Volk, 1992, Stipes Publishing Company, Champaign, Illinois.

In this lesson, youth will determine if the waste management concern they chose in Lesson 4 is an issue. **As long as the youth find differing (conflicting) points of view surrounding the concern, the concern can be classified as an issue.** Youth have collected factual data about the concern in Lesson 4 and will now collect opinions related to the concern.

Procedure



Step 1. Preparation

1. Photocopy the following:
   a. Questionnaires, one per pair of youth
   b. Summary sheet, one per pair of youth
   c. Two sets of fact/opinion game cards.
2. Cut the fact/opinion game cards and keep as two seperate sets.

Step 2: Play the Facts/Opinions Game*

The purpose of this game is to show how difficult it is to discern facts from opinions. The game may have moments of chaos and confusion. This is OK, because it illustrates the difficulty of sorting facts from opinions.

*Game based on Owls and Crows — *(Borrowed from Sharing Nature with Children, Joseph Cornell, 1979, Ananda Publications).*

How to Play the Facts/Opinions Game:

1. Divide into two equal–sized teams. Assign one team the name, FACTS, and the other team the name, OPINIONS. Have each team sort a set of fact/opinion game cards into two piles: facts or opinions. Each team should sort privately. No answers will be shared until after the Facts/Opinions Game is played. Tell the teams that it will be important to remember how they sorted the cards when they play the Facts/Opinions Game.
2. After the teams have sorted the cards, have them hand in the cards to you. Remind them of their team names and move outside or to a space with room to run. Take one set of fact/opinion game cards with you.
3. The two teams should line up, shoulder to shoulder, facing each other, about two feet apart. About 15 feet behind each team, draw a line that indicates Home Base.
4. As the leader, you will stand at the end of the two lines to explain the rules and read the fact/opinion game cards.

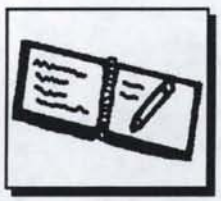
   RULES:

   - If the statement read is a fact, the FACTS team chases the OPINIONS team.
   - If the statement read is an opinion, the OPINIONS team chases the FACTS team.

5. Read fact/opinion game cards one at a time. After hearing the statement, youth should decide which way he/she will run, depending on if it is a fact or an opinion. *NOTE: If you need to give youth a chance to think before they run, don't let her/him run until you say RUN.* If the runner is caught by the other team, before reaching his/her own Home Base, she/he must join the opposite team. Since the answers are not obvious, parts of the two teams may run toward each other while others run back to their Home Bases. During the pandemonium, the leader should remain silent and neutral. Youth will probably be having a good time and learning that it is difficult to discern facts from opinions.
6. When the action has calmed down, discuss what happened. Ask:

   - *Why did they run they way they did?*
   - *Is the statement a fact or an opinion? Why?*

Step 3: Journalizing



Have the youth describe the difference between a fact and an opinion in words or drawings. They can either list some of the facts and opinions they just learned, explain why the confusion in the game was good, or write some new fact/opinion statements of their own.

Step 4: Discussion

1. After the game, use the Data Information Sheet that the group completed in Lesson 4 to lead a discussion about whether or not the information collected was truly factual. Use these questions to help them:
   - Why do they think the concern may be an issue? Ways *of stimulating discussion:*
     a) Did they hear differing points of view while they were collecting factual information.
     b) How did the points of view differ?
     c) Present the list of value definitions to the group. Does this help explain differing points of view?
   - What is the impact of the issue? Is it home, local, community, regional, national?
   - Who, in the community, is affected by the concern?

     These may be the people that the group will interview to determine opinions. (Youth may want to collect data from citizens who are not personally affected, since they can have opinions, too.)
2. Does the group feel they have enough facts? If not assign some members of the group to work on collecting additional facts.
3. Your group may want to design a fact summary sheet that they can use later when they collect opinions.

Step 5: Journalizing

Have the youth summarize the discussion about the Data Information Sheet in their journals.

Step 6: Designing a Method To Collect Opinions

1. In order to collect opinions, youth will have to find out more about peoples' beliefs and values. Opinions can be collected by telephone, in person, or in written format. Personal interviews will allow the youth to develop their interviewing skills. Before theycollect data have them work together, asking questions, practicing listening skills, and recording the information collected.
2. The following two ideas are critical to determine before the group collects opinions:
   - What is the exact information they want to know? (You may want to organize a brainstorming session to answer this question.)
   - How will they record the information so it can be summarized and presented to others?
3. When developing the questionnaire, remember to use the following type of scales for recording data. These kinds of scales will make the data easier to summarize:
   - Rating scale (1 - 5)
   - Agree - disagree
   - Listing, with check off format
   - Yes/No format
4. Prepare a form for youth to record opinions on. (The sample questionnaire provides a guideline for how to set up the form.)
5. Before collecting data have youth practice with each other. Practice using the forms, recording information, and asking the right questions.

Step 7: Collecting Opinions

A variety of people should be asked the questions (i.e. high school students, elementary school students, parents, elderly people in your community, etc.). A minimum of 25 people is recommended for the sample population. When collecting data remind youth of the following:

- Record data carefully and completely
- Be courteous and understand that there may be people who resent being ask such questions. (They may get rude responses.)
- Collect data in pairs, one asking questions, one recording answers.
- Go door to door or set up at a mall or other public place. (Be sure to ask permission.)

Step 8: Summarize the data

1. Design a data summary form that can be used to tabulate the opinions collected (See sample data summary form for one method of tabulation).
2. Have youth work together to interpret the information by making charts and graphs so that some general statements can be made about people's opinions (See examples).

Step 9: Journalizing

Have youth put a copy of the questionnaire the yused, the data they collected, and summarize their findings in their journals in words or drawings.

Step 10: Feedback, Please!

Your opinions are very important to us. Once you have completed this lesson fill out the "Feedback, Please!" Form. Remove the form from this Leader's Guide binder, place in one of the pre-addressed, stamped envelopes, and mail it. Thank you!

Project Suggestions

Demonstration:

- Graph the data and present it to other groups or the community.

Exhibit:

- Use the graphs produced from the data to develop an exhibit.

Feedback, Please!

Lesson 5
Issues, Issues

Dear Leader,

Please answer these questions after your group has completed Lesson 5: "Issues, Issues."

1. 4–H group name / number: _____
2. Number of members present during this session: _____
3. In your opinion, how enjoyable was this lesson for the participants? (*Please circle one number.*)

1	2	3	4	5
extremely enjoyable	very enjoyable	enjoyable	somewhat enjoyable	not enjoyable

4. What were the strong points of this lesson? (*Please be specific.*)

5. How could this lesson be improved? (*Please be specific.*)

6. Any other comments? (*Use the back of this form or additional paper if needed.*)

After you have completed this form, please remove it from the binder, place in one of the pre-addressed, stamped envelopes, and mail it. Thank you!

Fact / Opinion Statements

Use this list to read from when you play the Fact/Opinion Game.

Fact / Opinion Statements

F An apple is a fruit.
F Most glass is recyclable.
F Every city in the United States has some form of ground water pollution.
O All well water is pure.
O Factories are the cause of environmental problems.
O Landfills are the solution to a community's waste management problem.
O Incineration is the solution to a community's waste management problems.
F Radon is an invisible gas that could be found in your home and it occurs naturally.
O DOE, INEL, and Hanford are doing a great job with their waste management cleanup efforts.
F Dust contributes to air pollution.
O The EPA's standards for lawn mowers are too strict.
F Tobacco smoke can be a source of indoor air pollution.
F Proper insulation of a home saves energy.
F Sewage can contaminate ground water.
O Rechargeable batteries are better for the environment.
F Vegetables will decompose in a compost pile.
F In the United States, individual home owners cumulatively use more pesticides than farmers.
O Electric cars are the solution to air pollution.
F Radon causes lung cancer.
O The information on household hazardous wastes has been blown out of proportion.
F Household cleaning products have the potential to be household hazardous wastes.
O All animals species and sub-species should be protected.
F 4-H youth are able to make a difference.
O The government spends too much money regulating the amount of pollutants factories can emit.
F The number of batteries teens use in our town has an effect on the town's waste problems.

Fact / Opinion Cards–1

Photocopy and cut 2 sets of cards on different colored paper. Give each group a set.

An apple is a fruit.	Most glass is recyclable.	Every city in the United States has some form of ground water pollution.
All well water is pure.	Factories are the cause of environmental problems.	Landfills are the solution to a community's waste management problem.
Incineration is the solution to a community's waste management problems.	Radon is an invisible gas that could be found in your home and it occurs naturally.	DOE, INEL, and Hanford are doing a great job with their waste management cleanup efforts.

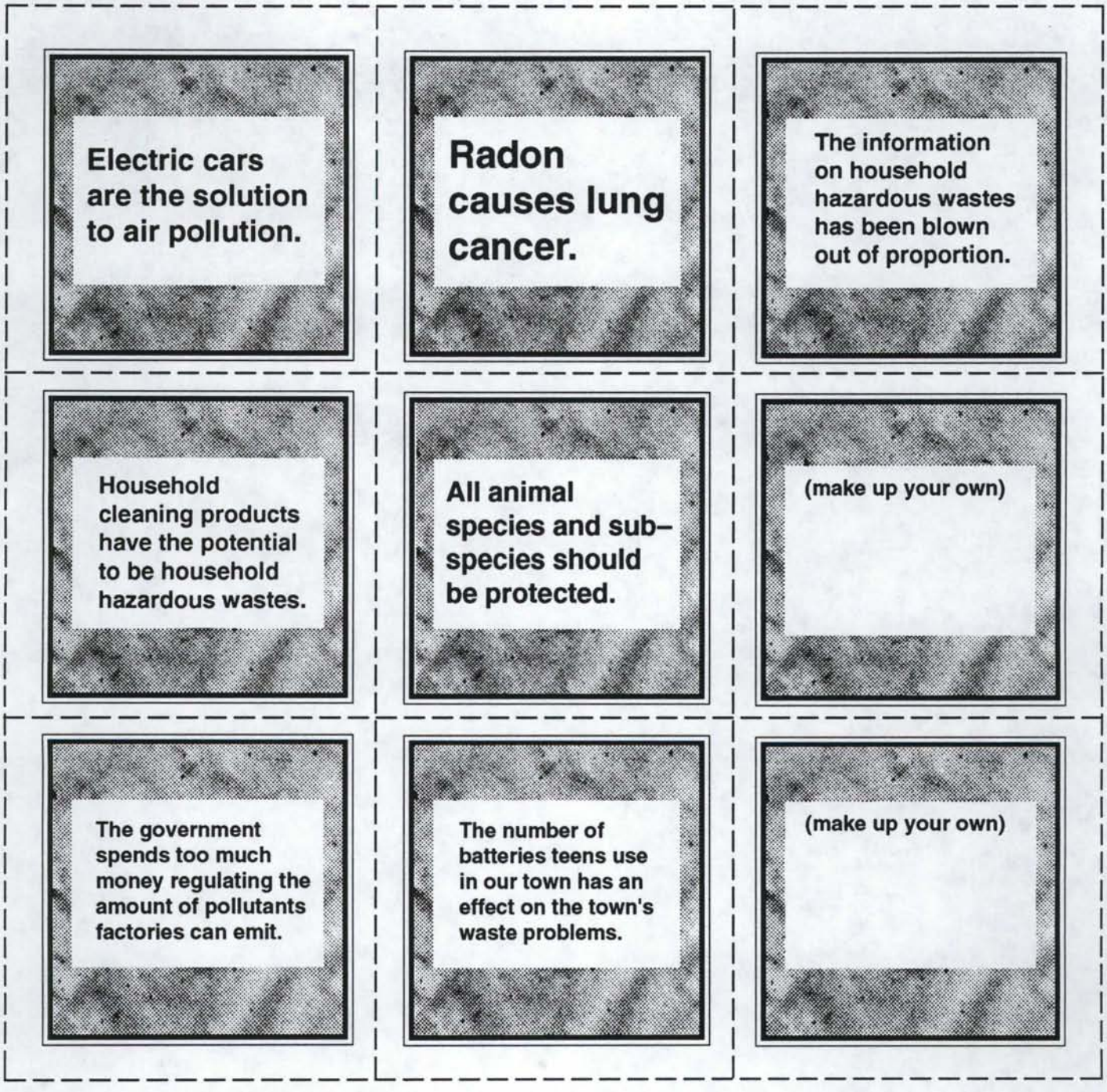
Fact / Opinion Cards–2

Photocopy and cut 2 sets of cards on different colored paper. Give each group a set.

