



From Apples to Applesauce

Diving Into Energy and
Agriculture



Craig Rebich

American Farm Bureau Foundation for Agriculture



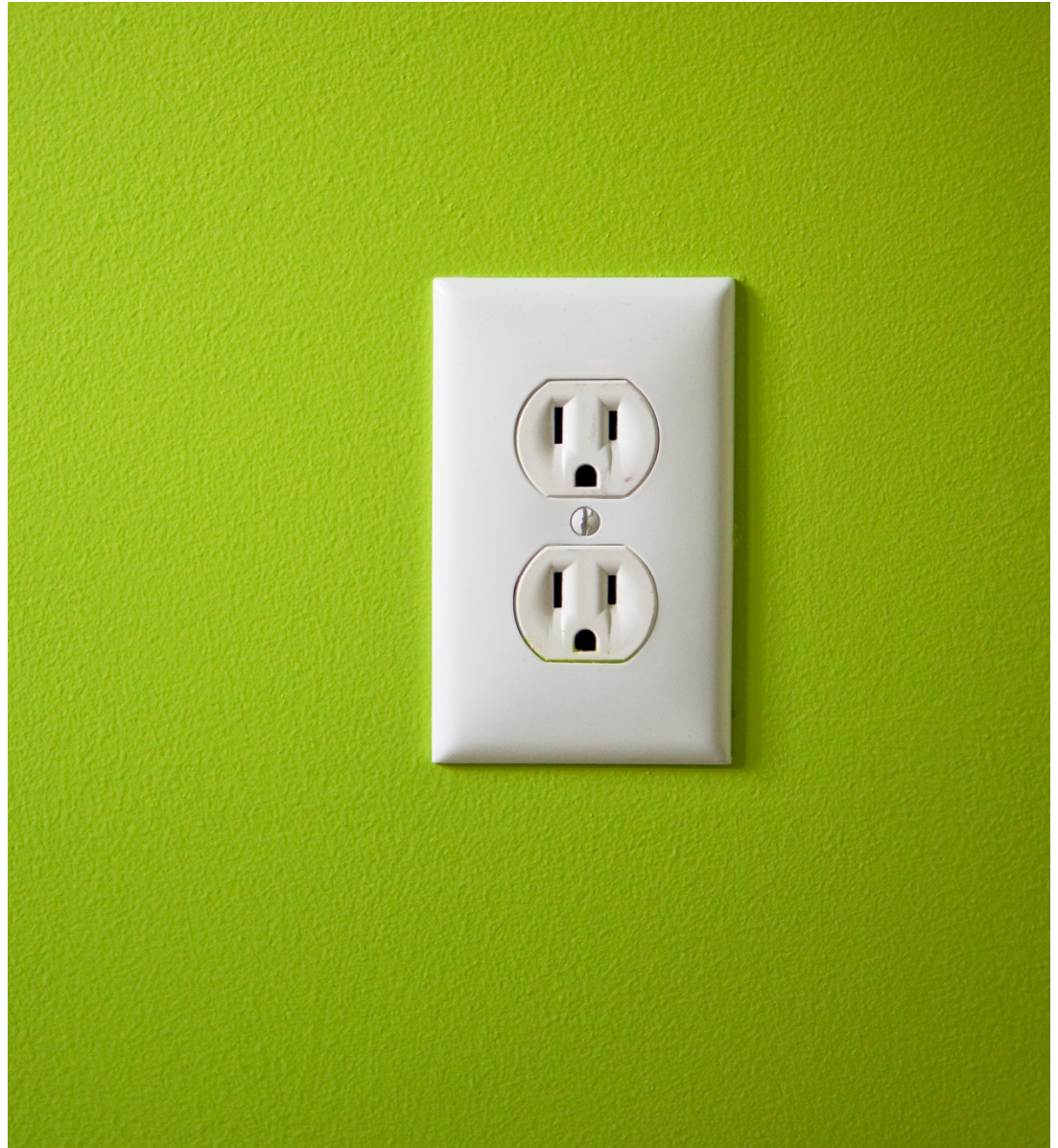
Plugged In

Midnight – 6AM

6AM-Noon

Noon-6pm

6pm-Midnight



HS Ed Guide 2015 #1



■ +
Energy + Agriculture

+ A Closer Look

- Record questions and/or ah-ha moments
 - Electricity Generation
 - Where Energy Comes From



