

Summary: Students evaluate and categorize advertisements that promote the development and consumption of energy and then design their own advertisement for biodiesel.



Advertising Biodiesel

Grade Level: 6–8, (9–12)

Subject Areas: Art, Environmental Education, Family and Consumer Education, Language Arts

Setting: Classroom, Computer lab

Time:

Preparation: Up to two weeks

Activity: Four 50-minute periods

Vocabulary: Advertising, Alternative fuels, Biodiesel, Diesel, Methane, Nonrenewable resource, Renewable resource

Academic Standards:

[Common Core ELA:](#) RL.6-12.1&4, RI.6-12.1&4&8, W.6-12.1&2&4&8, SL.6-12.2&3

[NGSS:](#) MS-ESS3-3, MS-ESS3-4, MS-ESS3-5
SEP: Constructing Explanations and Designing Solutions, Engaging in Argument from Evidence
DCI: ESS3.A: Natural Resources, ESS3.C: Human Impacts on Earth Systems, ESS3.D: Global Climate Change
CCC: Cause and Effect, Engineering and Technology on Society and the Natural World

[WI Env Literacy & Sustainability:](#) C1.B.m, Ex2.C.i, EX3.B.i, EX3.B.m, EX4.B.i, EX4.B.m, EN6.B.e, EN6.C.i, EN6.C.m, EN7.B.i

Materials

- Advertisements from newspapers or magazines (not-energy related)
- Energy-related advertisements
- Art supplies or graphic designing software

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Objectives

Students will be able to

- analyze the effectiveness of energy related ads;
- explain what biodiesel is;
- explain why alternative fuels are necessary; and
- design an advertisement that encourages the use of biodiesel.

Background

Advertising

You see them in newspapers and magazines, hear them on the radio, watch them on television, and nowadays, click on their icons on the Internet. Wherever mass media appears, advertisements are almost sure to follow; each one waiting for a break in the action or for a page to be turned; each one persuading us to buy a product, adopt an opinion, vote for a candidate, or support a cause. Since every product we buy involves the development and consumption of energy, it should come as no surprise that advertising influences our purchases, our actions, and, ultimately, the way we develop energy use.

Advertising has a purpose. This purpose can entail any one, or any combination, of the following:

- To increase awareness of a product or its benefit;
- To enhance comprehension of some aspect of the product;
- To promote conviction or desire so that consumers will be eager to purchase the product; and/or
- To ensure action, resulting in the customer purchasing and using the product.

With energy, the “product” is often a source (oil, natural gas, batteries, solar panels, propane), a service (retrofitting your home, bringing natural gas to your home, installing solar panels), or a device that uses energy (furnace, automobile, stove). All of these products involve the development or consumption of an energy resource; therefore energy advertisements promote

the development and consumption of energy resources because their aim is to sell energy-related products.

The types of advertisements that involve energy usually fall into three categories. The first includes “type of energy source” ads that aim to convince people one source of energy is better than another (for example, advertisements promoting use of natural gas over electricity, or renewable energy resources over the use of fossil fuels). The second category, which is the most common, is the “customer product” ad (for example, an oil company persuading drivers to buy its brand of gasoline, a utility-sponsored trade organization promoting the use of electricity, a battery manufacturer claiming that its batteries last longer than those made by the competition). The final category is the “public relations” ad.

The main emphasis of the public relations ad is to increase awareness and comprehension of the product. Energy companies frequently use public relations ads to highlight their contributions to the well-being and prosperity of the community. Sometimes they merely want to produce “good feelings” about the company, without any specific reference to a product or service. These ads also help to communicate a positive position on issues or incidents that might otherwise bring a company unfavorable attention. Advertisements in this category may describe a company’s efforts to protect the environment; support the arts, education, or the community; or promote technological advances which may eventually benefit its customers. The ads may also be used to defend a controversial position, such as the use of nuclear power, or to respond to an event or incident the company may have been involved in, such as a power outage, an oil spill, or a discrimination suit.

Different advertising strategies are used in each category. Rarely does an advertisement simply say, “buy this brand of fuel,” “install these energy-efficient light bulbs,” or

“drive this kind of car.” Instead, more subtle approaches are used to get and keep people’s attention. Advertisers use these various strategies as well as creative artwork, imagery, and graphic design to be noticed (see **Strategies in Advertising**). Artwork pertains to visual as well as auditory techniques (for example, music in television and radio commercials). Advertisers use a variety of strategies and creative designs because they know there is no such thing as a mass audience. While some people like humor, others prefer tenderness.