4–H youth are able to make a difference.	Dust contributes to air pollution.	The EPA's standards for lawn mowers are too strict.
Tobacco smoke can be a source of indoor air pollution.	Proper insulation of a home saves energy.	Sewage can contaminate ground water.
Rechargeable batteries are better for the environment.	Vegetables will decompose in a compost pile.	In the United States, individual home owners cumulatively use more pesticides than farmers.

Fact / Opinion Cards–3

Photocopy and cut 2 sets of cards on different colored paper. Give each group a set.



Sample Questionnaire

Photocopy one of these for each group to use as an example.

Sample Questionnaire

This format is designed for reading.

Hello, my name is _____. I am a member of the _____ Youth Club. For one of our projects we are collecting information about how people feel about [the chosen concern]. May I collect information from you? (*If the answer is "yes" continue.*)

I am looking for your opinion; there are no right or wrong answers to these questions.

Questions:

1. To what extent do you consider [the chosen concern] to be a problem in our community?

1	2	3	4	5
Not At All		A Moderate Extent		A Great Extent

2. In your opinion, to what extent does [the chosen concern] have any harmful effects on the beauty or aesthetic quality of our community?

1	2	3	4	5
Not At All		A Moderate Extent		A Great Extent

3. In your opinion, to what extent does [the chosen concern] pose any public health problems for this community?

1	2	3	4	5
Not At All		A Moderate Extent		A Great Extent

4. In which of the following places in the community do you think [the chosen concern] is at its worst?

A. The schools?

B. The streets?

C. Malls?

D. Other businesses, i.e., gas stations and drive-ins?

E. Private property?

F. Other

... continued on next page...

Sample Questionnaire–2

5. In your opinion, who is most responsible for creating [the chosen concern]?

Have youth make up a list of possible responsible parties to add here.
Use the list as a check off.
Always provide one category called "other."

6. In your opinion, who is most responsible for cleanup of [the chosen concern]?

Have youth make up a list of possible responsible parties to add here.
Use the list as a check off.
Always provide one category called "other."

7. In your opinion, what do you feel is the most important reason for [the chosen concern] as it exists today?

Have youth come up with possible reasons to be add here.
Use the list as a check off form.
Always have one category called "other."

8. In your opinion, what do you think our group could do to improve the situation?

Sample Questionnaire–3

Photocopy one of these for each group to use as an example of a completed questionnaire.

Sample Questionnaire

This format is designed for reading.

This information collected from PERSON #1

Hello, my name is Pat Smith. I am a member of the Northern Clover 4-H Youth Club. For one of our projects we are collecting information about how people feel about [disposal of household cleaners]. May I collect information from you? (*If the answer is "yes" continue.*)

I am looking for your opinions; there are no right or wrong answers to these questions.

Questions:

1. To what extent do you consider [disposal of household cleaners] to be a problem in our community?

1 (2) 3 4 5
Not At All — A Moderate Extent — A Great Extent

2. In your opinion, to what extent does [disposal of household cleaners] have any harmful effects on the beauty or aesthetic quality of our community?

(1) 2 3 4 5
Not At All — A Moderate Extent — A Great Extent

3. In your opinion, to what extent does [disposal of household cleaners] pose any public health problems for this community?

1 (2) 3 4 5
Not At All — A Moderate Extent — A Great Extent

4. In which of the following places in the community do you think [disposal of household cleaners] is at its worst?

A. The schools?
B. The streets?
(C.) Malls?
(D.) Other businesses, i.e., gas stations and drive-ins?
E. Private property?
(F) Private homes
G. Other

... *continued on next page...*

Sample Questionnaire–4

5. In your opinion, who is most responsible for creating [disposal of household cleaners]?

A. Individuals
B. The mayor
C. The lawmakers
D. The companies who make the cleaners
E. Other

these were created to fit the community

6. In your opinion, who is most responsible for cleanup of [disposal of household cleaners]?

A. Individuals
B. The mayor
C. Local lawmakers
D. The companies who make the cleaners
E. Other

these were created to fit the community

7. In your opinion, what do you feel is the most important reason for [disposal of household cleaners] as it exists today?

A. No place to dispose of cleaners
B. Not realizing that the disposal of cleaners can be harmful
C. No other items on the market
D. Other

these were created to fit the waste management concern

8. In your opinion, what do you think our group could do to improve the situation?

- organize a household hazardous waste collection day
- put pressure on manufacturers to produce less toxic cleaners

Questionnaire Summary Sheet

Use this as a possible master tally sheet. See completed form for further information and example. Copy one page per youth.

Summary Sheet

Tabulate the number of people that rated that item a certain way.

	1	2	3	4	5	other	Total
Question 1							
Question 2							
Question 3							
Question 4							
Question 5							
Question 6							
Question 7							

Question 8: Prioritize the list of action ideas.

Once the numbers have been tabulated, try to make bar charts for each question.

Questionnaire Summary Sheet–2

After the data is collected it can be summarized on a tally sheet like this. If 25 people were questioned the tally sheet might look like this.

Summary Sheet

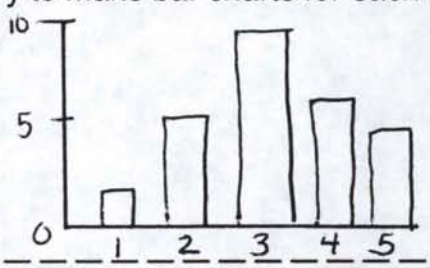
Tabulate the number of people that rated that item a certain way.

	1	2	3	4	5	~~other~~	Total
Question 1	||	5	5 |||	4 ||	|||	NO RESPONSE	25
Question 2	|	|||	5 ||	5	||	||	25
Question 3	|||	5	5 |	|||			25
***Question 4**	SCHOOLS |||	STREETS 5 5 |	MALLS 5 5 |	BUSINESS 5 5 |	PRIV. PROPERTY 5	HOMES 5 5 |	50
***Question 5**	INDIVIDUALS 5 ||||	MAYOR	LAWMAKERS 5	COMPANIES 5 5 5 ||			36
***Question 6**	INDIVIDUALS 5	MAYOR	LAWMAKERS |||	COMPANIES 5 5 5 5			33
***Question 7**	NO PLACE 5 5 5 |	NOT HARMFUL 5	NO OTHER 5 5 5 ||				48

* **Note:** On these questions people can pick more than one answer so a higher tally may result.

Question 8: Prioritize the list of action ideas.

Once the numbers have been tabulated, try to make bar charts for each question.
(example bar graph for question #1 above)



Lesson 6

Empowered to Action

Goal

To be empowered to make a difference by developing and implementing an environmental restoration or waste management action plan.

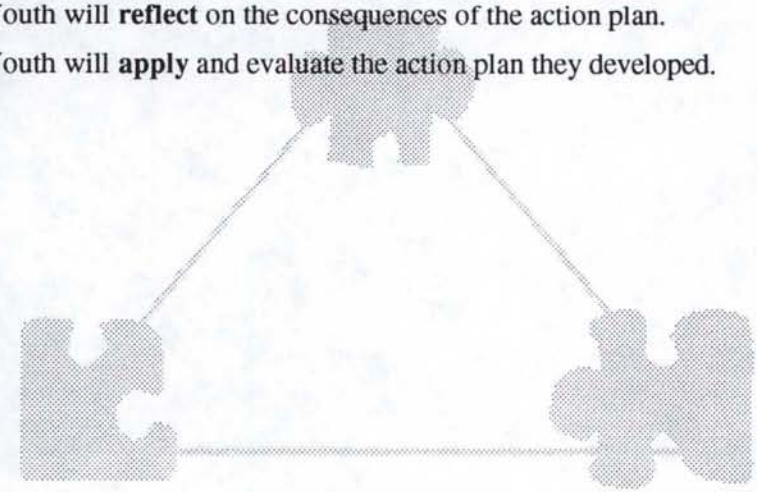
Objectives

4-H youth will:

1. Describe the process required to take action.
2. Describe the importance of teamwork when developing and implementing an action plan.
3. Follow through on action plan and evaluate the project.

Exploratory Learning Model Activities

1. Youth will **explore** possible actions to take on the waste management issue chosen in *Issues, Issues* (Lesson 5).
2. Youth will **reflect** on the consequences of the action plan.
3. Youth will **apply** and evaluate the action plan they developed.



Lesson 6 Empowered to Action

Time Needed

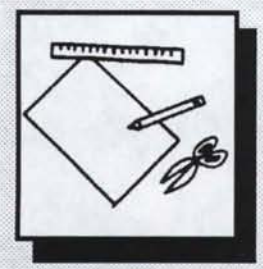
At least 1 hour to plan plus additional time needed to complete the action. Varies with the scope of the action project selected.

Background Information

We can all make a difference in our environment by taking well thought out and carefully planned actions. In this lesson, youth will plan and follow through with responsible action regarding a waste management concern. Action within the home, community, or county are all great places to start. When leading your groups in developing an action plan, keep in mind the following:

- Address the issue the group decided on in *Issues, Issues.*
- Focus on possible actions and barriers before developing the plan.
- Assist the group in developing an action plan that they can accomplish.
- Identify community resources to assist in the development and completion of the action.
- Address the anticipated consequences and impacts of the action.

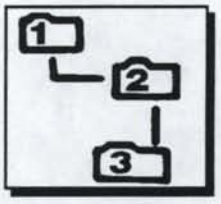
In developing the action plan the group will need to work together to brainstorm and generate ideas. The action plan forms can be used to direct the discussions. Have the group record the information on the forms. It may be useful to also record the information on the board or newsprint.



MATERIALS

Chalk board & chalk or newsprint pad & markers
Empowered to Action Plan
Group Action Plan
Budget Form
How Well Did We Do?

Procedure



Step 1: Preparation

Copy Action Planning forms for each member of your group.

Step 2: Identify Possible Actions

Using the issue identified in *Issues, Issues* (Lesson 5), lead the group in brainstorming a list of actions to take. Use the chalk board or newsprint. Have a youth volunteer to record the ideas on the board. The group will need to brainstorm the following topics:

- A dream list of the range of actions that could be taken. *Use the action project ideas in the Lesson Materials to stimulate discussion.*
- What barriers keep the issue from being solved.
- Solutions to the barriers.
- The people or groups (audience) who are affected by the issue and its solution.

When brainstorming follow the format below.

