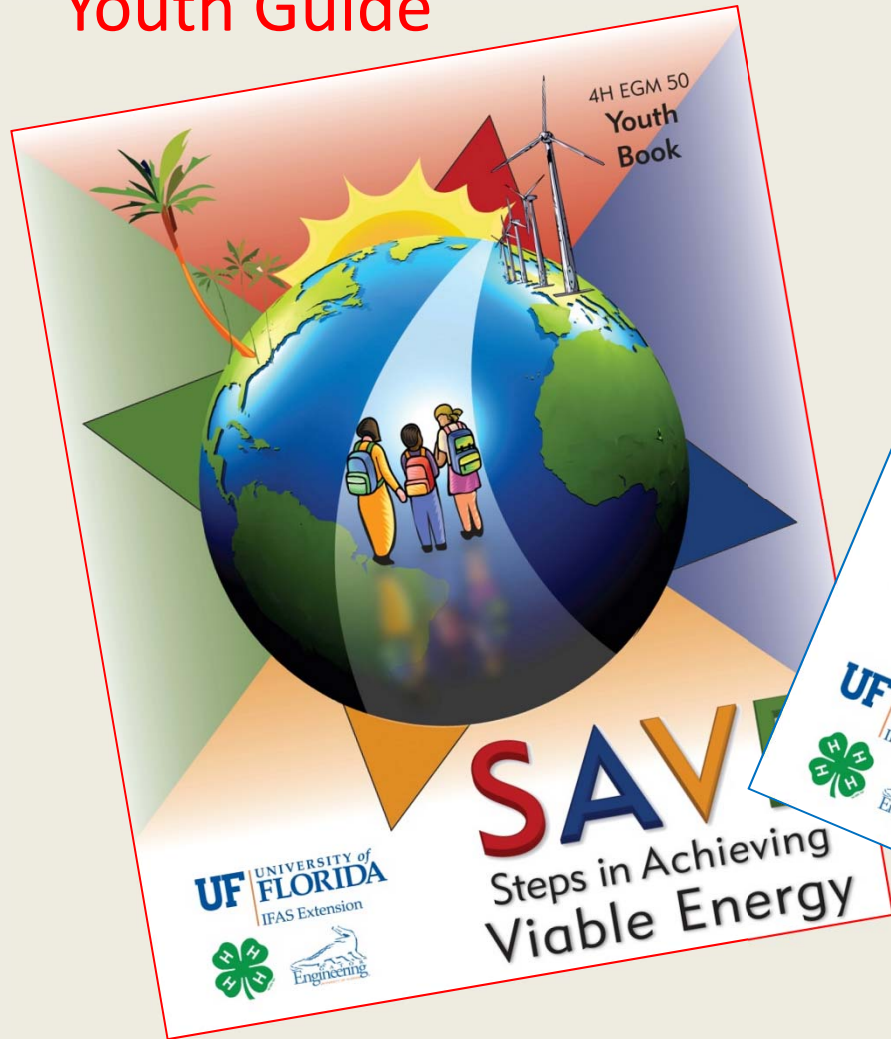
