Energy Curriculum Guide:
Establishing an Energy Literacy Education Program

Why Energy Literacy:

Energy is an important element of our daily lives affecting our health and well-being. Energy literacy is understanding the role of energy and how it interacts with nature and society. According to the US DOE framework, an energy literate person:

- Can trace energy flows and think in terms of energy systems.
- Knows how much energy they use, for what purpose, and where the energy comes from.
- Can assess the credibility of information about energy.
- Can communicate about energy and energy use in meaningful ways.
- Is able to make informed energy use decisions based on an understanding of impacts and consequences.

People must make energy decisions all the time, whether making choices about personal energy usage or voting on energy issues. These decisions are getting more complicated with many emerging energy options, conflicting values, and invisible consequences of our energy use (e.g., air quality and other impacts far from home). Improving energy literacy is a way of helping people make informed choices about energy.

Background:

In 2016, Washington State University Extension trained volunteers to conduct energy literacy outreach to local residents and Spanish-speaking communities in Snohomish County, WA. The Energy Stewards program was conducted in English, and the Promotores de Energía (Energy Ambassadors) in Spanish.

The training program covered basic energy concepts, alternative energy topics, and energy conservation tips. Extension educators developed energy literacy lessons using the U.S. Department of Energy's Framework: "Energy Literacy: Essential Principles and Fundamental Concepts for Energy Education."

This guide shares the cirriculum developed for that Extension training program. Educators can use the information provided to create their own energy literacy course or to supplement existing programs with energy-based lessons.

Snohomish County
Washington State University Extension

USDA United States Department of Agriculture
National Institute of Food and Agriculture

AHB Advanced Hardwood Biofuels Northwest

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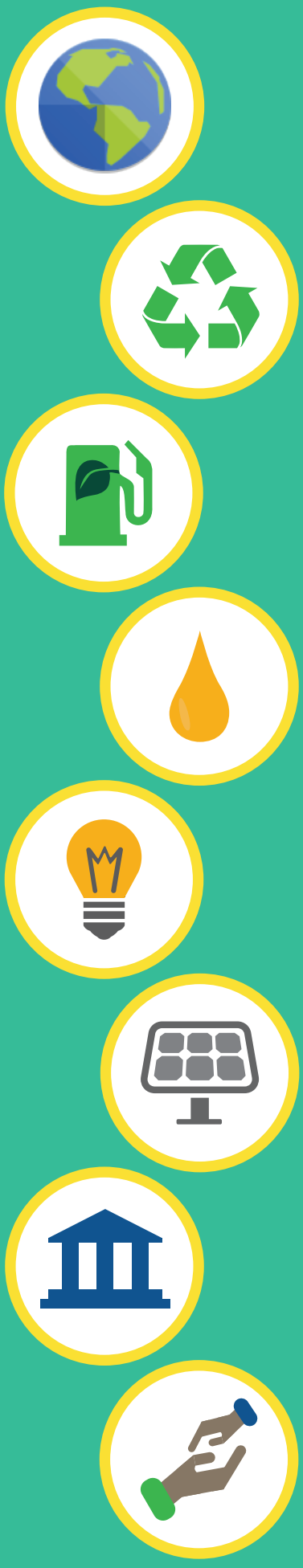

Curriculum Topics

Energy Literacy 101

- Energy is a physical quantity that follows precise natural laws.
- Physical processes on Earth are the result of energy flow through the Earth system.
- Biological processes depend on energy flow through the Earth System.

Sustainability

- What is it?
- How does it relate to energy?

Fossil Fuels, Clean and Renewable Electricity, and Transportation Alternatives

- Various sources of energy can be used to power human activities and often this energy must be transferred from source to destination.
- List the major carbon resources on earth and describe both strengths and weaknesses of each in terms of availability, cost, uses, and sustainability.

Bioenergy

- Discuss biofuels and biogas.
- Compare and contrast sustainability for fossil fuels and bioenergy.
- Explain the realities of the food vs. fuel argument and the environmental costs of biomass feedstocks.
- Explain the mechanical, biological, and thermal conversion of biomass and be able to identify things in daily life that use these conversions of biomass.

Home Energy Efficiency

- Reasons to understand personal home energy use.
- Ways to assess home energy use.
- Resources to improve energy efficiency.

Wind, Solar, and Other Alternatives

- How it works.
- Places it makes sense.
- How much it is used currently.
- Pros and cons for society and the environment.

Climate Change, Energy Policy, and You

- Energy decisions are influenced by economic, political, environmental, and social factors.
- The quality of life of individuals and societies is affected by energy choices.

Tips:

1. Use local energy projects as classroom examples or for a field trip.
2. Consider having a hands-on demonstration (e.g., making biodiesel).