Issue:

Dream List	Barriers	Solutions	Those Affected
•			
•			
•			
•			

Step 3: Select One Action

1. At this point one action idea needs to be selected from the dream list.
2. To narrow the dream list allow each person to vote for three ideas on the dream list that they would like to do.
3. If there is not a clear action selected, try brainstorming some new action ideas.

Step 4: Develop an Action Plan

After selecting one action idea from the dream list, develop an action plan. Work together to complete the **Empowered to Action Plan**. Use the following steps to develop the action plan.

1. Complete Empowered to Action Plan Form.
2. Complete Group Action Plan Form.
3. Complete Budget Form.

Step 5: Complete the Action (DO IT!)

Once the action plan, assignment, and budget forms are complete, the group is ready to begin taking action. Remember that any action should include a safety component!

Step 6: Evaluate the Action

Evaluating the action shows what the group has accomplished. It also gives participants an opportunity to discuss the project and what it has meant to them. The group should work together to complete the How Well Did We Do? form.

Step 7: Journalizing

Have you add all of the completed forms to their journals and describe their action in words, drawings, or photos.

Step 8: Feedback, Please!

Your opinions are very important to us. Once you have completed this lesson fill out the "Feedback, Please!" Form. Remove the form from this Leader's Guide binder, place in one of the pre-addressed, stamped envelopes, and mail it. Thank you!

Additional Activities

Use the Community Service Ideas List to suggest a variety of ways to take action at both the community level and within your other 4-H projects.

- Team leaders could lead a group of younger youth in this activity.

Feedback, Please!

Lesson 6

Empowered To Action

Dear Leader,

Please answer these questions after your group has completed Lesson 6: "Empowered To Action."

1. 4–H group name / number: _____
2. Number of members present during this session: _____
3. In your opinion, how enjoyable was this lesson for the participants? (*Please circle one number.*)

1	2	3	4	5
extremely enjoyable	very enjoyable	enjoyable	somewhat enjoyable	not enjoyable

4. What were the strong points of this lesson? (*Please be specific.*)

5. How could this lesson be improved? (*Please be specific.*)

6. Any other comments? (*Use the back of this form or additional paper if needed.*)

After you have completed this form, please remove it from the binder, place in one of the pre-addressed, stamped envelopes, and mail it. Thank you!

Empowered to Action Plan

Photocopy one per person.

Empowered to Action Plan

1. What do we want to accomplish? Our objective is...

2. List the reasons for this action. (*Review Issues, Issues.*)

3. The audience will be *(those affected)*...

4. Identify people who can provide assistance for the action plan and how they can assist. *These people may include other youth, adults, community resource people.*

5. The methods we will use to accomplish our objective are: *(You may want to begin completing the assignment form.)*

6. How will we advertise our action? *(Develop public relations campaign.)*

7. What types of recognition will we give those involved and those who supported the action?

Empowered to Action Plan Adapted from Minnesota Extension Service 4-H Youth Development, Working on Waste 4-H Project.

Group Action Plan

Photocopy one per group.

Group Action Plan

Use this form to determine individual's roles, and timelines.

Name	Assignments	Start On	Complete By

Budget Form

Photocopy one per person.

Budget Form

List all items needed to complete the action.

List all revenue already generated for the action. Include donations.

Who will be responsible for the banking? _____

Item Needed	Cost	Revenue
	Total Cost	**Total Revenue**

It will take $_____ to complete this action. We currently have $_____.

We will need to generate $_____. How? Address on *Empowered to Action Form.*

How well did we do?

(an evaluation of the project)

Photocopy one per person.

How well did we do?

1. What did we plan to do?

2. What did we accomplish?

3. How do individuals in the group feel about their involvement?

4. Describe the response that you felt from those affected by the action?

5. If the action plan was conducted again what, if anything, would the group do differently?

6. Add any other comments regarding your action.

Action Project Ideas

(Adapted from: Working On Waste, Minnesota Extension Service, University of Minnesota, St. Paul)

Action Project Ideas

Littering

- Clean up a river or stream (Contact Adopt a Stream Foundation).
- Clean up a highway (Contact Adopt a Highway Program).
- Clean up a city park or neighborhood vacant lot.
- Design and paint litter barrels for public areas.
- Produce a video documentary on litter in your community.
- Write and present a play on litter.
- Raise money to purchase "no littering" signs for roadsides, community parks, etc.
- Pick up litter in your community - sort and recycle what you can.
- Design T-shirts with a "no littering" logo and wear at community events.
- Be more outspoken when you see someone littering.

Reducing

- Volunteer at a community household hazardous waste collection program.
- Provide presentations on ways to reduce waste at home, school, or office.
- Sponsor a waste reduction poster contest for youth in your county or school.
- Design a waste information booth for community events or county fairs.
- Teach about waste at day care centers.
- Develop informational posters and displays for local stores.
- Sponsor community informational meetings on waste management.
- Conduct a public awareness campaign on ways to reduce waste.
- Develop radio public service announcements on waste reduction.
- Write newspaper articles or a community newsletter on waste reduction.
- Make cloth bags for shopping and lunch bags. Sell or give away.
- Learn how to cook foods "from scratch," avoiding the purchase of packaged food.

Action Project Ideas–2

Reusing

- Volunteer your time at a clothing exchange.
- Set up an exchange program at your school or community center.
- Hold a community rummage sale or group garage sale.
- Collect and distribute magazines or used books to nursing homes, libraries, etc.
- Make quilts from reused fabric. Donate to the local shelter program.
- Reuse greeting cards and magazine pictures to make valentines and other cards for elderly.
- Organize an exchange of used toys and games.
- Construct a float for a community or county parade using reused materials.
- Collect and repair old tools, toys, and lawn furniture.
- Donate glass containers andused paper bags to your local food cooperative .
- Donate egg cartons to small farms with chickens.

Recycling

- Help build or adopt a community recycling shed.
- Establish a household battery collection program.
- Help distribute curbside recycling bins.
- Collect recyclables at community campgrounds or community events.
- Distribute recycling bins for libraries, community centers, schools, homes.
- Hold an old time recycling event or recycling festival.
- Design a brochure with information on recycling special wastes (tires, batteries, appliances).
- Collect recyclables for the senior citizens.
- Establish recycling programs for a new recycling center.
- Conduct a community recycling survey. Publicize the results.
- Learn what you state, county, and city has planned for the future.

Composting

- Construct a demonstration compost bin to display in the community.
- Help develop a community yard waste compost site.
- Volunteer at a community yard waste compost site.
- Build and sell compost bins.
- Organize a Christmas tree recycling program.
- Design brochures on yard waste composting.
- Provide demonstrations for proper mulching and composting techniques.
- Conduct a demonstration compost plot.

Appendices

Glossary

Note: Some words have not been defined at this time.

acceptable level of risk: A determination that considers the consequences of an action and personal values in deciding whether or not to act.

acid rain: Rain with a pH of less than 5.6; results from atmospheric moisture mixing with sulfur and nitrogen oxides emitted from the burning of fossil fuels; may cause damage to buildings, car finishes, crops, forests, and aquatic life.

aerobic: Living only in the presence of oxygen.

aerosol can: A container that sprays a substance by means of a compressed gas. In the past the most commonly used compressed gas contained chlorofluorocarbons (CFC's). Now we know that these chemicals are harmful to the ozone layer. Today most aerosol containers use other gases.

air–borne:

Air Quality Index (AQI): An index developed in Ontario, Canada, to monitor air quality.

air pollution index: A description of the concentration of specific types of air pollution present in the ambient air.

air pollution: Air-borne substances, not found in the normal composition of air, that can harm living organisms and/or other materials or resources.

air quality: A comparison of the composition of the air we breathe to an uncontaminated air resource or to air quality objectives.

algae bloom: A heavy growth of algae in and on a body of water; usually results from high nitrate and phosphate concentrations entering water bodies from farm fertilizers and detergents; phosphates are also naturally occurring in rock formations.

alpha particles:

ambient air:

anaerobic: Living in the absence of oxygen.

aquifer: A porous layer of sand, gravel, or clay that carries a usable supply of ground water.

Glossary

atmosphere: The layer of gases around a planet. The Earth's atmosphere contains many gases including nitrogen, oxygen, carbon dioxide, and ozone.

best management practices: A management activity, or combination of activities, that eliminates or reduces adverse environmental effects of pollutants in the context of the environmental management.

background radiation: The natural radioactivity in the environment. Background radiation consists of cosmic radiation from outer space, radiation from the radioactive elements in rocks and soil, and radiation from radon in the air we breathe.

beta particles:

bioaccumulation: The process by which the concentration of a substance is increased through successive links in a food chain resulting in toxic concentrations at the top of the chain. For example, DDT entered a water body, was absorbed by plankton, which was eaten by small fish, who were eaten by eagles. Eagle populations declined as a result. Also called biological magnification or biomagnification.

bioconcentration: The accumulation of non biodegradable chemicals (contaminants) in the tissues of living things. The higher up the food chain, the greater the bioconcentration of certain chemicals and the greater their danger to health.

biodegradable: Capable of being decomposed by natural biological processes.

biodiversity: The range of differences in life forms. Scientists have already identified nearly two million species of living things although they have examined only a small portion of them. They believe many millions more are yet to be discovered. Biodiversity is greatest in places which have evolved the longest (e.g. rain forests). Biodiversity is essential to keeping the living Earth healthy and in balance.

biofuel:

biological contaminants: Materials not normally found in air, water, or soil that originate from living or dead biological sources (e.g., dust mites, pollen).

biological oxygen demand (BOD): The amount of dissolved oxygen required for anaerobic organisms to break down the organic matter in a volume of water.

by-product: Something that is left over after an industrial process (e.g. wood chips, smoke stack emissions, nuclear waste).

Glossary

carbon dioxide: Colorless, odorless, nonpoisonous gas produced during decomposition or combustion. When mixed with water, it forms carbonic acid which can contribute to acid rain.

carcinogen: Anything that causes cancer.

catalytic converter: An afterburner fitted onto the exhaust pipe of a car or the smoke stack of a factory. A catalytic converter completes combustion and reduces air pollution.

chlorination:

chlorofluorocarbons (CFC's): A group of chemicals used for a wide variety of products such as aerosols and refrigeration; thought to cause loss of ozone from the upper atmosphere.

combustion:

compost: The result of organic materials decomposing (breaking down) into humus. Compost can be used to fertilize gardens and fields.

concentration:

conservation: Using the Earth's natural resources wisely and efficiently.

conservation farming: The management of farm activities and structures to eliminate or reduce adverse environmental effects of pollutants and conserve soil, water, plant, and animal resources.

conservation tillage: In producing a crop, limiting the number of cultivating operations to reduce soil erosion, soil compaction, and energy use.

contaminant: Impurity or other inclusion in air, water, or land resources that affects the normal use of that resource.

contamination: The introduction of a substance to air, water, or land resources that affects the normal use of that resource.

contour farming: Field operations such as plowing, planting, cultivating, and harvesting following the contours of a slope.

controversial: Arousing disagreement.

cubic yard:

Glossary

DDT (dichloro-diphenyl-trichloro-ethane): Once one of the most widely used pesticides in the world. DDT is now banned in the United States because it is toxic, it bioconcentrates, and it is slow to biodegrade.

decompose: To break down, rot, or decay.

degradable: Capable of being broken down chemically.

dioxins: A family of organo-chlorine compounds, extremely toxic in minute quantities. Some dioxins are produced by natural processes, but many are industrially made during burning of garbage and the production of chlorine-bleached white paper.

disinfectant: A cleaning agent that destroys, neutralizes, or inhibits the growth of harmful microorganisms.

diversion ditch: A channel constructed across a slope to divert runoff water and help control soil erosion.

diversion: A best management practice (BMP) used to divert water across or away from a hillside, exposed soil, or other potential sources of contamination.

drain field: The part of a septic tank system where the waste water is carried to the soil for absorption.

drinking water treatment: The filtration, treatment, and chlorination of water to make it suitable for human consumption.

dry stacks : Livestock manure stored in a pole barn with a sloping concrete floor.

dumps: Now illegal, dumps were open, unsanitary disposal sites used prior to sanitary landfills.

ecosystem: The biotic community (living organisms) and its abiotic environment (non- living factors) functioning as one system.

effluent: The treated waste water, or final liquid by-product of the waste water treatment process.

electromagnetic rays:

emission standard: Limit on the amount of air pollutant that can be released into the air from a particular source.

