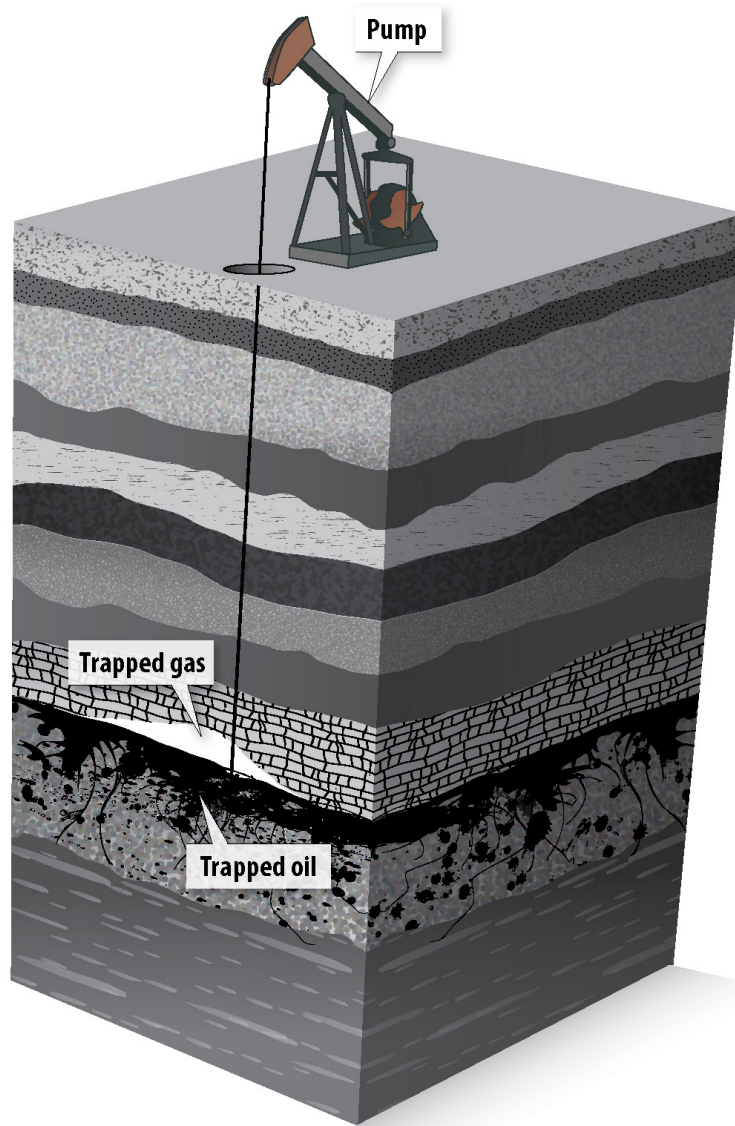


Natural Gas



Natural gas is nonrenewable.
Natural gas has no color or smell. It is a
gas when it comes from the ground.

Natural Gas

TEACHER

Natural gas is like air. You cannot see it, or smell it, or taste it. Natural gas has a lot of energy in it. You can burn it to make heat. The early Chinese burned natural gas to get salt from sea water.

Natural gas was formed hundreds of millions of years ago, before the dinosaurs roamed the Earth. Oceans covered much of the Earth, filled with tiny sea plants and animals. When the plants and animals died, they sank to the bottom and were covered by sand. Layers of dead plants, animals, and sand built up over time. Heat and pressure turned the plants and animals into natural gas and petroleum. Since natural gas is made from plants and animals, it is called a **fossil fuel**. The plants and animals got their energy from the sun. It was stored in them when they died. This is the energy in natural gas.

The natural gas we use today took a very long time to form. That is why we call it a **nonrenewable** energy source. We cannot make more in a short time. Someday, most of the natural gas we can reach by drilling underground will be gone.

