

# Articles and Activities about Protecting the Environment #3

## Fuels, Acid Rain, and Erosion

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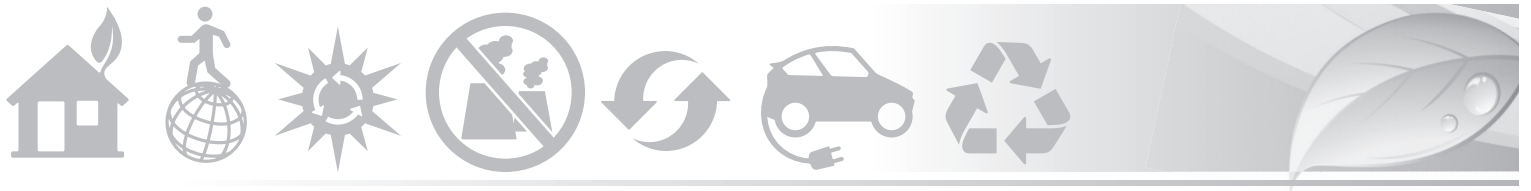
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# Alternative Fuels



One of the most used natural resources today is petroleum (or gasoline.) Once gasoline is collected from the Earth, it is sent to an oil refinery where it is made ready to use as fuel for cars and other motor vehicles. While gasoline is the best fuel found to use in cars (so far), it is dangerous to the environment and peoples' health.

Burning gasoline sends harmful chemicals, known as carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), and nitrous oxide (N<sub>2</sub>O), into the air. These cause pollution and are unhealthy to breathe. Gasoline is also highly flammable and causes many accidental fires and explosions. Instead of damaging the environment and using up so many of the earth's natural resources, people are trying to find alternative fuels to run machines, cars, and to heat and light their homes.

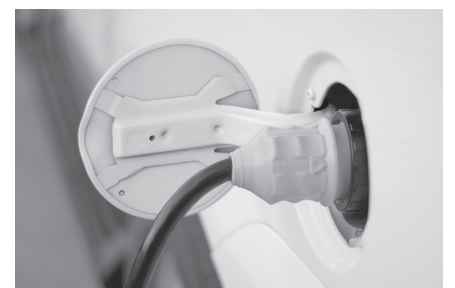
One of the biggest problems, especially in America, is the amount of gasoline we use to run our cars.

In fact, according to the US Government's Energy Information Administration, the United States was the number one oil consumer in the world in 2006, using over 20,000 barrels of oil each day! We could make excuses for this, saying that America is one of the biggest countries on earth and we are quite spread out, so we need to use cars to get from one place to another. But this is no excuse. China, a country even larger than the US, was ranked second but only uses 7,000 barrels a day—less than half of what we use!



Some larger cities, like New York and Chicago, have subways, trains, and buses that help reduce the amount of traffic on the road. But smaller cities do not have many options for public transportation. People are trying to find ways to run cars without using petroleum/gasoline. Some companies have designed cars that run on electricity, and others are trying to design cars that can use renewable energy to run. Renewable energy is wind power, solar power, water power, or any other type of energy that can be reused. If we were able to run cars and other machines using renewable energy instead of petroleum, transportation would be much cleaner, cheaper, and better for the environment.

Something needs to be done fast. The United States uses the most oil of any country in the world, but it only ranks third in production. This means we are using far more than our share of gasoline, taking away resources from the rest of the world and causing damage to ourselves and everyone else. We need to drastically reduce our amount of driving, or find alternative fuel sources soon.





# Activities



**1** Fuel Conservation Challenge: Take a survey of the classroom and chart the results on the board. How many students ride the bus to school? How many ride in a car? How many carpool? How many walk, bike, or come to school without using any vehicle? When all the students have been surveyed, see which category is the largest. What seems to be the most popular mode of transportation? Challenge the students to be gas-savers and come to school on foot or bike if they can. If students live far away, encourage them to take the bus or carpool with those who live close by.



**2** As a class, investigate alternative energy sources. Observe how powerful wind can be, either by taking the class outside on a windy day or watching footage of a hurricane or tornado. On a sunny day, place a dark plastic binder outside or near a window where it receives direct sunlight all day. At the end of the day, have the students feel for themselves how the dark-colored binder has absorbed the sun's heat. Discuss these and other forms of energy (such as water power) with the students. Do they have any ideas about how we could use these power sources more, instead of using so much gasoline and electricity?



**3** Hand out copies of the graph on page 19 showing how much petroleum is used in the world per year. Using the key that represents how much each country uses per year, have the students color each country's amount with a designated color. This will emphasize the extreme amount of oil the US uses in comparison with the rest of the world.



**4** Use the sun's energy to cook food! You can make a solar oven using recyclable materials. You will need: an empty pizza box, newspaper, scissors, tape, black construction paper, clear plastic wrap, aluminum foil, and a ruler.

## Directions:

- Make sure the pizza box is assembled and draw an 8 ½" x 11" square on the lid.
- Cut out three sides of the square to make a flap, and fold the flap back along the uncut edge of the fourth side. Cover the inside of this flap with aluminum foil, using tape to keep it in place.
- Line the inside bottom of the box with black construction paper, using tape to keep it securely in place.
- Insulate the box with newspaper by making a 1-2" roll of paper and fitting it around the inside edges of the box.
- Stretch plastic wrap tightly over the underside of the lid opening and tape it into place. Tape another piece on top of the lid opening. This layer of plastic wrap will help insulate the box and trap heat inside.
- Use a ruler to keep the flap open and place the box in direct sunlight.
- Use the box to warm up a slice of pizza, melt s'mores, or heat or cook other food.

On a sunny day, the oven's temperature can get quite hot, so experiment with different types of food and containers to find your best result.