Glossary

endangered species: A species in grave danger of becoming extinct.

energy recovery: The recovery of energy in a usable form from mass burning or refuse-derived fuel incineration, pyrolysis, or any other means of using heat of combustion of waste.

energy source: A means of producing the power to work. Examples are fossil fuels (coal, oil, natural gas); geothermal, solar, nuclear, tidal energy.

environment: All the conditions, circumstances, and influences affecting the development of existence of organisms.

environmental degradation: The deterioration of the environment so that it has fewer species, poorer soil, and a decreased ability to support life.

environmental impact statement (EIS): A formal report on the environmental impacts of a projected activity. The National Environmental Policy Act of 1969 (NEPA) mandated an in–depth study of the environmental impacts associated with any new large activity that might involve the Federal Government.

Environmental Protection Agency (EPA): A United States agency responsible for managing federal efforts to control air and water pollution, solid waste disposal, radiation and pesticide hazards, and other environmental concerns.

environmental restoration: A descriptive term for one aspect of applied ecology; it is a means of returning damaged habitats as nearly as possible to the way they were before they were mined, logged, or polluted.

erosion: The wearing away of the Earth's surface by wind or water.

eutrophication: Naturally occurring changes that take place after a water body receives inputs of nutrients, mostly nitrates and phosphates, from erosion and runoff of surrounding lands; this process can be accelerated by human activities.

feedlots: Confined areas where livestock are fed until they are marketable size.

fertilizer: Any one of a large number of natural and synthetic materials, including manure and nitrogen, phosphorus, and potassium compounds, spread or worked into the soil to increase its fertility.

fossil fuels:

Glossary

fungicide: An agent that kills fungi.

gamma rays:

geothermal energy:

geologic disposal:

geologic repository:

grass filter strip: A strip or section of land in permanent vegetation (e.g. grass), established downslope of agriculture operations to control erosion and slow, reduce, or prevent pollutants from entering an adjacent water body.

greenhouse effect: The warming of the atmosphere caused by the build-up of carbon dioxide and other greenhouse gases. Visible light from the sun comes through the gases, but the gases prevent the return of the energy, now in the form of heat, to the outer atmosphere.

greenhouse gases: Carbon dioxide and other gases (e.g., water vapor, methane, CFC's, nitrous oxide, ozone) that prevent heat from leaving the earth's atmosphere.

ground-level ozone molecules: These are formed when volatile organic compounds (VOC's) and nitrogen oxides react chemically in the sunlight. Nitrogen oxides are formed when fossil fuels are burned in cars, power plants, and some factories. Volatile organic compounds are also burned in cars, power plants, and some factories. Volatile organic compounds are also produced by burning fossil fuels and also come from solvents, paints, glues, and the chemicals from dry cleaners.

ground water: The supply of fresh water found beneath the earth's surface, in cracks and crevices in stone, and in spaces between pieces of gravel and grains of sand; usually in aquifers.

hazardous (dangerous) waste: Discarded solid, liquid, or gaseous wastes which cause special problems because they are poisonous, explosive, corrosive of metal or skin, harbor disease-causing microorganisms, are radioactive, or are dangerous for any other reason(s).

herbicide: Any chemical or biological agent that kills plants. A herbicide is one type of pesticide.

high-level waste (HLW) : Also called high-level nuclear waste. Includes (1) the highly radioactive waste resulting from the reprocessing and any solid material derived from such liquid waste; (2) spent nuclear fuel itself; and (3) other highly radioactive material that the Nuclear Regulatory commission determines by rule, or the DOE determines to require permanent isolation.

Glossary

holding tank: An above or below ground container used to temporarily store animal wastes for land application.

holding pond: An animal waste treatment method which uses a shallow pond to temporarily store manure and other runoff for land application.

household hazardous waste: Waste substances from a home that have any hazardous characteristics.

hydrocarbons: Any of a large family of chemical compounds that contain only carbon and hydrogen; the most harmful hydrocarbons are produced by incompletely burned fossil fuels and evaporated solvents.

incineration (solid waste): Reducing the volume of solid wastes by use of enclosed device using controlled flame combustion.

insecticide : A chemical or biological agent that kills insect pests.

lagoon: An animal waste treatment method which uses a deep pond to treat manure and other runoff from livestock operation. Lagoons can be aerobic or anaerobic. Both use bacteria to break down waste materials.

landfill: A large, outdoor area for waste disposal; landfills where waste is exposed to the atmosphere are called open dumps which are currently against the law in the United States; in sanitary landfills, waste is layered and covered with soil.

leachate: The syrupy liquid formed when water (from precipitation) infiltrates through the soil covering a landfill and percolates down through the waste, picking up a variety of suspended and dissolved materials from the decomposing water.

leaching: The process by which water seeps through the ground picking up various dissolved materials.

low-level waste: Materials such as laboratory wastes and protective clothing that contain only small amounts of radioactivity.

mapping: The process of making a flat representation of an area.

Glossary

methane: A gas which is sometimes used as a biofuel. Also a gas formed from the anaerobic decomposition of buried waste in sanitary landfills. It is highly explosive gas, can be toxic to humans, animals, and vegetation.

municipal sewage: Sewage from a community; may be composed of domestic sewage, industrial wastes, or both.

municipal waste water treatment: The process of the physical removal or biological breakdown of pollutants in municipal sewage.

NIMBY (Not in My Back Yard): An abbreviation or acronym used to describe opposition to siting a facility in one's area or neighborhood.

nitrates:

nitrogen oxides: Toxic, colorless gases that result from burning of fossil fuels; a major component of acid rain.

no-till or zero tillage: A method of planting crops that involves no cultivation other than opening the soil for the purpose of planting seeds at an intended depth.

nonpoint sources pollution (NPS): Pollution that cannot be traced to a specific point, because it comes from many individual places or a widespread area (e.g., urban and agricultural runoff).

nuclear energy: The energy released from the reactions of the nuclei of atoms.

nuclear fission:

nuclear power plant: A power plant that produces electricity from nuclear fission.

nuclear reactor: A device in which a fission chain reaction can be initiated, maintained, and controlled.

nuclear waste: Radioactive by-products from any activity including energy and weapons production, as well as, medical treatment and research.

nutrient pollution: Human-caused addition of excess nutrients to a water body in runoff.

nutrient: An element or compound, such as nitrogen, phosphorus, and potassium, that is necessary for growth.

Glossary

ozone layer: The layer of the upper atmosphere in which a relative concentration of ozone absorbs a significant amount of in-coming potentially hazardous ultraviolet radiation.

ozone (low level): A harmful gas that is formed when volatile organic compounds (VOC's) and nitrogen oxides react in sunlight.

percolate: The downward movement of water through the subsurface soil layers to groundwater.

phosphates:

photodegradable: A material which will break down in the presence of ultra violet (UV) light.

point source pollution: Pollution that can be traced to a single point source, such as a pipe or culvert (e.g., industrial and waste water treatment plant discharges).

Pollutant Standards Index (PSI): Standardized index used in the U.S. to report air pollution levels.

pollutant: Any substance which causes pollution.

pollution prevention: The use of processes, practices, or products that reduce or eliminate generation of pollutants and wastes including those which protect natural resources through conservation or more efficient utilization of resources.

pollution: Contamination of air, soil, or water by the discharge of wastes or other harmful substances.

polychlorinated biphenyl's (PCBs): A group of stable human-made industrial chemicals used as insulation fluids in electrical transformers and capacitors; PCBs are harmful because they do not break down and can bioaccumulate in humans and animals.

pyrolysis:

radiation sickness: Sickness that results from high exposure to radiation received in a short time. Common symptoms include: nausea, fatigue, vomiting, loss of teeth and hair, and in more severe cases, damage to blood-forming tissue and decrease in red and white blood cells.

radiation: Energy that moves through space in the form of particles or electromagnetic waves.

radioactivity: The property possessed by some elements, such as uranium, of spontaneously emitting alpha or beta particles or gamma rays.

Glossary

radon: A naturally occurring, colorless, odorless, radioactive gas.

reclaim (reclamation): Return to original condition.

recycle: The collection and reprocessing of manufactured materials for reuse either in the same form or as part of a different product.

recycling center: A site where manufactured materials are collected and resold for reprocessing. Types of recycling centers include: 1. Buy-back: a center where the recycler pays for materials. 2. Donation: a center where the recycler accepts donated materials. 3. Drop-off: an unattended donation station.

reduced-tillage or conservation tillage: Any tillage practice which involves less cultivation and retains more plant residues on the soil's surface than conventional methods.

renewable resource: A naturally occurring raw material or form of energy derived from an endless or cyclical source, such as the sun, wind, falling water (hydroelectric), biofuels, fish, and trees. With proper management and wise use the consumption of these resources can be approximately equal to replacement by natural or human-assisted systems.

repository: Any system licensed by the Nuclear Regulatory Commission that is designed for the permanent deep geologic disposal of high-level nuclear waste, including spent nuclear fuel and high-level radioactive waste from defense activities.

resource recovery: A general term used to describe the extraction of economically usable materials or energy from wastes.

riprap: Large rocks placed along the bank of water body to prevent erosion.

risk assessment: An estimate of the frequencies and consequences of undesirable events and evaluation of the risks in quantitative terms.

risk perception: One's estimate of undesirable consequences and likelihood of occurrence of undesirable consequences associated with some activity or technology.

rodenticide: A chemical used to kill rodents.