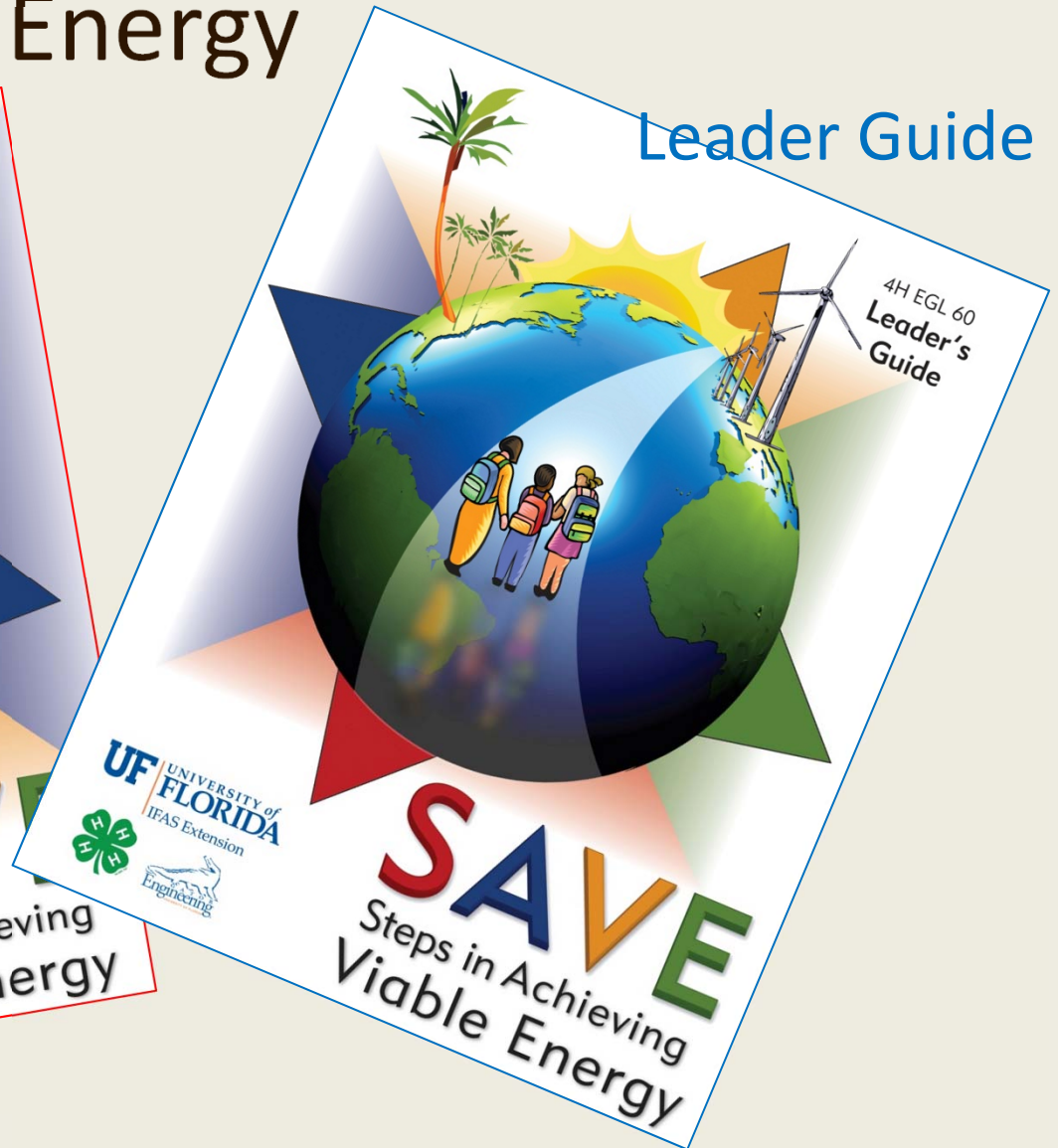