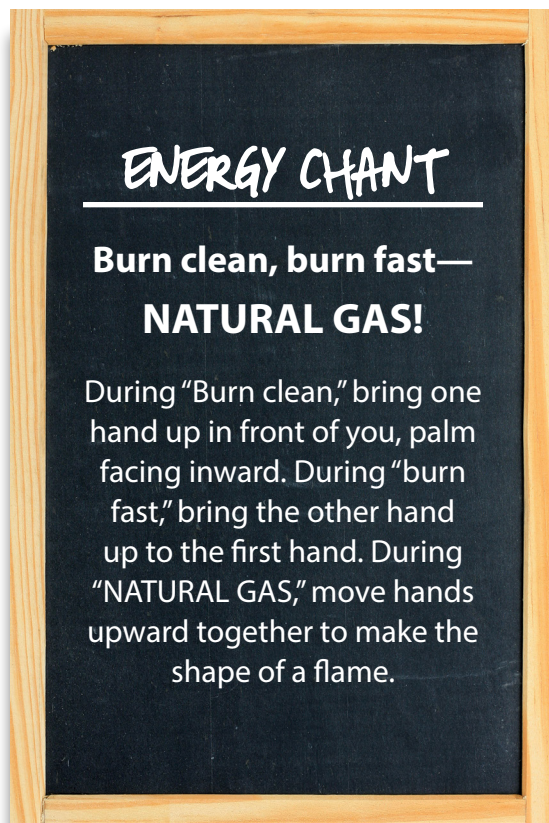
Natural gas is found underground in pockets of rock. We drill wells into the ground and pump out the gas. Some wells are more than a mile deep! The natural gas is shipped from the wells to plants that clean it. A chemical that smells like rotten eggs is added so that we can detect any leaks.

We move natural gas from one place to another in long chains of underground pipes called **pipelines**. There are more than 2.4 million miles of pipelines in the United States alone.

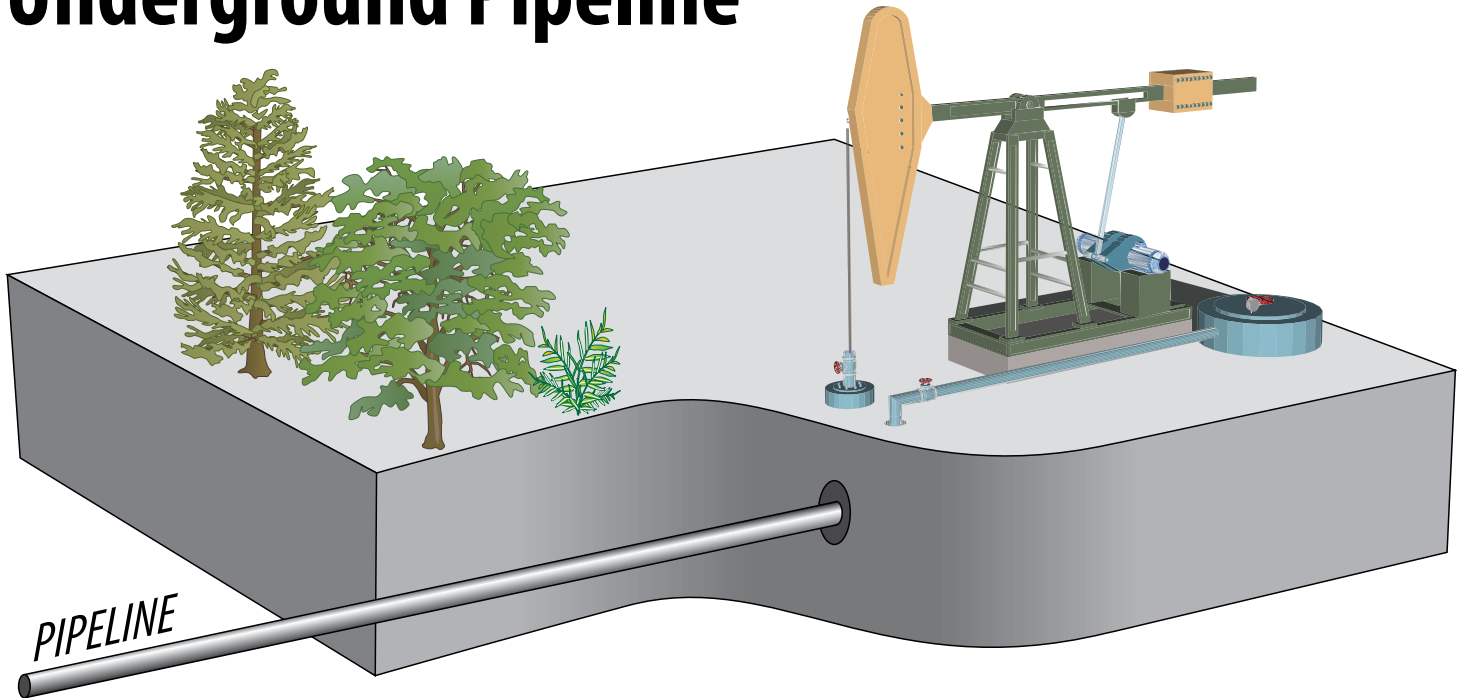
Many people use natural gas. Most homes use natural gas for heat. So do schools and hospitals. Many stoves and water heaters use natural gas, too. Factories burn natural gas to make products like paper, chemicals, fertilizer, and cement. Natural gas is also an ingredient in paint, glue, fertilizer, and many other products.