Glossary

sanitary landfill: A specially engineered site for disposing of solid waste on land constructed so that it will reduce hazards to public health and safety. Sanitary landfills designed to Federal Resource Conservation and Recovery Act standards require, among other things, an impermeable lower liner to block the movement of leachate into ground water, a leachate collection system, gravel layers permitting the control of methane, and the daily covering of garbage with soil.

sanitary sewer: A system of drains and underground pipes that collects and transports waste water from homes and businesses to the local waste water treatment plant.

scrubbers: Pollution control equipment used to remove sulfur dioxide and particles from coal burning power plant emissions.

sediment load: The solid material that is transported by water.

selective cutting: The timber harvesting practice where only selected trees are cut and the rest are allowed to remain.

septic tank or septic system: A domestic waste water treatment system into which wastes are piped directly from the home into the ground; consists of a septic tank and drain field; waste water is exposed to bacteria that decompose the organic waste, dead bacteria and sediment settle to the bottom of the tank, and treated effluent flows out into the ground through drainage pipes.

shallow land burial: The current disposal process for low-level waste. Placing canisters of low-level waste in shallow trenches and covering with earth or shielding.

site characterization: Activities, collection of information, and studies (whether in the laboratory or in the field) undertaken to evaluate the suitability of a site for a geologic repository.

sludge: Any semisolid, heavy waste deposit, sediment, or mass that precipitates in a sewage system, septic tank, or municipal sewage treatment operation.

solid waste: All solid and semisolid wastes, including garbage, rubbish, ashes, industrial wastes, swill, demolition and construction wastes, and household discards such as appliances, furniture, and equipment.

solid waste management: The controlling, handling and disposal of all refuse including reducing, reusing and recycling.

solvent:

Glossary

source separation: The separation of different kinds of solid waste at the place where the waste originates. Sorting out recyclable materials from nonrecyclables in business, household, or school waste.

storm sewer: A sewer or pipe that usually carries surface water runoff, street water, and snow melt from the land, directly into a nearby water body.

tailings: Rock and other waste materials removed when minerals are mined; usually dumped onto the ground or deposited into ponds.

thermal pollution: The increase in temperature of a water body due to the discharge of water used for cooling purposes in industry and energy production.

tidal energy:

toxic substance: Any substance that causes death or harm to humans, animals, or plants.

toxic: Being harmful or destructive to humans, animals, or plants.

trade-off: Accepting one result in order to gain another.

transfer station: A permanent intermediate collection facility used by individuals and private or municipal haulers to transfer solid waste into a larger transfer vehicle for transport to another handling facility or to an ultimate disposal site. Transfer stations may include recycling facilities.

ultraviolet:
volatile:

waste management: The handling and directing of the unwanted by–products from a manufacturing process.

waste management system: The collection of facilities, equipment, personnel, and sites to be developed and deployed under control of the U.S. Department of Energy's Office of Civilian Radioactive Waste Management to accomplish the permanent disposal of commercial spent fuel and high-level waste from defense activities.

water pollution: Any human-caused contamination of water that reduces its usefulness to humans and other organisms in nature.

watershed: The area drained by a network of creeks, streams, lakes, and rivers.

Reference Materials

There are many sources of information about waste management and environmental restoration. The following is a list of some of the literature that was collected for the development of this project. This is not meant to be a comprehensive list of all the educational material available. This resource list can and should be added to. If you come across additional educational material that you think should be added or know of a source that we have not referenced, please send written information to:

EM*Power
Idaho Water Resources Research Institute
106 Morrill Hall
University of Idaho
Moscow, ID 83844-3011

Agency List of Resources:

The United States Environmental Protection Agency (EPA)

All EPA publications can be ordered by calling the Resource Conservation and Recovery Act (RCRA) Hotline at 1-800-424-9346. This office can provide information on where to find printed information related to most waste management concerns and environmental Restoration Projects.

Chemicals in Your Community; A Guide to the Emergency Planning and Community Right-to-Know Act., (September 1989). U. S. EPA, Washington, DC 20460. (800) 424-4372.

Earth Day. (January/February 1990). U.S EPA Journal, EPA Office of Communications and Public Affairs, Washington, DC 20460.

Environmental Education Resources Directory. (1990). U.S. EPA, Region 10 Public Information Center.

National Directory of Citizen Volunteer Environmental Monitoring Programs. (April 1990). U.S. EPA.

Need Help Filling in the Puzzle? Access Numbers for Business and Environmental Information, (1990). U.S. EPA.

Publications List. (Winter 1991 Update). U.S. EPA, Region 10 Public Information Center, 1200 Sixth Ave., Seattle, WA 98101.

School Recycling Programs: A Handbook for Educators. (1990, EPA/530-SW-90-023). U.S. EPA.

You Can Make A Difference. You can teach your friends and family about pollution prevention...by your example. (January 1990). U.S. EPA.

Additional EPA resources are listed by topic.

Reference Materials

Department of Energy (DOE)

All DOE publications can be ordered by calling. This office can provide information on where to find printed information related to specific DOE waste management concerns and environmental restoration projects.

Department of Energy, 1000 Independence Ave., SW Washington, D.C. 20585 (301) 903-4000

Resources by Topic:

Air Information

The Clean Air Act in Wisconsin . (Pub. AMO73-92) and *EE News.* (Spring 1993, Vol. 9, No. 3). Wisconsin Department of Natural Resources, P.O. Box 7921, Madison, WI 53707-7921.

Acid Rain

Acid Rain, A Teacher's Guide. National Wildlife Federation, 1412 16th St., NW, Washington, DC 20036.

Lacustrine Lessons, Aquatic Topics for Grades K-12. (March/April 1984, 1985). MN Sea Grant Extension, University of Minnesota.

Dry-cleaning

Straight Talk About Dry-cleaning. (1993) International Fabricare Institute, 12251 Tech Rd., Silver Spring, MD 20904.

Energy

Clean coal Technology, The New Coal Era. (November 1989). U.S. Department of Energy, Assistant Secretary for Fossil Energy, Washington, DC 20585.

Dinosaurs and Power Plants, Energy from the Past for the Future:. Teacher's Lesson Plan and Activity Guide. (August 1990). U.S. Department of Energy.

Energy & Environment Fact Sheet.. (1990). Earth Day, P.O. Box AA, Stanford, CA 94309. (415)321-1990.

Energy Conservation, Experiments you can do...from Edison. (1986). Thomas Alva Edison Foundation, 21000 W. Ten Mile Rd., Southfield, MI 48075.

Energy Fact Sheet: Hydropowe and Energy Fact Sheet: Wind. . The National Energy Education Development Project.

Reference Materials

Energy-Environment Source Book, Volume 1 and 2. National Science Teachers Association, 1742 Connecticut Ave. N.W., Washington, DC 20009.

The Clean Coal Path. Poster. U.S. Department of Energy.

Washington Water Power Gazette. (November 1993, #288). Washington Water Power, P.O. Box 3727, Spokane, WA 99220.

Environmental Campaigns

Blue Thumb, Give Drinking Water a Hand, National Drinking Water Week, May 2-8, 1993. (1993). US Department of Agriculture Extension Service, Rm. 3442 S. Building, Washington, DC 20250.

Enter the Earth Keeping, Take-a-Step Contest. (1993). Educational Print and Outreach, WGBH, 125 Western Ave., Boston, MA 02134.

Take Pride in America. Take Pride in America, P.O. Box 1339, Jessup, MD 20794-1339.

General

The Global Ecology Handbook, What You Can Do About the Environmental Crisis. (1990). The Global Tomorrow Coalition.

Hazardous Waste

Chemicals in Your Community; A Guide to the Emergency Planning and Community Right-to-Know Act., (September 1989). U. S. EPA, Washington, DC 20460. (800) 424-4372.

Do You Know A Pesticide Exposure Victim?, Journal of Pesticide Reform., NCAP Resources, Northwest Coalition for Alternatives to Pesticides and What To Do If You Are Sprayed In Idaho. NCAP (Northwest Coalition for Alternatives to Pesticides), P.O. Box 1393, Eugene, OR 97440. (503) 344-5044.

Environmental Hazards In Your School; A Resource Handbook., (October 1990, Publication #2DT-2001). US EPA.

Farmers Responsibilities Under the Federal Pesticide Law. (Revised August 1977). U. S EPA.

Hamilton and Shedlock, *Are Fertilizers and Pesticides in the Ground Water? A Case Study of the Delmarva Peninsula, Delaware, Maryland, and Virginia, U.S. Geological Survey Circular 1080.* (1992). U.S. Geological Survey, Federal Center, Box 25425, Denver, CO 80225.

Teaching about Hazardous and Toxic Materials, Environmental Education information Report, The ERIC Science, Mathematics and Environmental Education Clearinghouse in cooperation with Center for Science and Mathematics, The Ohio State University 1929 Kenny Road, Columbus Ohio, phone: (614) 292-6717.

Reference Materials

The Emergency Planning and Community Right-to-Know Act, Section 313 Release Reporting Requirements. (January 1992). U. S EPA, Office of Pesticides and Toxic Substances.

Toxics, Hazardous Waste Incinerators. Greenpeace, 1436 U St., NW, Washington, DC 20009. (202) 462-1177.

Waste Minimization: Manufacturers' Strategies for Success. National Association for Manufacturers, 1331 Pennsylvania Ave., NW, Suite 1500, North Lobby, Washington, DC 20004-1703. (202) 637-3151.

Household Hazardous Waste

Be an Environmentally Alert Customer. (April 1990, EPA/530-SW-90-34B). U.S. EPA., Solid Waste and Emergency Response, Washington, DC 20460. (800) 424-9346.

Citizen's Guide to Pesticides. (September 1997). U.S. EPA., Office of Pesticides and Toxic Substances, Washington, DC 20460.

Guide to Non-Toxic Cleaners. Simple Solutions to Water Pollution.. Lake Michigan Federation, 647 W. Virginia St. St. 307, Milwaukee, WI 53204. (414) 271-5059.

Household Hazardous Waste, What You Schools and Shouldn't Do. Water Environment Federation, 601 Wythe St., Alexandria, VA 22314-1994. (703) 684-22400.

Household Waste, Issues and Opportunities. Concern, Inc., 1974 Columbia Rd., NW, Washington, DC 20009. (202) 328-8160.

Managing Household Hazardous Waste. Household Hazardous Waste Project, 1031 E. Battlefield, Suite 214, Springfield, MO 65807. (417) 889-5000.

Turning the Tide on Toxics in the Home, A Guide to Safer Alternatives and Proper Disposal of Hazardous Household Products. Washington State Department of Ecology, Mailstop PV-11, Olympia, WA 98504-8711. (800) RECYCLE.

What Are Household Hazardous Wastes? (April 1990). DEQ. Hazardous Materials Bureau, 1410 North Hilton St., Boise, ID 83706. (800) 525-WRAP in Idaho or outside Idaho (208) 334-5879.

Global Warming

Beat the Heat: The CO2 Challenge. (Fall 1991). Children's Earth Fund. Scholastic.

Global Warming & Energy Choices a Community Action Guide. Concern Inc., 1794 Columbia Rd., NW, Washington, DC 20009. (202) 328-8160.

Global Warming, Meeting a Global Challenge Through Individual Action. National Audubon Society, Schlitz Audubon Center, 1111 East Brown Deer Rd., Milwaukee, WI 53217.

Reference Materials

Nonpoint Source Pollution

Tennessee Valley Authority. *Environmental Resource Guide, Nonpoint Source Pollution Prevention, Grades 6-8.* and *Grades 9-12.* (June 1992). Air and Waste Management Association, P.O. Box 2861, Pittsburgh, PA 15230. (412) 232-3444.

Nuclear

50 Years of Progress, The Benefits of Nuclear Technology. U.S. Council for Energy Awareness, 17761 St., NW, Suite 400, Washington, DC 20006-3708. (202) 293-0770.

Environmental Restoration and Waste Management (EM) Program, An Introduction. (Dec. 1992). Department of Energy, 1000 Independence Ave., SW, Washington, DC 20585. (301) 903-4000.

Fact Sheets, Environmental Restoration & Waste Management. Department of Energy.

How Nuclear Energy Plants Work. U.S. Council for Energy Awareness.

Nuclear Chronicle. (1992). American Nuclear Society, La Grange Park, IL

Nuclear Electricity and Energy Independence. (1989) U.S. Council for Energy Awareness.

Nuclear Energy. U.S. Council for Energy Awareness.

Science, Society, and America's Nuclear Waste, Ionizing Radiation. (DOE/RW-0362 SR, DOE/RW-0363 SR, DOE/RW-0361 SR, and DOE/RW-0364 SR). Department of Energy.

Pollution Prevention

Fact Sheet s Washington State Department of Ecology, Waste Reduction, Recycling and Litter Control Program, Mailstop PV-11, Olympia, WA 98504-8711. (800) RECYCLE.

