Coal

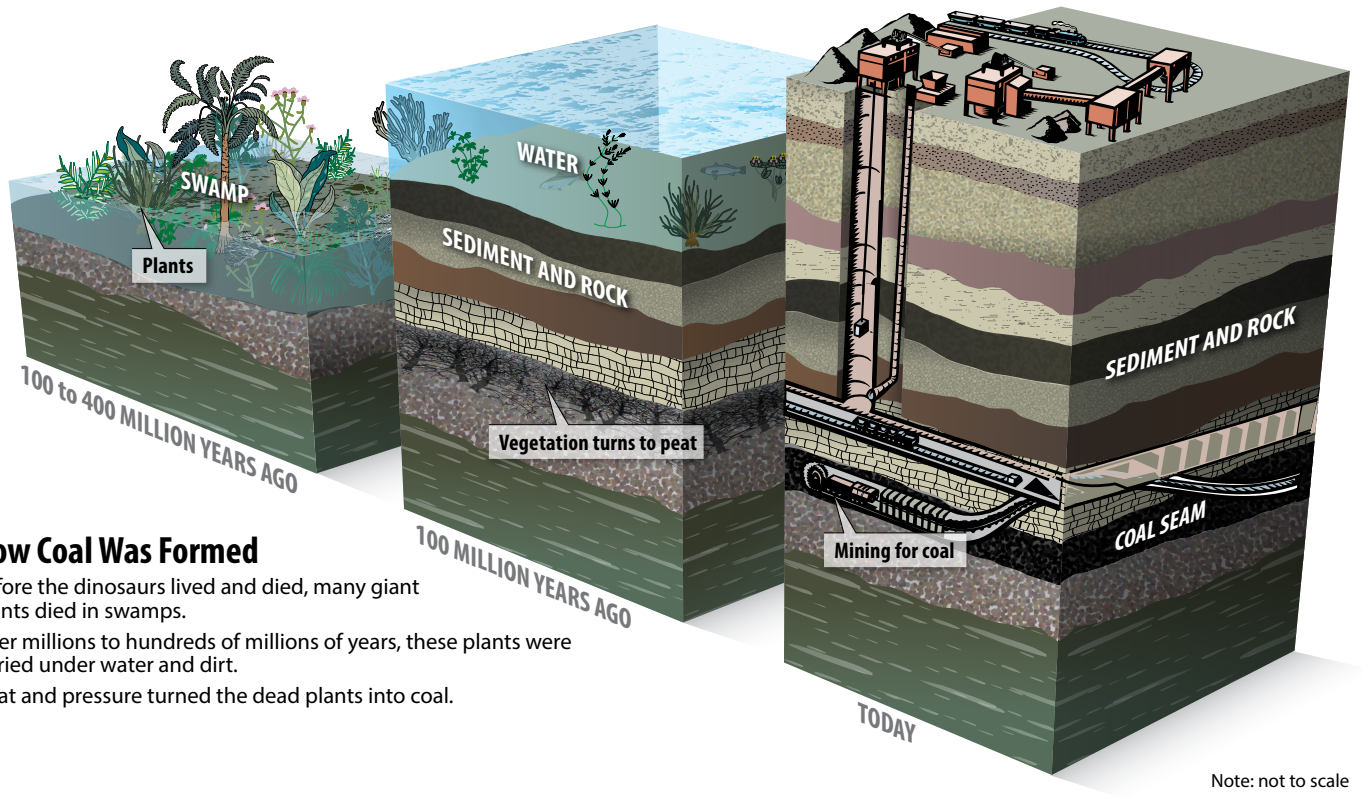
Coal is a shiny, black rock. Coal has lots of energy in it. When it is burned, it makes heat and light energy. One thousand years ago, people in China used coal to produce copper, and the Romans burned coal for heat. Early American settlers didn't use much coal—they burned wood.