Power plants burn natural gas to make electricity. Many power plants burn natural gas. It provides the U.S. with 32 percent of our electricity. Sometimes, natural gas is even used to run cars, trucks, and buses.

Natural gas is the cleanest burning fossil fuel. It does not pollute the air as much as burning coal or oil. That's why it is a good fuel for heating our homes.



Underground Pipeline



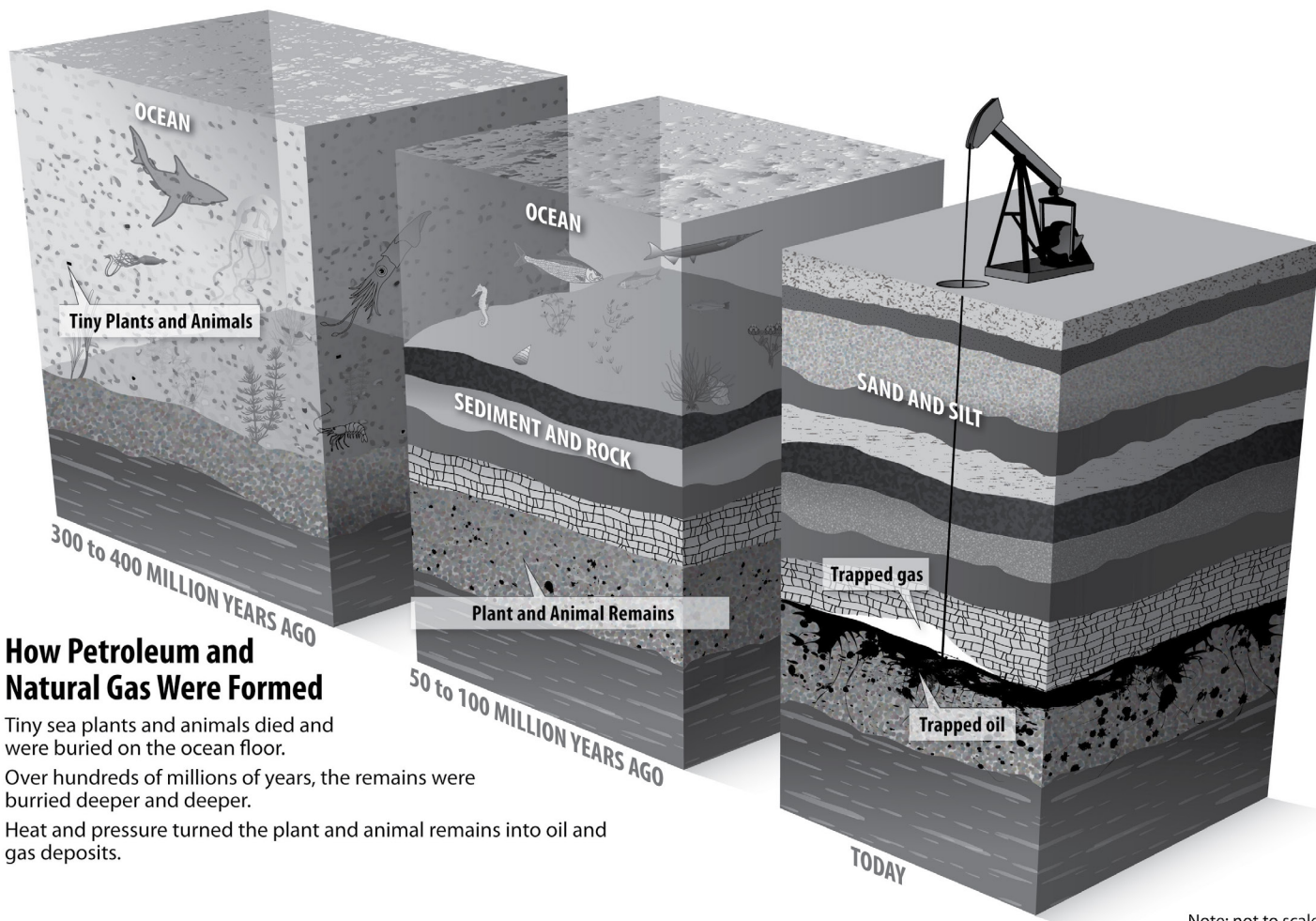
We move natural gas in pipes
under the ground.
Never play or dig near pipelines.