People in the United States, including Wisconsinites, are becoming more interested in alternative fuels. This interest is mainly because the prices of gasoline and diesel fuel are increasing and more people are learning about the environmental impact of using diesel and gasoline. Therefore, many fuel companies and services are making and advertising fuel blends that increase the ratio of alternative fuels to gasoline or diesel.

Advertising which appeals to people’s emotions and desires may not provide enough information about a service or product. It may also obscure critical issues, such as energy resource depletion, environmental effects, social justice, or long-term economic security, that may be related to the use of a product

or service. Some advertisements deliberately omit or mislead people on these issues, while some make an effort to address them. Citizens, including students, need to develop a critical sense of how advertising is used to promote products and energy services. They can do so by learning how advertisements are designed to influence desires and emotions, and by getting additional information about services or products from independent sources. Doing so will help citizens make choices that will benefit not only them, but also their community and the environment.

Diesel

Transportation is a very important part of our lives. Not very many communities in Wisconsin have widely used mass transit systems such as buses or subways, which makes individual transportation even more necessary.

We depend on transportation to bring us goods from other areas. For example, where does a cotton shirt come from? If you start at the beginning, the cotton had to be grown on a farm, which means that tractors were used to plant, apply fertilizers/herbicides/pesticides, and harvest the cotton. Then the raw cotton was shipped to where it was made into thread and fabric. After the fabric was made it was shipped to the shirt

Getting Ready:

Try to obtain energy-related advertisements. (Make sure to obtain advertisements on transportation or for products that are transported from different parts of the world.) This can also be a student assignment (see Orientation).

You may want to store the ads in folders or a three-ring binder, filing similar ads together. For example, advertisements related to transportation can be photocopied on the same colored paper or placed in the same folder. Ads can be laminated or stored within clear plastic protectors.

Resources:

National Biodiesel Board
www.biodiesel.org

Make Your Own Biodiesel
http://journeytoforever.org/biodiesel_make.html

Veggie Van
www.veggievan.org

Strategies in Advertising

- Claims superiority without comparison to competition
- Claims superiority with comparison to competition (no brand name mentioned)
- Positions product or service directly against the competition (cites other brand name)
- Appeals to a common culture (i.e. nostalgia, the wild west, the computer age)
- Focuses on cost-saving qualities and economic improvement
- Emphasizes emotion (i.e. love, fear, sadness, joy)
- Promotes feelings of comfort and well-being
- Appeals to certain values, such as environmental concerns or health and safety concerns
- Utilizes humor, fun, or both
- Connects to people

manufacturer where it was made into a shirt. The shirt was then shipped to a store near you. You traveled to and from the store with the shirt.

All of the transportation of the goods is done in diesel trucks. Diesel is used in trucking, agriculture and irrigation, construction, and railroads.

Effects of Using Diesel

The exhaust from gasoline and diesel vehicles adds to the growing problem of air pollution which can be an environmental and health problem. According to the International Agency for Research on Cancer (IARC) – part of the World Health Organization, diesel exhaust is a carcinogen. This means exposure to diesel exhaust fumes can cause cancer in humans. Diesel exhaust contains carbon (soot), nitrogen, water, carbon monoxide, aldehydes, nitrogen dioxide, sulfur dioxide, and polycyclic aromatic hydrocarbons (PAHs). Pollution from diesel vehicles can be seen easily in large cities. There have been many rules and regulations put in place to reduce the amount of harmful emissions from burning diesel fuel.

In larger cities, this pollution is thick and can be seen as smog. The consequences of using nonrenewable resources can be experienced throughout the world. Global climate change has become a hot topic in the news and politics. Global climate change is an interconnected chain of climactic events brought about by an increase in trapped heat in the atmosphere. The trapped heat alters atmospheric processes and their interaction with the oceans and the land. The climate—the product of that interaction—changes as well, causing altered weather patterns that bring unexpected rain or dry spells, sudden severe storms, and temperature changes.

The graph below shows the difference in the pollution from emissions between diesel and biodiesel (B100 = 100% biodiesel).

Other Issues to Consider

- Foreign policy—how does the use of diesel/petroleum affect the United States' foreign policy?