Focus on Families and Farms. (November/December 1993, Vol. 3, No. 2). University of Idaho Cooperative Extension System, Caribou County Office, 159 South Main, #104, Soda Springs, ID 83276. (208) 547-3205.

The Communicator. University of Idaho Cooperative Extension System, School of Family and Consumer Sciences, Moscow, ID 83844-3188.

Reference Materials

Recycling

5 R's of Recycling. Moscow Recycling, P.O. Box 9385, 245 N. Jackson, Moscow, ID 83843-0117. (208) 882-0590.

A-Way With Waste, A Waste Management and Recycling Education Program. Washington State Department of Ecology, A-Way With Waste, 4350 150th Ave. N.E., Redmond, WA 98052. (206) 867-7000.

Business Waste Reduction Audit Manual. Spokane Regional Solid Waste Disposal Project, W. 808 Spokane Falls Blvd., Spokane, WA 99201.

Earthline. Earth Day 1990, P.O. Box AA, Stanford, CA 94309. (415) 321-1990.

Every Day, Earth Day 1991 Lifestyle Guide. Earth Day USA, P.O. Box 810, Epping, NH 03042. (603) 929-0220.

Garbage at the Grocery. (1990). Garbage, P.O. Box 56519, Boulder, CO 80322-6519.

Garbage Solutions, What You Need To Know and How You Can Help, The Future is in Your Hands. Keep America Beautiful, Inc., 9 W. Broad St., Stanford, CT 06902.

Garbage, The Practical Journal for the Environment. (March/April 1991). Garbage.

Householder's Recycling Guide, A Game Plan. Pennsylvania Department of Environmental Resources, 44 E. Front St., Media, PA 19063.

How Much Do You Know About Garbage? Sierra Club Public Affairs, 730 Polk St., San Francisco, CA 94109. (415) 776-2211.

Looking Down the Trash Barrel.. Idaho Waste Reduction Assistance Program, Idaho Department of Health and Welfare, DEQ. (800) 525-WRAP.

Nature Tracks, Idaho's Project WILD newsletter. (September/October 1991). Idaho Department of Fish and Game. 600 S. Walnut, P.O. Box 25, Boise, ID 83707. (800) GAB-WILD.

Plastics Recycling By the Numbers. Keep America Beautiful, Inc.

Recycle Today, Educational Materials for Grades K-12. (April 1990, 530-SW-90-025). U.S. Environmental Protection Agency, Solid Waste and Emergency Response, 401 M St. S.W., Washington, DC 20460.

Recycle Wheel.. (1990). Minnesota Office of Waste Management, 1350 Energy Lane, St. Paul, MN 55108. (612) 649-5750.

Recycling Awareness Program, An In-House Waste Reduction Handbook. (June 1990). Idaho Waste Reduction Assistance Program.

Recycling in the 90's, A Shared Responsibility. Waste Management, Inc., Recycle America, Recycling in the 90's, 3003 Butterfield Rd., Oak Brook, IL 60521.

Recycling Lesson Plans. PA. Dept. of Environmental Resources, Bureau of Waste Management, Recycling and Waste Reduction.

Reference Materials

Recycling Study Guide. (January 1989, PUBL-IE-020 89 Rev). Education Programs, Bureau of Information and Education, Wis. Dept. of Natural Resources, P.O. Box 7921, Madison, WI 53707. (608) 267-7565.

Recycling Study Guide. Education Programs, Bureau of Information and Education, Wis. Dept. of Natural Resources, P.O. Box 7921, Madison, WI 53707.

Recycling, Fact Sheet . Earth Day 1990.

Seventh Generation. (Earth Day 1990 Edition). Seventh Generation, Products for a Healthy Planet, Colchester, VT 05446-1672. (800) 456-1177.

Solid Waste. (October) Commonwealth of Pennsylvania, Department of Environmental Resources, Fulton Building, P.O. Box 2063, 8th Floor, Harrisburg, PA 17120. (717) 787-7382.

Steel, Americas Most Recycled Material. Steel Can Recycling Institute, Foster Plaza 10, 680 Andersen Drive, Pittsburgh, PA 15220. (800) 876-SCRI or (412) 922-2772.

Success Through Waste Reduction, Proven Techniques From Washington Business. (No. 90-22). Washington State Department of Ecology, Waste Reduction, Recycling and Litter Control Program, Mailstop PV-11, Olympia, WA 98504-8711. (800) RECYCLE.

Talk'n Trash, Environmental Education Opportunities for Schools. (No. 91-BR-13). Washington State Department of Ecology.

The Five R's of Household Waste Management. (January 1993, Vol. 1, No. 1). Cooperative Extension, Colorado State University, Fort Collins, CO 80523.

The Five R's of Household Waste Management. (March 1993, Vol. 1, No. 2). Cooperative Extension, Colorado State University.

The Fourth "R", An Action Booklet for Recycling in the Classroom and School. Recycling Education Coordinator, D.N.R., IE/4, Box 7921, Madison, WI 53707.

Used Oil Recycling. (March 1988). U.S. EPA, Office of Solid Waste, Washington, DC 20460. (202) 382-7932.

Waste Reduction In Your Business. (February 1991, No 89-56). Washington State Department of Ecology.

Wecology, Kids Can Make a Difference. (1990). Local McDonald's Restaurants.

You Can Do It. National Wildlife Federation, 8925 Leesburg Pike, Vienna, VA 22184-0001.

Reference Materials

Solid Waste

A Time to Mend. Sierra Club, 408 C St. NE, Washington, DC 20002. (202) 547-1141.

All About Beach Cleanups, A Helpful Guide to Planning a Beach Cleanup. (1989). The Center for Marine Conservation, 1725 DeSales St., NW, Washington, DC 20036. (202) 429-5609.

Analysis of Trends in Municiopal Solid Waste Generation, 1972 to 1987. (January 1992). Franklin Associates, LTD.

Business Waste Reduction Audit Manual. (Jan. 1991). Spokane Regional Solid Waste Disposal Project, W. 808 Spokane Falls Blvd., Spokane, WA 99201.

ET-1 Has Landed in the USA. (B-8:5/3/89). The Council for Solid Waste Solutions, 1275 K St., NW, Suite 400, Washington, DC 20005. (202) 371-5679.

From Soda Bottle to Swimming Pool, Plastics Are Being Recycled. (B-1:5/3/89). The Council for Solid Waste Solutions.

Get the Drift, Cleaning Up Plastic Pollution for People and Wildlife. (1990) Project Wild, P.O. Box 18060, Boulder, CO 80308-8060. (303) 444-2390.

Putting a Lid on Waste: Why Congress Must Act Now. (May 1991). Sierra Club.

Solid Thinking About Solid Waste, an Environmental curriculum for Grades Six to Nine. (July 1992). Kraft General Foods Environmental Institute, Three Lakes Dr., Northfield, IL 60093-2753.

Success Through Waste Reduction, Proven Techniques from Washington Businesses, Volume II. (Pub. #92-45) Washington State Department of Ecology, Waste Reduction, Recycling and Litter Control Program, Mailstop PV-11, Olympia, WA 98504-8711. (800) RECYCLE.

The Resource, Perspectives on Minnesota Waste Issues. (August 1991, Vol. 1, No. 9). Minnesota Office of Waste Management, 1350 Energy Ln., St. Paul, MN 55108.

The Solid Waste Management Problem, No Single Cause, No Single Solution.. (1989). The Council for Solid Waste Solutions.

The Solid Waste Mess: What Should We Do With the Garbage? North American Association for Environmental Education, Environmental Issues Forums, P.O. Box 400, Troy, OH 45373. (513) 676-2514.

To Help Solve the Garbage Crisis. (May 1990). Sierra Club.

Topics in Focus. (Summer 1993, Vol. 9, No. 2). 1913 Eye St., NW, Washington, DC 20006. (202) 872-8110.

Waste Line. (Aug. 1992). Cooperative Extension System, University of Idaho, College of Agriculture in Cooperation with the U.S. Department of Agriculture, Moscow, ID 83844-2240.

Reference Materials

Trees

Burnie, David. *Tree.* (1988). Eyewitness Books. Dorling Kindersley Lintied, London.

Cooling Our Communities. (Jan. 1992, 22P-2001) U.S. EPA, Policy, Planning and Evaluation, Washington, DC 20460.

For You Who Love Trees. National Arbor Day Foundation, 100 Arbor Ave., Nebraska City, NE 68410.

PLT Activity Guide 7-12. (1988). The American Forest Council, 1250 Connecticut Ave., NW, Washington, DC 20036.

Woodland Notes. (Fall 1992, Vol. 4, No. 4). Cooperative Extension System, University of Idaho, College of Agriculture in Cooperation with the U.S. Department of Agriculture, Moscow, ID 83844-2240.

Water/Wetlands

America's Clean Water Foundation 1992 Annual Report. (1992). America's Clean Water Foundation, 750 First St., NE, Suite 911, Washington, DC 20002. (202) 898-0902.

Britt Eckhardt Slattery. *Wow!: The Wonders of Wetlands, an Educators Guide.* (1991). Environmental Concern Inc., 210 W. Chew Ave., P.O. Box P, St. Michael's, MD 21663. (410) 745-9620.

Clean Water, It's Everyone's Business. (1992). America's Clean Water Foundation.

Daugs, Dr. Donald R., Israelsen, Dr. C.Earl. *Water Education, Grades K-6, International Office for Water Education.* (1986). International Office for Water Education, UMC 82, Utah Water Research Laboratory, Logan, UT 84322.

Drinking Water, A Community Action Guide. (1991). Concern, Inc., 1974 Columbia Rd., NW, Washington, DC 20009. (202) 328-8160.

Home-A-Syst, Homestead Assessment System. Cooperative Extension, Washington State University, Pullman, WA.

Surface Water: The Teachers Guide. (1988) Water Pollution Control Federation, Alexandria, VA 22314-1994.

The Issue in Brief, The Wetlands Issue: What Should We Do With Our Bogs, Swamps and Marches? North American Association For Environmental Education.

The Wetlands Issue: What Should We Do With Our Bogs, Swamps and Marshes? North American Association for Environmental Education, Environmental Issues Forums, P.O. Box 400, Troy, OH 45373. (513) 676-2514.

Waste water Treatment, The Teacher's Resource Guide, Grades 7-9. (1987). Water Pollution Control Federation.

Reference Materials

Water Quality Indicators Guide: Surface Waters. (Sept. 1989, SCS-TP-161). United States Department of Agriculture, Soil Conservation Service, P.O. Box 2890, Washington, DC 20013.

Water Quality Update. (April 1993, Vol. 3, No. 2). Cooperative Extension System, University of Idaho, College of Agriculture in Cooperation with the U.S. Department of Agriculture, Moscow, ID 83844-2240.

Water Quality Update. (June 1993, Vol. 3, No. 3 and Vol. 3, No. 6. Cooperative Extension System, University of Idaho.

Water, the Lost Treasure. Water Pollution Control Federation.

Welcome to the Wetlands. (July 1988) U.S. Environmental Protection Agency, Region 5, 230 S. Dearborn St., Chicago, IL 60604. (312) 353-2154

Wellhead Protection Programs: Tools for Local Governments. (April 1989). U.S. EPA, Office of Water.

Related Environmental Education Curricula:

4 Rs Project, A Solid Waste Management Curriculum for Florida Schools,. Florida Department of Education, Tallahassee, FL 32399.

50 Simple Things Kids Can Do To Save The Earth. (1989). The Earth Works Group.

50 Simple Things Kids Can Do To Save The Earth. (January 1991). The Earth Works Group, 1400 Shattuck Ave., 25, Berkely, CA 94709. (415) 527-5811.