In the United States, people began using coal to heat their homes in the 1800s. Trains and ships began using coal for fuel. Factories used coal to make iron and steel. Today, most coal is used to make electricity.

Coal Is a Fossil Fuel

Coal was formed many millions of years ago. Back then, much of the Earth was covered by huge swamps. They were filled with giant ferns and plants. As the plants died, they sank to the bottom of the swamps.

Over the years, thick layers of plants were covered by dirt and water. They were packed down by the weight. After a long time, the heat and pressure changed the dead plants into coal. Coal is called a **fossil fuel** because it was made from the fossilized plants that were once alive. The energy in coal came from the sun.



How Coal Was Formed

Before the dinosaurs lived and died, many giant plants died in swamps.

Over millions to hundreds of millions of years, these plants were buried under water and dirt.

Heat and pressure turned the dead plants into coal.

Note: not to scale

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Coal Is Nonrenewable

The coal we use today took millions of years to form. We can't make more in a short time. That is why it is called **nonrenewable**. There is a lot of coal in the United States. There is enough to last hundreds of years at the rate we use it now.

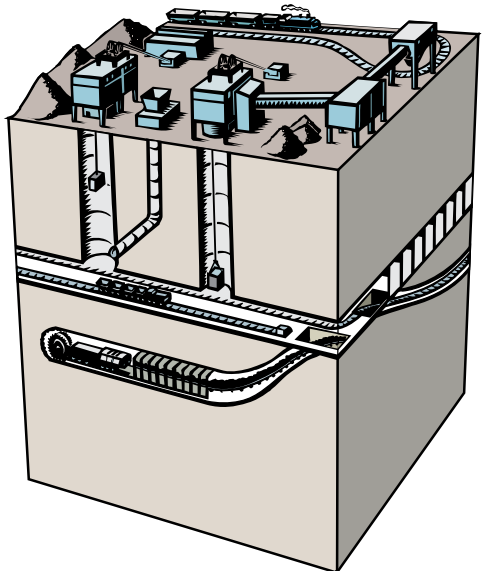
Digging for Coal

Most coal is buried under the ground. We must dig it out—mine it. If the coal is deep in the ground, tunnels called **mine shafts** are dug down to the coal. Machines dig the coal and carry it to the surface. Some mine shafts are 1,000 feet deep. This is called **deep mining**.

If coal is near the surface, miners dig it up with huge machines. First, they scrape off the dirt and rock, then dig out the coal. This is called **surface mining**.

After the coal is mined, they put back the dirt and rock. They plant trees and grass. The land can be used again. This is called **reclamation**.

Deep Mining

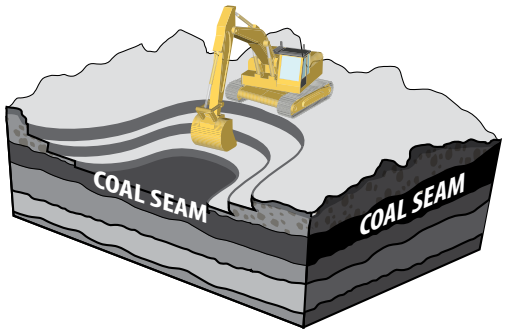


Electricity

After the coal is mined, it is cleaned and shipped to market. Most coal is moved by trains to power plants and factories. Sometimes it is moved on barges along rivers.

Power plants burn the coal to make **electricity**. Coal gives us about 17 percent of the electricity we use and about nine percent of our total energy.

Surface Mining



Coal Can Pollute the Air

Burning coal makes smoke and soot. Some of the smoke has sulfur. Sulfur can burn your nose and throat if you breathe it in. Power plants and factories must try to keep as much pollution as possible from getting into the air. They clean the coal before they burn it. They use **scrubbers** to try to remove harmful particles from the smoke before it goes into the air. Coal produces carbon dioxide when it is burned. Coal also leaves ash behind that must be disposed of or repurposed.