A Powerful Partnership



AMERICAN FARM BUREAU
FOUNDATION FOR AGRICULTURESM



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Generation and Transmission
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California Foundation for
Agriculture in the Classroom[®]

USDA NIFA Grant

+ PHASE 1



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ENERGY + AGRICULTURE SUCCESS



EXPLORE STRATEGIES FOR TEACHING OTHERS ABOUT THE IMPORTANCE OF ENERGY AND AGRICULTURE!

FACILITATOR KIT



ENERGY

The Power of Energy...

...is light: We use light every day. We use it so we can see. During the day, we get our light from the sun. The light from the sun is free. At night, we use electricity to make light.

...makes things grow: All living things need energy to grow. Crops in the field use the light energy from the sun. They use this energy from the sun and change it into sugar. The sugar is stored in their roots and leaves. Plants use this sugar to grow. This is called photosynthesis. We eat plants. The energy in plants grows us energy to grow.


...is heat: Energy is used to make heat. We burn wood and natural gas to cook food and warm our houses. Energy is converted for heat in our bodies when we run or work hard.

...makes things move: It takes energy to make things move. Cars, tractors and tractors run on the energy stored in fuels called gasoline and diesel. Gasoline is made from oil. We use energy to move food from the farm to the grocery store.

...runs machines: TVs and computers need energy to run. They use electricity for their energy. Did you know many farmers have small computers in their tractors? These help the farmer care for the land by making decisions based on science and technology.

Powering America
How Energy Gets to Your Home

Do you ever wonder how power gets to your house? Energy is generated! It can be transferred from place to place. It starts at the power plant where electricity is made. The electricity flows through power lines which are supported by power towers. Then, power lines carry the electricity to electric poles. These tall poles are in cities and towns. Electricity goes from these poles to your house by distribution lines.




Word Wise: Renewable versus Non-Renewable

Most of our energy comes from fossil fuels. These fossil fuels are coal, oil and gas. We can't make any more of these things. That is why they are called **non-renewable** sources of energy.

Renewable sources can be used again and again. They should never run out. Sun and wind are types of renewable sources of energy.

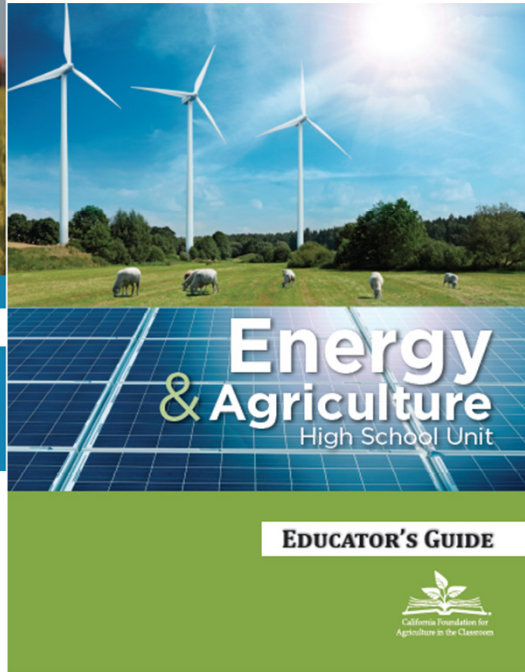
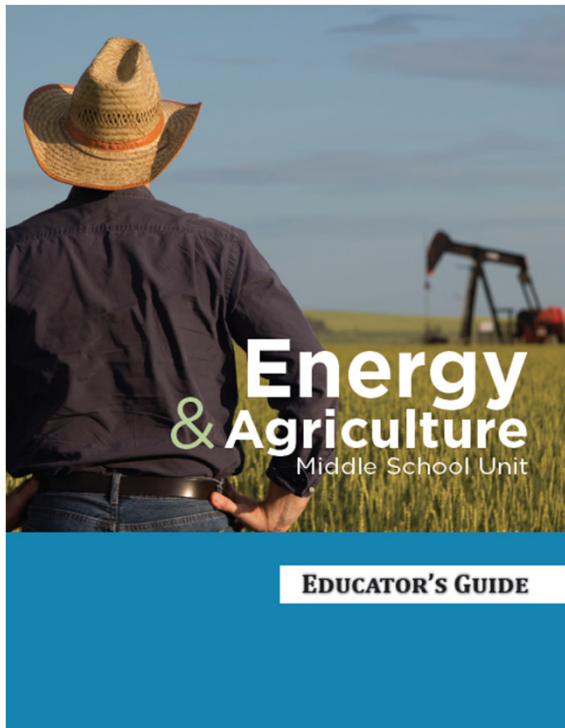
Everyone on Earth needs to use energy. There are going to be many more people on Earth soon. In 2050, there are going to be 9 billion people living here! We will need to use a balance of many types of energy to provide power to all these people. Our energy sources won't power everything. We will need to work together as that farmers, ranchers and all people can get energy!