A-Way with Waste, A Waste Management Curriculum For Schools. (Third Edition 1990). Washington State Department of Ecology, A-Way with Waste, Northwest Regional Office, 3190- 160th Ave. SE, Bellevue, WA 98008-5452.

Borrowed Time. (1992). Environmental Education Associates, Inc., 1211 Connecticut Ave, NW, Suite 812, Washington, DC 20036.

Earth Day 1990, Lesson Plan and Home Survey—K-6.. (1990). Earth Day 1990, P.O. Box AA, Standford University, CA 94309.

Earth Time. The Earth Time Project, P.O. Box 1111, Ketchum, ID 83340. (208) 726-4030.

Earth Trek...Explore Your Environment. (April 1990 - 20K-1003). EPA, Office of Communications and Public Affairs, Washington, DC 20460.

Environmental Education, Compendium for Integrated Waste Management. (June 1993). California Integrated Waste Management Board, 8800 Cal Center Dr., Sacramento, CA 95826.

Environmental Progress and Challenges: EPA's Update . (August 1988 - EPA-230-07-88-033). U.S. EPA, Office of Policy, Planning and Evaluation (PM-219), Washington, DC 20460.

Good Planets Are Hard To Find. (1989). Earth Beat Press, P.O. Box 33852, Station D, Vancouver, B.C., Canada, V6J 4L6. (604) 736-6931.

Reference Materials

Governor Casey's Earth Week Classroom Program.. (1990). Earth Week 1990, P.O. box 2063, 9th Floor Fultion Bank Bldg., Harrisburg, PA 17120.

Hungerford, Harold R., Litherland, Ralph A., Peyton, R. Ben, Ramsey, John M., and Volk, Trudi L. *Investigating and Evaluating Environmental Issues and Actions: Skill Development Modules.* (1990, 1992). Stipes Publishing Co., 10-12 Chester St., Champaign, IL 61820.

Let's Reduce and Recycle: Curriculum for Solid Waste Awareness. (August 1990 - EPA/530-SW-90-005). EPA, Solid Waste and Emergency Response (OS-305), Washington, DC 20460.

Ranger Rick's Nature Scope, Pollution: Problems and Solutions. (1990). National Wildlife Federation, 1400 16th St., NW, Washington DC 20036-2266.

Swain, Claudia, E. *Revise, Recycle and Recover, Realizing Our Resources.* (1991). Frost Valley YMCA, HC 55 Frost Valley Rd., Claryville, NY 12725-9600. (914) 985-2291.

Teacher's Guide to World Resources, Comprehensive Coursework on the Global Environment. (1992-93). World Resources Institute, 1709 New York Ave., N.W., Washington, DC 20006. (212) 679-7300.

The Environment At Risk, Responding to Growing Dangers. (1989). National Issues Forums, 100 Commons Rd., Dayton, OH 45459-2777. (800) 433-4819 (Ohio), (800) 433-7834 (outside Ohio).

The Student Environmental Action Guide, 25 Simple Things We Can Do. (1991). The Earth Works Group.

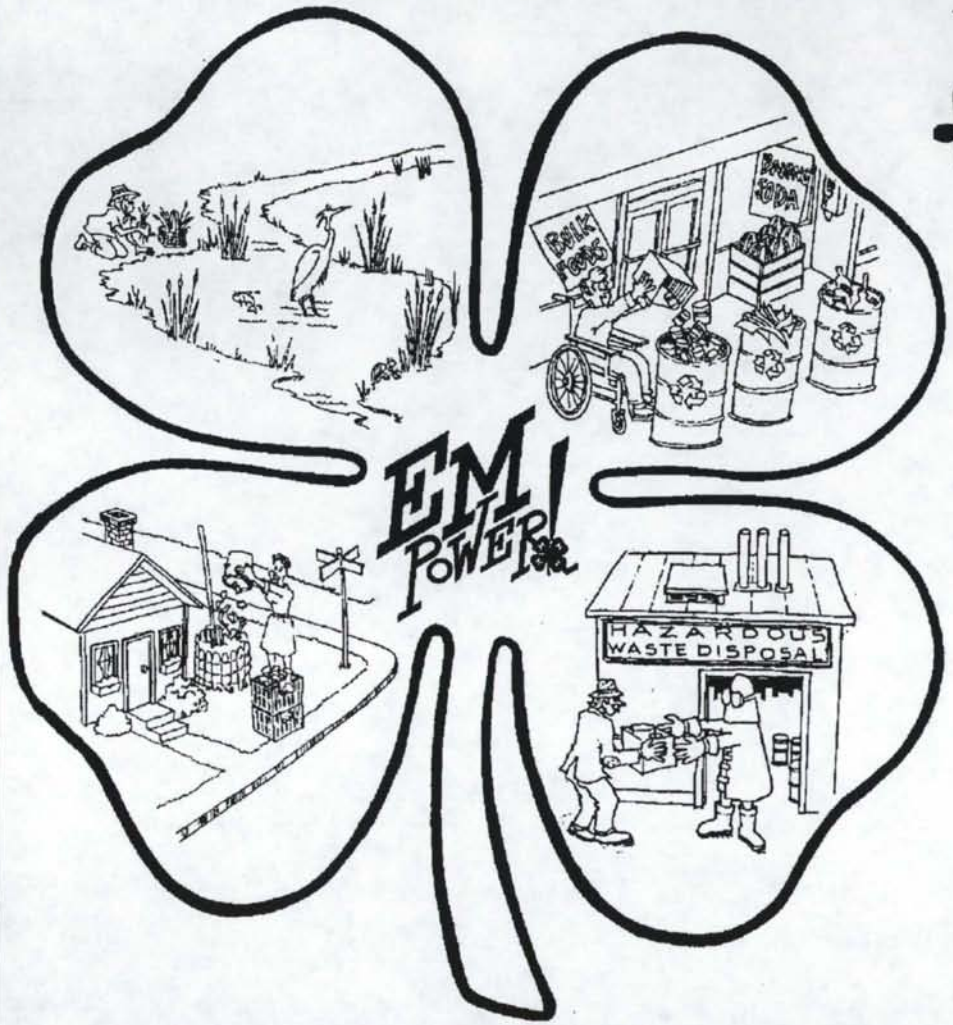
Toxic Waste: A Teaching Simulation. (1991). CEPUP, Lawrence Hall of Science, University of California at Berkeley. (800) 828-7777.

Two Views, Waste Management. NYSTROM, Attn: Marketing Dept., 3333 Elston Ave., Chicago, IL 60618.

Two Views, Water Pollution . NYSTROM.

Waste Away. (1989). Vermont Institute of Natural Science, P.O. Box 86, Woodstock, VT 05091. (802) 457-2779

Working on Waste. (1992 - 4H-BU-6064-S). Minnesota Extension Service, Distribution Center, 3 Coffey Hall, 1420 Eckles Ave., University of Minnesota, St. Paul, MN 55108. (612) 625-8173.



ENVIRONMENTAL MANAGEMENT POWER 4-H

YOUTH JOURNAL

DRAFT

This journal belongs to:

Name: _____

Address: _____

Club: _____

Age: _____ Years in 4-H: _____

Member Signature: _____

Leader Signature: _____

Parent Signature: _____

Environmental Management Power 4–H Youth Curriculum

Curriculum written by:

Dorothea Kunz Shuman,
Idaho Water Resources Research Institute

Maureen Toomey,
University of Idaho Cooperative Extension 4-H Program

Jerry Newman,
Washington State University Cooperative Extension 4-H Youth Program

Funded by:
United States Department of Energy

Draft — December 1994

CONTENTS

INTRODUCTION

LESSON 1: Discovering EM Concerns and Action 1

LESSON 2: A Concern Becomes an Issue 5

LESSON 3: A Difference Being Made 9

LESSON 4: Taking a Profile by Getting the Facts 12

LESSON 5: Issues, Issues 14

LESSON 6: Empowered to Action 18

INTRODUCTION

Welcome to EM*Power!

We have prepared this journal so that you can keep tack of the kinds of things that you are learning and the data that you collect as you work through the EM*Power curriculum. You are very important to the well being of your community. This project will prepare you to make a positive impact in your home or community by completing a waste management or environmental restoration project.

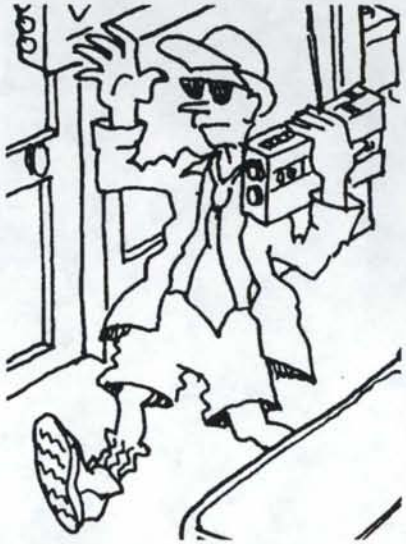
EM*Power may be a bit different from the projects you have completed in the past, because you will be completing one lesson, before you move on to the next. You will participate in numerous activities that keep you actively involved. Your leader will provide overall direction and focus, but you as youth will be making the decisions.

This journal is your official record book. Feel free to add more information than what is asked for - just attach additional pages as needed. By all means use art work, words, or combinations of both to express your thoughts and feelings.

This is your journal, jot down what you feel, like or dislike whenever appropriate. Be creative with your waste management project.

INTRODUCTION

EM*Power Goals



After completing this project, you will be able to:

1) Identify waste management concerns and issues.

2) Understand how waste management concerns can become issues.

3) Be empowered to take action on local waste managment issues.

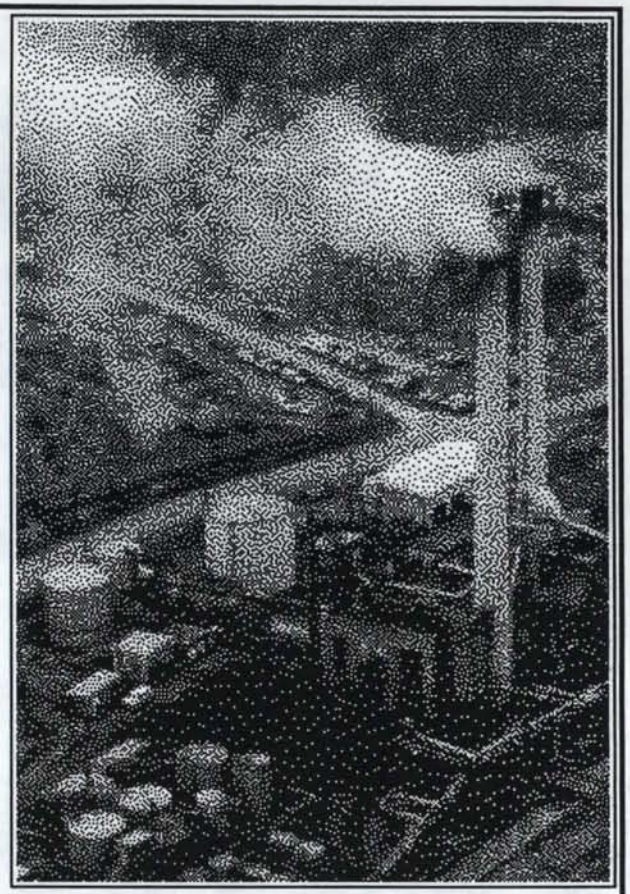
Feedback, Please!