Natural Gas Stove

We burn natural gas for heat.
It can cook our food and warm our homes.

Petroleum



How Petroleum and Natural Gas Were Formed

Tiny sea plants and animals died and were buried on the ocean floor.

Over hundreds of millions of years, the remains were buried deeper and deeper.

Heat and pressure turned the plant and animal remains into oil and gas deposits.

Note: not to scale

Petroleum is a liquid we find underground. Petroleum is nonrenewable.

Petroleum

TEACHER

Petroleum is a liquid that is found underground. Sometimes we just call it oil or crude oil. Oil can be as thick and black as tar or as thin as water. Petroleum has a lot of energy. We can turn it into different fuels—like gasoline, kerosene, and heating oil. Most plastics are made from petroleum, too.

People have burned oil for a long time. Long ago, they did not dig for it. They gathered oil that seeped from under the ground into ponds. It floated on the water.

Long before the dinosaurs, oceans covered most of the Earth. They were filled with tiny sea animals and plants. As the plants and animals died, they sank to the ocean floor. Sand covered them. Hundreds of millions of years passed. The weight of the sand and water and heat from the Earth turned them into petroleum and natural gas.

Petroleum is called a **fossil fuel** because it was made from plants and animals. The energy in petroleum came from the energy in the plants and animals that were once living and buried. That energy came from the sun.

The petroleum we use today was made a very long time ago. It took hundreds of millions of years to form. We cannot make more in a short time. That is why we call petroleum **nonrenewable**. The United States does not drill enough oil to meet our needs. We buy 40 percent of the oil we use from other countries.

Petroleum is buried underground in tiny pockets in rocks. We drill **oil wells** into the rocks to pump out the oil. A normal well is over one mile deep. Texas is the state that drills the most oil. A lot of oil is under the oceans and along our shores. Offshore oil rigs are used to reach this oil. Most of these wells are in the Gulf of Mexico.

