

GRADES 5 & 6 — WHAT'S DRIVING BIOFUELS?

NATIONAL SOCIAL SCIENCE STANDARD

- Roles of Incentives: Changes in incentives cause people to change their behavior in predictable ways.

OBJECTIVES

The student will identify the incentives driving ethanol production.

BACKGROUND

Americans have relied on fossil fuels as their primary engine fuel since the 1920s. Environmental concerns, decreasing supplies and rising costs are some of the incentives fueling the shift in Americans dependence and habit of using fossil fuels.

The United States is increasingly dependent on imported energy to meet our personal transportation and industrial needs, but two-thirds of the world's known oil reserves are located in the volatile Middle East.

The rising, unstable cost of using fossil fuels are two of its drawbacks. In contrast, using ethanol in the U.S. fuel marketplace helps lower gasoline prices by expanding gasoline supplies and reducing the need for importing oil from the Middle East.

Because it is made from plants, if ethanol is spilled, it is completely biodegradable; therefore, it leaves no harmful waste in our environment and would prevent the problems encountered from large oil spills in our oceans.

Ethanol contains 35% oxygen by weight and when combined with gasoline it acts as an oxygenate, meaning it puts oxygen in gasoline. The higher level of oxygen allows for the gasoline to burn more completely resulting in less smog and fewer breathing problems.

To retrieve fossil fuels, mining is necessary, which in turn has a negative impact on the landscape.

Biofuel has many important benefits. American farmers can produce it providing a significant contribution to the American economy. It creates high paying jobs, increases market opportunities for farmers, generates household income and tax revenue, and stimulates capitol investment. In 2005, the ethanol industry supported the creation of more than 153,725 jobs in all sectors of the U.S. economy, boosting U.S. household income by \$5.7 billion.

WORD POWER

biodegradable *adj.* Something that can be broken down naturally by bacteria.

capitol investment *n.* An amount of money used to start a business or large purchases to run a business.

economy *n.* The way a country runs it's industry, trade and finance.

oxygenate *v.* To treat, combine, or enrich with oxygen.

incentive *n.* Something that encourages you to make an effort.

import *v.* to bring into a place or country from elsewhere.

NAME _____

ACTIVITY 1 — BIOFUEL BENEFITS

POSSIBLE EFFECTS

For each statement write two possible effects related to biofuels.

1. The price of gas remains above \$3.00 per gallon.
2. The U.S. natural fuel sources are depleted.
3. A farmer's personal earnings increase because of increase need for corn.
4. Need to transport oil across oceans decrease.
5. The oxygen in biofuels allows it to burn more completely.
6. A rural community builds an ethanol plant.



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ACTIVITY 2 — WRITING

OPINION / EDITORIAL WRITING

Which of the incentives covered would motivate you personally to support biofuels development and use?

Write a paragraph supporting your choice.

This paragraph should include a topic sentence, 3-4 concrete details to support the topic sentence, and a concluding sentence.