We need your feedback! You are one of a small number of 4-H members using the new EM*Power project. We need to know what you like and dislike and how you think it can be improved. You will find pages entitled: **"Feedback, Please!"** in your journal.

Each of these pages has three questions about the lesson you have just completed. Please write down your answers. At the end of the project the **"Feedback, Please!"** pages will be collected by your leader. Your opinions are very important to us, and will help us improve the project for other 4-H members. Thank you very much!

LESSON 1

Discovering EM Concerns and Action



After exploring the EM*Power Poster:

1 **Describe or illustrate at least one waste management concern you found on the poster.**

2 **Describe or illustrate the most unexpected concern that you found on the EM*Power Poster.**

Discovering EM Concerns and Action

After exploring the EM*Power Poster:

3 **Describe or illustrate at least one environmental restoration project or waste management solution that you find on the poster.**

4 **Now, on the next page, attach at least one newspaper article about youth making a difference in your community. Use a bright colored pen to highlight the important things that they are doing.**

NOTE: If you don't find an article in your local newspaper, describe or illustrate a project that you know youth are working on.

5 **Add anything else about Discovering EM Concerns and Action, here.**

Discovering EM Concerns and Action

(Paste or tape at least one newspaper article about youth making a difference in your community. Highlight the important things they are doing.)

LESSON 1

Discovering EM Concerns and Action

Feedback, Please!

Please answer these questions about this lesson.

How well did you like this lesson? ***(Please circle a number.)***

1	2	3
I really liked it	It was OK	I didn't like it

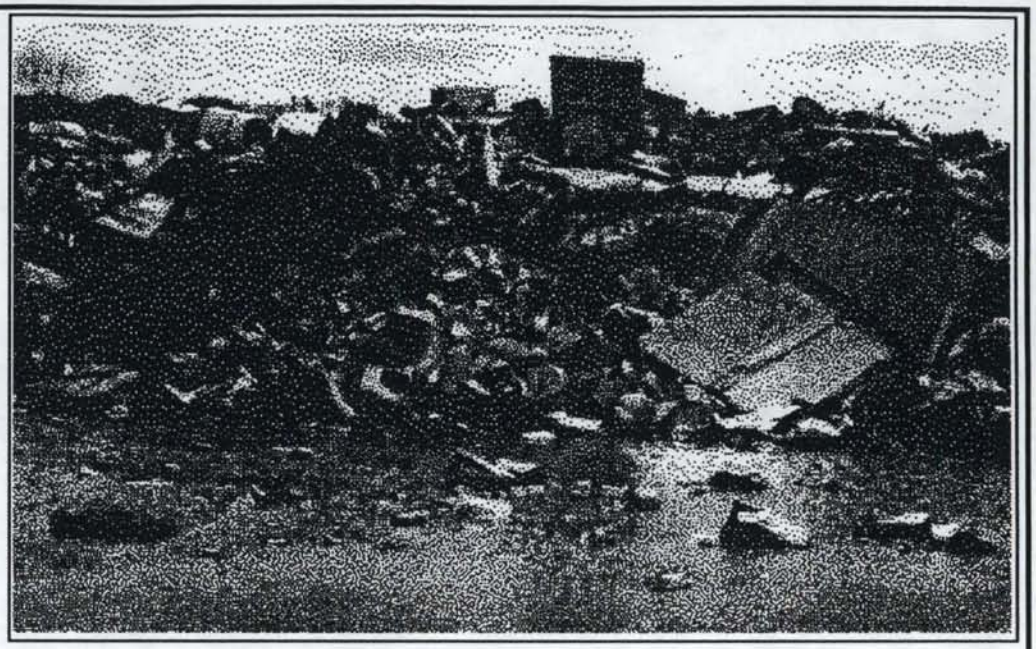
What did you like the most about this lesson?

What did you like the least about this lesson?

EM POWER!

LESSON 2

A Concern Becomes an Issue



After the Role Play:

1 **Describe or illustrate the waste management concern that you chose to use in the Role Play.**

LESSON 2

A Concern Becomes an Issue

2 **Paste the description of the role you played here.**

LESSON 2

A Concern Becomes an Issue

3 **In words or drawings describe or illustrate how you felt about the role you played.**

4 **In words or drawings, describe what makes the concern you addressed an issue.**

5 **Add anything else about A Concern Becomes an Issue, here.**

LESSON 2

A Concern Becomes an Issue

Feedback, Please!

Please answer these questions about this lesson.

How well did you like this lesson? ***(Please circle a number.)***

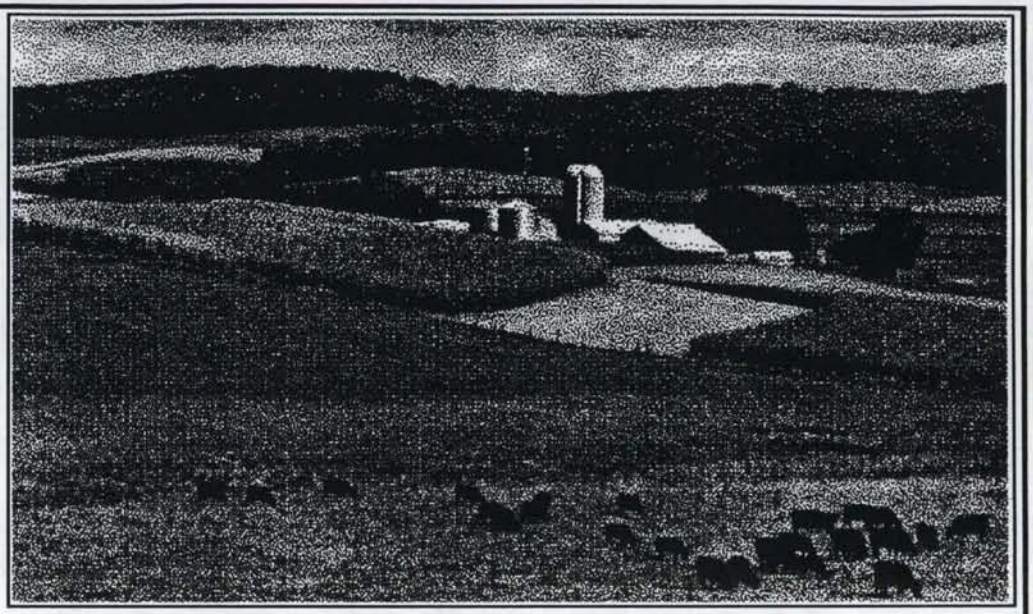
1	2	3
I really liked it	It was OK	I didn't like it

What did you like the most about this lesson?

What did you like the least about this lesson?

LESSON 3

A Difference Being Made



1 **In your binder insert a copy of the article that you examined. With a bright pen, highlight the action that the youth took and the steps used to take action, if you can find them.**

2 **In your own words or drawings describe the steps needed to make a difference.**

A Difference Being Made

3 **In your binder, insert a copy of the *Yes, Yes I Have* Game Sheet, if you played.**

4 **Add anything else about A Difference Being Made, here.**

LESSON 3

A Difference Being Made

Feedback, Please!

Please answer these questions about this lesson.

How well did you like this lesson? ***(Please circle a number.)***

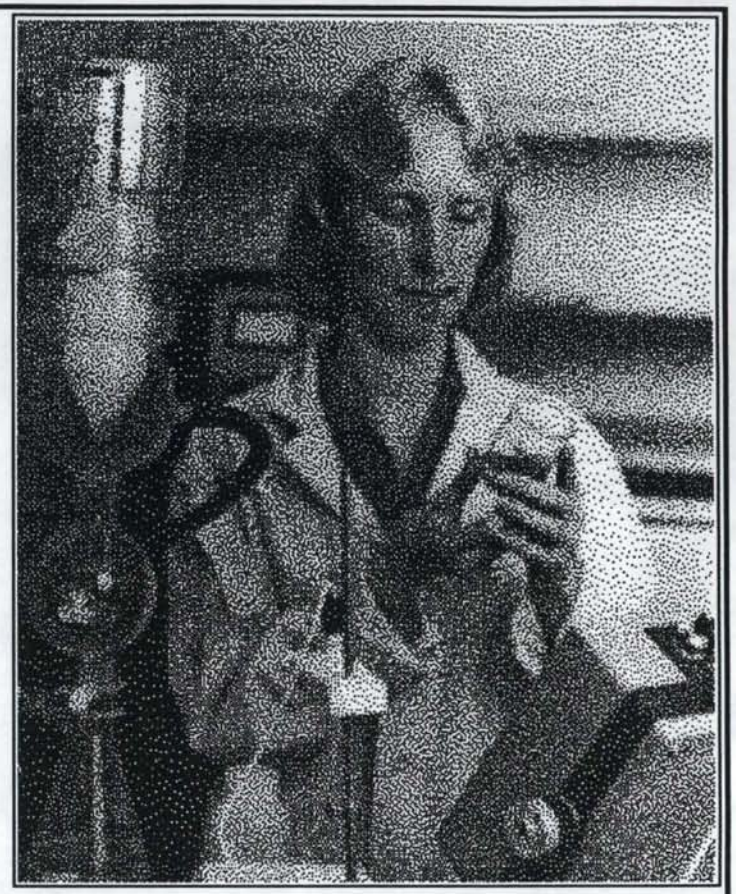
1	2	3
I really liked it	It was OK	I didn't like it

What did you like the most about this lesson?

What did you like the least about this lesson?

LESSON 4

Taking a Profile by Getting the Facts



1 **In your binder insert a completed copy of the Data Information Sheet.**

2 **Add anything else about Taking a Profile by Getting the Facts, here.**

LESSON 4

Taking a Profile by Getting the Facts

Feedback, Please!

Please answer these questions about this lesson.

How well did you like this lesson? ***(Please circle a number.)***

1	2	3
I really liked it	It was OK	I didn't like it

What did you like the most about this lesson?

What did you like the least about this lesson?

EM POWER!

LESSON 5

Issues, Issues

1 **After playing the Fact/Opinion Game describe or draw what you think the difference between a fact and an opinion is. (Ideas: list some facts and opinions you just learned; explain why confusion in the game was OK, or write some new fact or opinion statements.)**

EM POWER!

Issues, Issues

2 **After looking at your Data Information Sheet from Lesson 4, describe any changes that you had to make now that you understand the difference between facts and opinions. Insert a new Data Information Sheet in your binder if you want to.**

Issues, Issues

3 **Insert a copy of the questionnaire you used and your Data Summary Sheet. Also, summarize your data in words, charts, or graphs.**

4 **Add anything else about Issues, Issues, here.**

LESSON 5

Issues, Issues

Feedback, Please!

Please answer these questions about this lesson.

How well did you like this lesson? ***(Please circle a number.)***

1	2	3
I really liked it	It was OK	I didn't like it

What did you like the most about this lesson?

What did you like the least about this lesson?

EM POWER!

LESSON 6

Empowered to Action

1 **Describe your action in words, drawings or photos. Focus on the role you took and the impacts of the action. Insert additional pages if needed.**

Empowered to Action

2 **In your binder insert a completed copy of the following:**

1) **Empowered to Action Plan Form**

2) **Group Action Form**

3) **Budget Form**

4) **How Well Did We Do? Form**

3 **Add anything else about your action project, here.**

LESSON 6

Empowered to Action

Feedback, Please!

Please answer these questions about this lesson.

How well did you like this lesson? ***(Please circle a number.)***

1	2	3
I really liked it	It was OK	I didn't like it

What did you like the most about this lesson?

What did you like the least about this lesson?