After the oil is drilled, it is sent to **refineries**. At the refineries, it is cleaned and made into different fuels. Most of the oil is made into **gasoline** for vehicles. The oil is moved from one place to another by ships and trucks, and through pipelines.

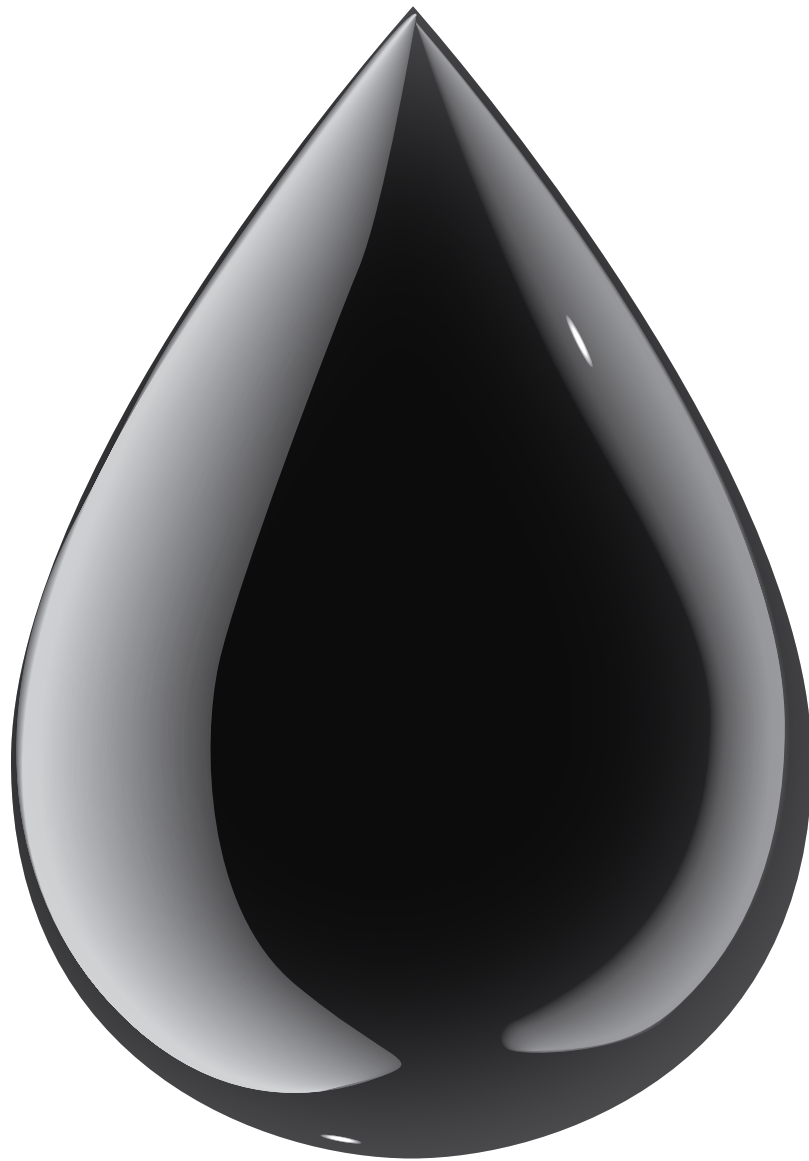
What would we do without petroleum? Many things we use and do in our country would come to a stop! Our cars, trucks, and planes all use fuel made from oil. Our factories use oil to make plastics, paints, medicines, clothing fibers, and soaps. We sometimes even burn oil to make electricity. We use more petroleum than any other energy source.

Petroleum keeps us going, but it can damage our environment. Burning oil can pollute the air. Pollution from cars is a big problem in many parts of the country. Oil companies are making cleaner gasoline and other fuels every year. Oil can also pollute the soil and water if it is spilled. Oil companies work hard to drill and ship oil as safely as possible. They try hard to clean up any oil that spills.

ENERGY CHANT

Pump, pump— PETROLEUM!

