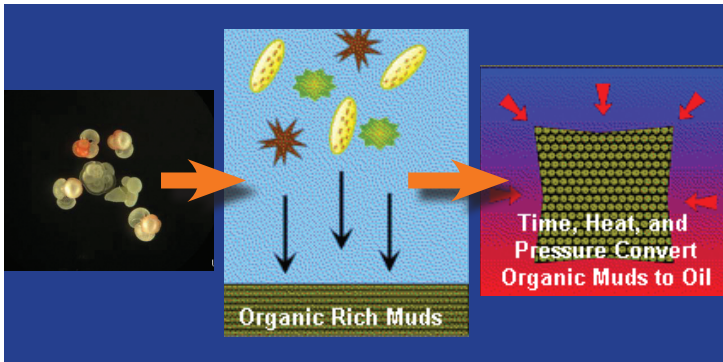


Introduction, Part 1: The Geology of Oil

Oil is a part of every American's daily life. The cars we drive and buses we ride rely on oil—even the plastic that makes up your binder, pen, or comb comes from oil. That is why humans are so eager to dig up oil when they find a spot where it is stored below ground. In order to understand the story of oil, some of the big questions you will need to answer are:

- How did oil form below ground?
- What risks are involved in digging oil up?
- Why do we need so much oil?



Microscopic organisms floating in the water sink to the bottom of the basin with other sediments when they die. As they get buried and the sediments turn to rock over millions of years, the heat and pressure changes the organic material into oil.

The story of oil starts millions of years ago. Areas that are now sedimentary rock, such as sandstone, limestone, and shale, were underwater in basins. In some areas, as the layers of sediment accumulated, the remains of organisms became trapped in the sediment layers—leaves and algae gathered in muddy swamps, or algae and foraminifera mixed with the sandy bottom of the ocean. Trillions of microscopic organisms and remains of other organisms became trapped in sediment. Over millions of years, as the sediment turned into rock, heat and pressure transformed the remains of the organisms into oil.

Introduction, Part 2: Oil Products

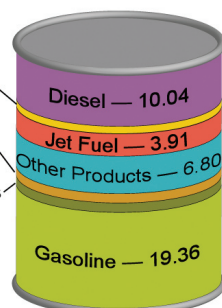
When oil is first removed from the ground, it is called crude oil, or petroleum. Oil that is extracted from the ground cannot go directly into an automobile or airplane. Different vehicles require different fuels. Crude oil is refined in order to break it into different types of substances used for different needs.

Most petroleum products are fuels that can be burned to give off heat and power engines, such as gasoline and diesel fuel. Oil is also used to manufacture plastics and chemicals, such as drugs, fertilizer, and pesticides.

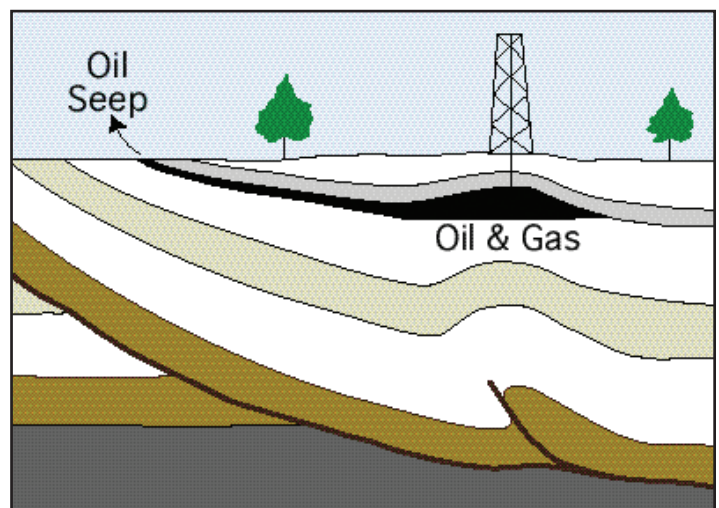
One barrel of crude oil is about 42 gallons. You may have noticed that the price of gasoline changes over time. The amount of gasoline produced from one barrel of crude oil is about enough to fill the tank of a minivan. Depending on supply and demand, the price of a barrel of oil changes,

Products Made from a Barrel of Crude Oil (Gallons) (2009)

Other Distillates
(heating oil) — 1.24
Heavy Fuel Oil
(Residual) — 1.68
Liquefied
Petroleum Gases
(LPG) — 1.72



causing gas prices at the pump to rise and fall. The United States does not produce enough crude oil to power the number of vehicles that are on the road on any given day.



Oil is formed and trapped underground. People dig into areas where oil is trapped in order to pump out crude oil.

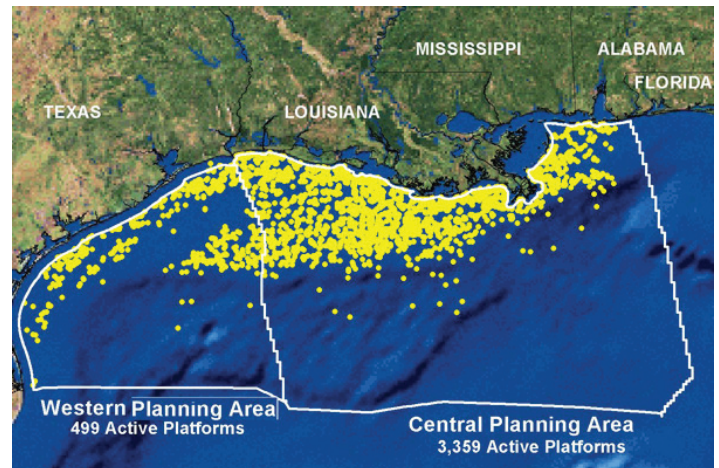
Introduction, Part 3: Oil in the Gulf of Mexico

Oil, along with coal and natural gas, is called a fossil fuel. When used, fossil fuels release the greenhouse gas carbon dioxide into the atmosphere.

Fossil fuels are called nonrenewable resources because they take millions of years to produce. Humans rely on these resources, but when we use up the supplies stored below Earth's surface, we can't make more. That is why humans will go to such risky measures to obtain oil when they find it.

The oil spill in the Gulf of Mexico began with an explosion of the *Deepwater Horizon* oil rig on April 19, 2010. After much difficulty, the leak was permanently sealed on September 19, 2010. Approximately four million barrels of crude oil leaked into the Gulf waters. After the disaster, all drilling in the Gulf was stopped until safety procedures could be reviewed. Six months after the start of this ecological disaster, the U.S. government allowed companies to resume drilling and exploring in deepwater environments.

Drilling for oil under bodies of water, known as offshore drilling, comes with many risks. Oil companies have been drilling deeper and deeper because our demand for petroleum products has increased. Today, there are over 3,500 active oil rigs in the Gulf of Mexico.



This map shows approximately 4,000 active oil and gas platforms in the northern Gulf of Mexico.

Introduction, Part 4: Oil Production and Oil Consumption

Many countries around the world produce oil, which means they dig up the oil that is stored below ground. Remember that humans don't actually make oil—it is a naturally occurring process that takes millions of years.

The United States consumes all the oil that it produces. There was a time when the United States produced enough oil to also export, or send, to other countries. Now, over one-half the oil we use is imported from other countries (Canada, Mexico, Saudi Arabia, Venezuela, and Nigeria), and about one-third is produced in the Gulf of Mexico.

Oil consumption is the amount of oil that is used. Approximately 84 million barrels of oil are used throughout the world on a daily basis. Over 20% of the world's total amount of oil is used by the United States. Americans make up less than 5% of the world's population.