SAVE: Steps in Achieving Viable Energy

Youth Guide



Leader Guide

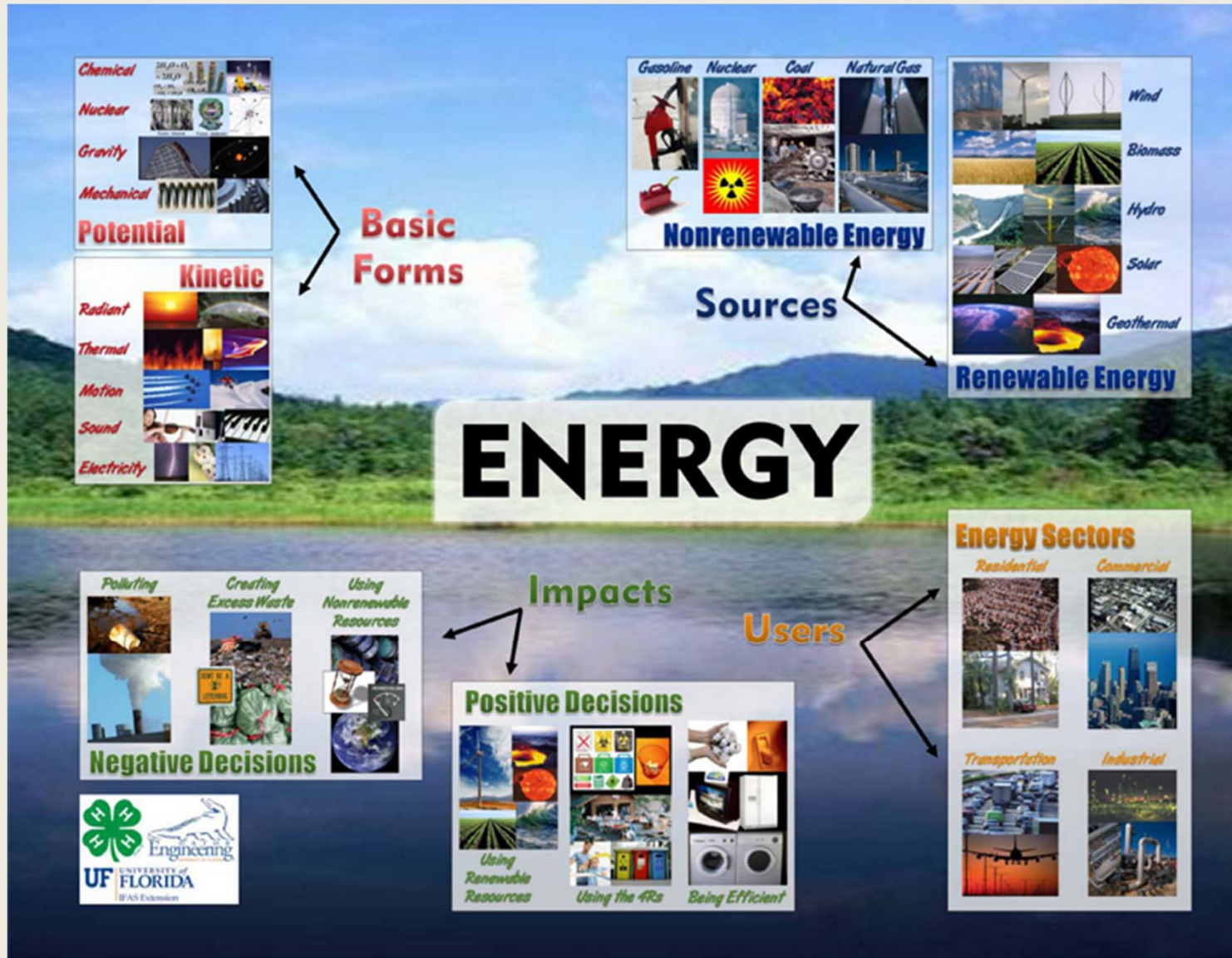


SAVE: Steps in Achieving Viable Energy



Teacher Edition

Energy Concept Map



Four Chapters



Chapter 1: Energy Forms

- So, What IS Energy?

Making Observations; Categorizing & Critical Thinking;
Organizing & Recording Data

- Does Energy Always Stay The Same?

Predicting, Testing & Comparing Data; Designing an
Experiment; Organizing & Recording Data

Four Chapters



Chapter 2: Energy Sources

- Where Does Energy Come From?

Building/Constructing; Predicting, Testing & Comparing Data; Interpreting, Categorizing & Graphing Data; Organizing & Recording Data

- Does Energy Last Forever?

Analyzing & Graphing Data; Researching Problems & Summarizing; Analyzing Data

Four Chapters



Chapter 3: Energy Users

- Who Is Using Energy?

Critical Thinking; Collecting & Recording Data; Analyzing & Recording Data

- Is All Energy Seen?

Researching a Question; Predicting Using Numbers; Communicating Information

Four Chapters



Chapter 4: Energy Impacts

- **What Are the Impacts of Our Energy Use?**
Critical Thinking; Collecting & Recording Data; Comparing Data; Analyzing Data & Critical Thinking
- **What Are Consequences of Negative Energy Decisions?**
Collecting & Comparing Data; Researching an Issue & Communicating Information; Collecting Data& Creating a Survey
- **What Are Some Positive Energy Decisions?**
Critical Thinking; Collecting & Recording Data, Building/Constructing and Implementing Solutions