Place hands together in fists in front of you. During “Pump, pump,” partially extend fingers twice and return to fist. During “PETROLEUM,” fully extend hands and move them upward, representing oil shooting from a well.



Petroleum is also called oil.
It is a liquid when it comes from
the ground.



An oil rig on land.



An oil rig on water.

We drill to get the oil from the ground. Some wells are on land and some are below water.



A tanker ship transports oil across the ocean.

We move oil in big ships called tankers. We also move oil in pipes under the ground.



Lipstick



Action figures



Rubber bands



Tape



CDs



Pens

We use oil to make many different products.

Propane



Propane is a gas.
It comes from oil and natural gas.

Propane

TEACHER

Propane is the gas we use to fuel our backyard grills and heat some homes. It is a lot like natural gas—you cannot see it, smell it, or taste it, but you can burn it to make heat energy.

Propane is a **fossil fuel**. It was formed hundreds of millions of years ago, long before the dinosaurs. Like oil and natural gas, it was formed from tiny sea animals and plants. The plants got their energy from the sun. This is the energy in propane. Propane's energy came from the sun.

Propane is buried underground mixed with natural gas and petroleum. It has to be separated out at natural gas cleaning plants and oil refineries. Even though propane has been around for millions of years, it was only discovered a little more than 100 years ago! Right away scientists knew they had found a good energy source.

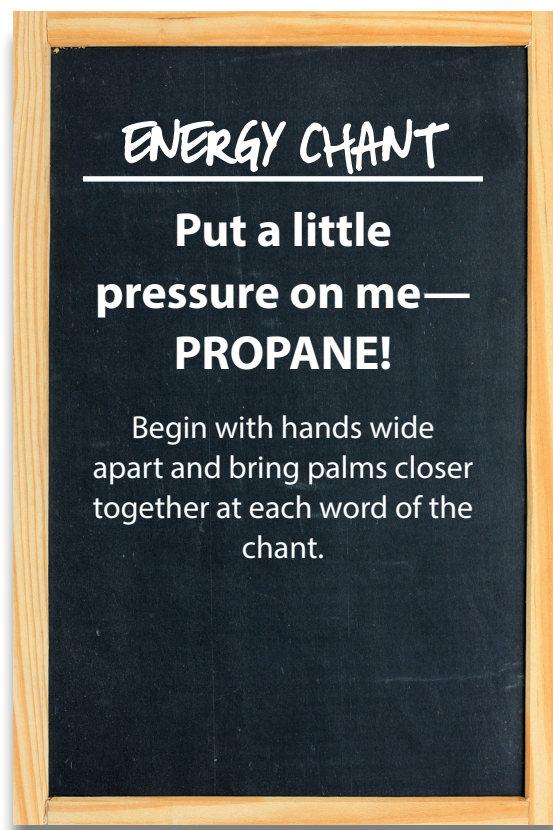
Many farms in the United States use propane to dry crops, run tractors, and heat barns. Businesses use propane for heating and cooking. Most vehicles that we drive inside buildings, like forklifts and carts, use propane for fuel. It is a clean fuel. It does not pollute the air.

Some people in the country cannot get natural gas pipelines to their homes. They use propane instead. They put big propane tanks outside their houses. Small trucks bring the propane right to their houses.

When propane comes out of the ground, it is a gas. When it is put under pressure, it becomes a liquid. A lot more liquid can be put into a tank than gas. A tank of propane gas might last a week. The same sized tank of liquid propane would last five years!

Liquid propane is easy to move from place to place in tanks. It is **portable**—that means easy to move. We use small tanks of propane for our barbecue grills. One tank can last all summer.

Some cars and buses use propane for fuel. It is a very clean fuel. It does not pollute the air like gasoline does. Engines must be changed to use propane though, and that is expensive.





Propane Grill

Propane makes heat when it is burned. We can use it to cook food.

Propane is a clean fuel. We can use it to fuel machines used indoors.



Forklift