TIMETRAVEL The History of Energy!

- SUN:** The sun was the very first source of energy. People used it to see during the day. They would gather food when it was light outside. When the sun went down, then it would be dark. What would have to stop because people could not see.
- FIRE:** Fire made heat for people during the night. It would give them light so they could see. They also found they could get meat on the fire. This fire would cook the meat.
- BOATS:** Early people found they could use the wind for energy. This type of energy made boats move. People now had a way to travel long distances quickly. People also used boats to move food, wood and animals.
- WINDMILLS:** Farmers used the wind to get water for their livestock. They would dig a hole in the ground. This hole is called a well. The well would fill with water. The wind would turn the windmill. When the windmill turned it would pump water up. Animals could then drink the water.
- COAL:** Coal was a major energy source in the late 1800s. Coal was used to heat homes. Trains and boats got their power from coal. Coal is still an important energy source today!
- BIOFUELS:** Biomass is anything that is alive. Trees and crops are examples of biomass. Cars and airplanes are also types of biomass that can be used to make fuel. This is called biofuel. This fuel is used to fuel our cars today.

+ PHASE 2



MAKING THE CONNECTION

ENERGY + AGRICULTURE = SUCCESS
Train the Trainer Event • Lincoln, Nebraska

May 7-8 2015

PARTICIPANTS RECEIVE...

- \$750 stipend
- Free Energy & Agriculture unit of 10 lessons (both 5 Middle School lessons and 5 High School lessons)
- Take Home Kit: unit supplies and teacher resources

Application deadline: February 20, 2015



A Touchstone Energy® Cooperative 





The GRID



1 team leader
1 plant manager
5 lineman
1 troubleshooter
4 farmers

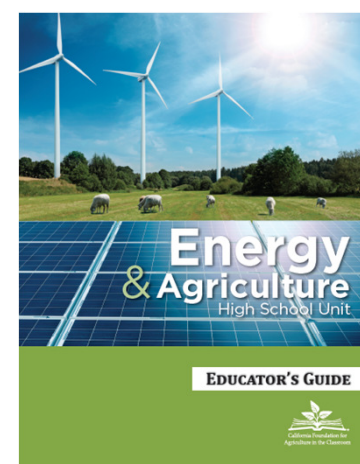
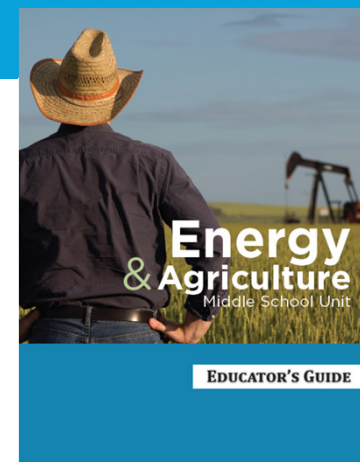


+ How Could This Be Modified For Elementary Students?



Resources Just for You!

Guides & Kits



Let's Try It!

HS #2
The Backwards
Egg

+

MS #2
Comic Draw

+ Challenge



**1 way you'll use
your resources?**

**1 person you'll
share this with?**

Special Thanks!



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Questions:

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