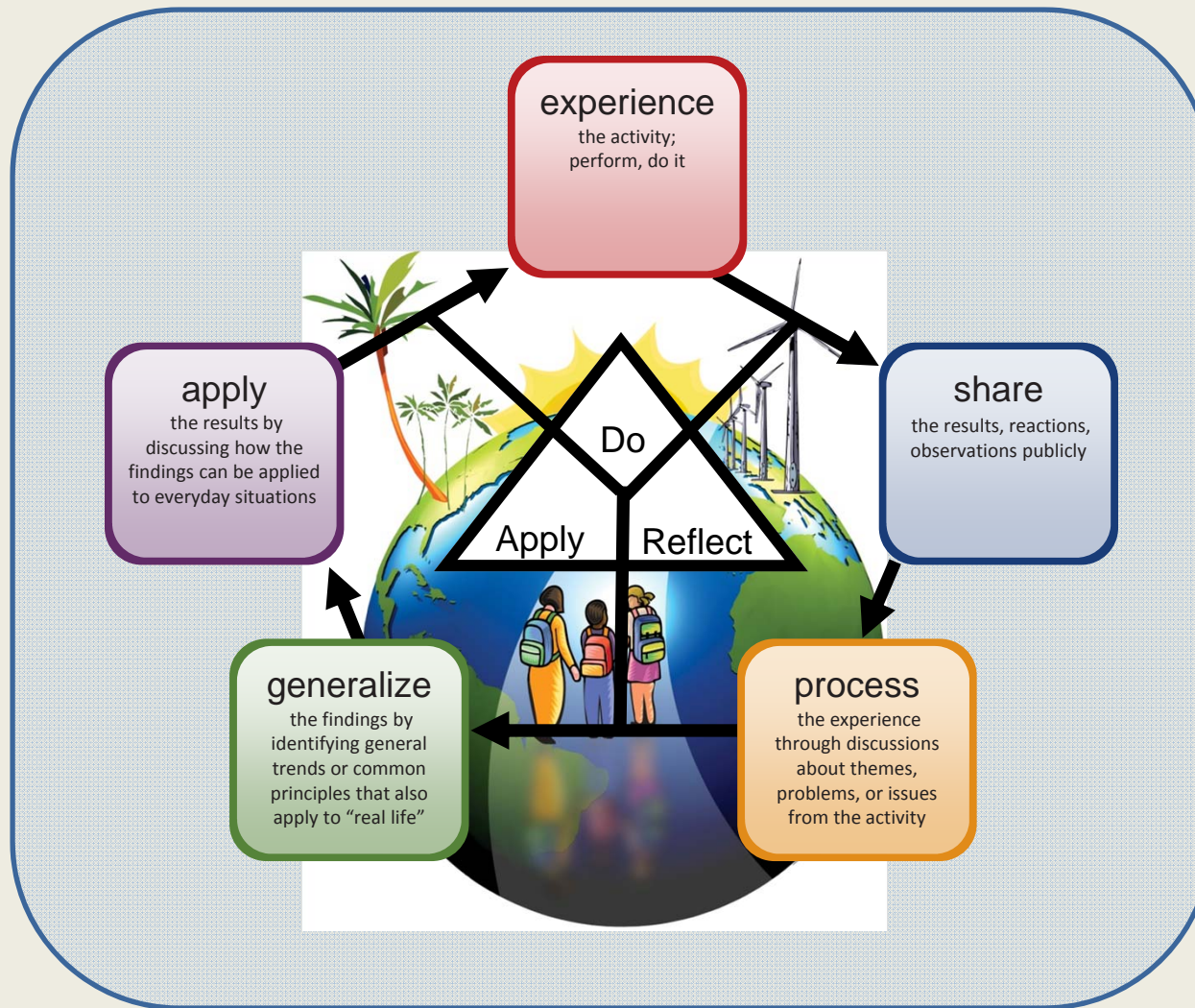
Additional Certification Activities

Organized by:

- Lesson Chapters (Forms, Sources, Users, Impacts)
- Includes activities across school Subjects—math, more science, language arts and social studies
- Designed for multiple year activities for 4-H member exploration