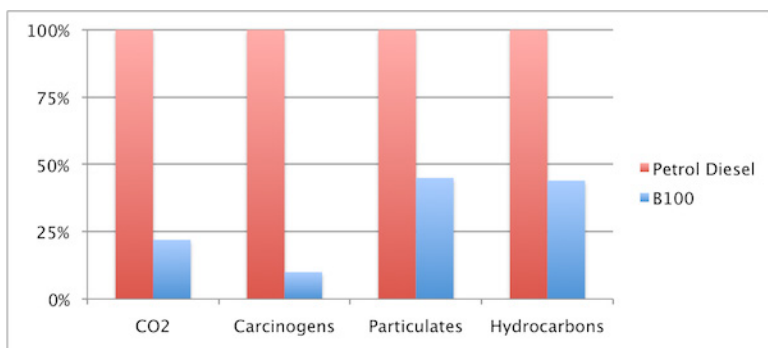


Image Source: Green Renewable Technologies http://www.grtmaldives.com/products_services.php

- Car culture (consumerism, convenience, debt accumulation, and poverty)
- Petroleum use in pesticides, plastics, pharmaceuticals
- Consequences of resource depletion

Biodiesel

The supply of diesel fuel is limited because it is a nonrenewable resource. There are alternative fuel options that can be used as a substitute for diesel fuel, which will prolong the life of diesel resources. Biodiesel is a cleaner-burning alternative to diesel that comes from vegetable oils, animal fats, and recycled restaurant grease. Currently, there are only a few large-scale producers of biodiesel, but there are many small-scale producers. Many of these people make biodiesel for their own use in their diesel automobiles. Biodiesel can be mixed with diesel fuel or used on its own. Depending on how the biodiesel is made, some modifications may need to be made to the car in order to use biodiesel. In most cases, the vehicle should not need to be altered. Biodiesel users should always consult with the OEM and engine warranty statement before using biodiesel.

Procedure

Orientation

Show students sample advertisements that are not necessarily related to energy. Ask them to identify what is being sold. Have the class create a list of the advertising strategies used (see Background). Review the purpose of advertising and discuss reasons for advertising and its importance. Do students think energy resources need to be advertised? Have students suggest reasons for advertising energy. NOTE: Students may work in groups in this activity.

Steps

1. Show students samples of energy-related advertisements. Identify the types of products that are usually found in energy advertisements. Review the different categories of advertisements (see Background) and help students place the samples in one or more categories.
2. Ask students if they know what diesel is. Have they heard of biodiesel? What do they think it is? Provide students with a definition for diesel and biodiesel. Write these definitions on the board or have students write them in their notes for future reference. NOTE: See Glossary for definition of biodiesel.
3. Have students research biodiesel and create a list of facts from their research. As a class, review the facts that were gathered and create a class fact sheet that can be used in Step 6.

4. Ask students to list the types of vehicles that use diesel fuel (they should list semi trucks, buses, heavy machinery, some automobiles). Ask students if diesel fuel is something they use. If students answer no, ask them if they grow all of their own food. If they don't, remind them that most of the goods we buy are shipped to us and transportation, many times, uses diesel.
5. Explain that gasoline and diesel cause pollution and are nonrenewable resources. Biodiesel, on the other hand, is a renewable resource that causes less pollution than diesel. Diesel fuel now comes with a mixture of biodiesel in it to extend the remaining diesel available and to reduce pollution.
6. Have students work individually or in groups to design their own advertisement for biodiesel. Make sure students refer to the purposes of advertising as well as advertising strategies. Provide each student or group with the fact sheet developed by the class in Step 3 to assist them with their ads.
7. Students may use the computer to design or draw their ad. All ads should be in color and fit on an 8 ½" by 11" piece of paper.

Closure

When the ads are turned in, place them on a bulletin board. As a class, discuss what ads stand out. What was the purpose of the ad? Did it achieve its purpose?

Assessment

Formative

- Can students explain the purpose of advertising?
- Were students able to identify strategies used to sell energy products?
- To what extent did students thoughtfully complete their own ads?

Summative

Have a group of students create a service, product, or company that uses or sells biomass energy. Instruct groups to exchange their creations with each other. Challenge the groups to design an advertisement for the imaginary service, product, or company that promotes efficient use of biomass energy.

Extension

Have students focus their advertisements on current energy innovations in the transportation sector. This does not need to be limited to diesel/biodiesel but can be expanded into any energy efficiency or alternative fuel technology.