Uses Experiential Learning Model



O

Source	Renewable Y or N	Sector(s) I, T, C, or R	Local Impacts	Global Impacts

Teacher Edition Lesson Topics



- **LESSON 1: AN ENERGY INTRODUCTION**

Energy Forms, Sources and Transformations

- **LESSON 2: THERMAL ENERGY**

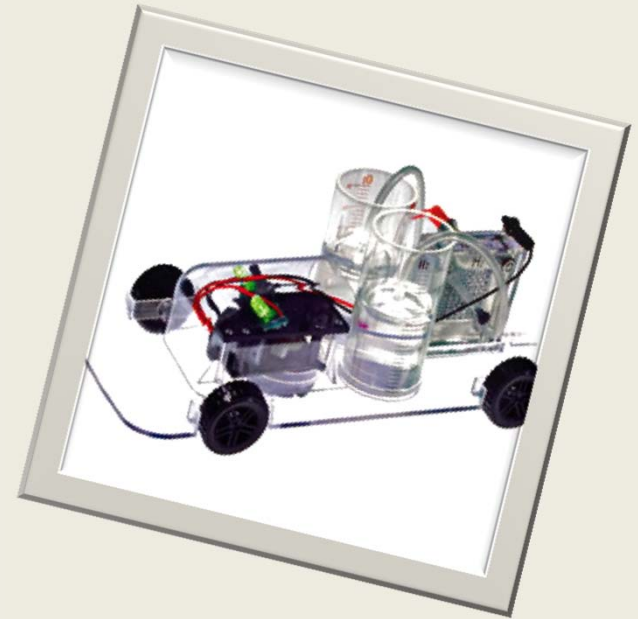
Solar Radiation and Greenhouse Effect

- **LESSON 3: SOLAR ENERGY**

Photovoltaic Cells and Electricity

- **LESSON 4: CHEMICAL ENERGY**

Batteries and Electrolysis



Teacher Edition Lesson Topics



- **LESSON 5: HYDROGEN ENERGY**
Reverse Electrolysis and Fuel Cells
- **LESSON 6: WIND ENERGY**
Harnessing Energy
- **LESSON 7: BIOMASS ENERGY**
Energy from Plant and Animal Matter
- **LESSON 8: ENERGY SYSTEMS**
Processes, Machines, and Efficiency
- **LESSON 9: ENERGY CONSERVATION**
Today and Tomorrow

Pilot Testing Results



- To date, pilot tested in 5 counties with over 250 youth
- Twenty-three adult 4-H volunteers have been trained to teach the curriculum
- Featured in the “Promising Practices Showcase” at the National 4-H Science Leadership Academy
- Showcased at the 2010 4-H Day at the Capitol and Youth Development Institute

As a result of the program:



- **KNOWLEDGE GAINED:**

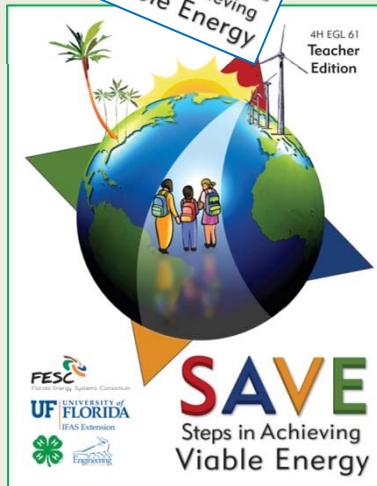
- Seventy-two percent of youth reported a 50% or higher increase in knowledge gained about *forms of energy*.
- Sixty percent of youth surveyed reported a 40% or higher increase in knowledge gained about *sources of energy*.
- Sixty-eight percent of youth reported a 50% or higher increase in knowledge gained about *uses and impacts* of energy use.

- **ATTITUDES TOWARDS SCIENCE:**

- Forty-eight percent of youth reported that participation in SAVE made them more interested in science.
- Thirty-six percent of youth reported that participation in SAVE made them want to attend college one day to pursue a science degree.

- **BEHAVIOR CHANGE:**

- Seventy-two percent of youth reported that participation in SAVE made them want to do more to conserve energy.
- Fifty-six percent of youth reported that as a result of SAVE, they wanted to help teach others about energy conservation.



What's Next?

- ☐ Finding Sponsors to Support Printing Costs
- ☐ Finding Knowledgeable Community Volunteers to Support Youth Clubs and Classroom Teacher Training to introduce project
- ☐ Implement in 4-H, Youth Groups and Classrooms throughout the State

How You Can Help Us...

☒ **All of the above.**