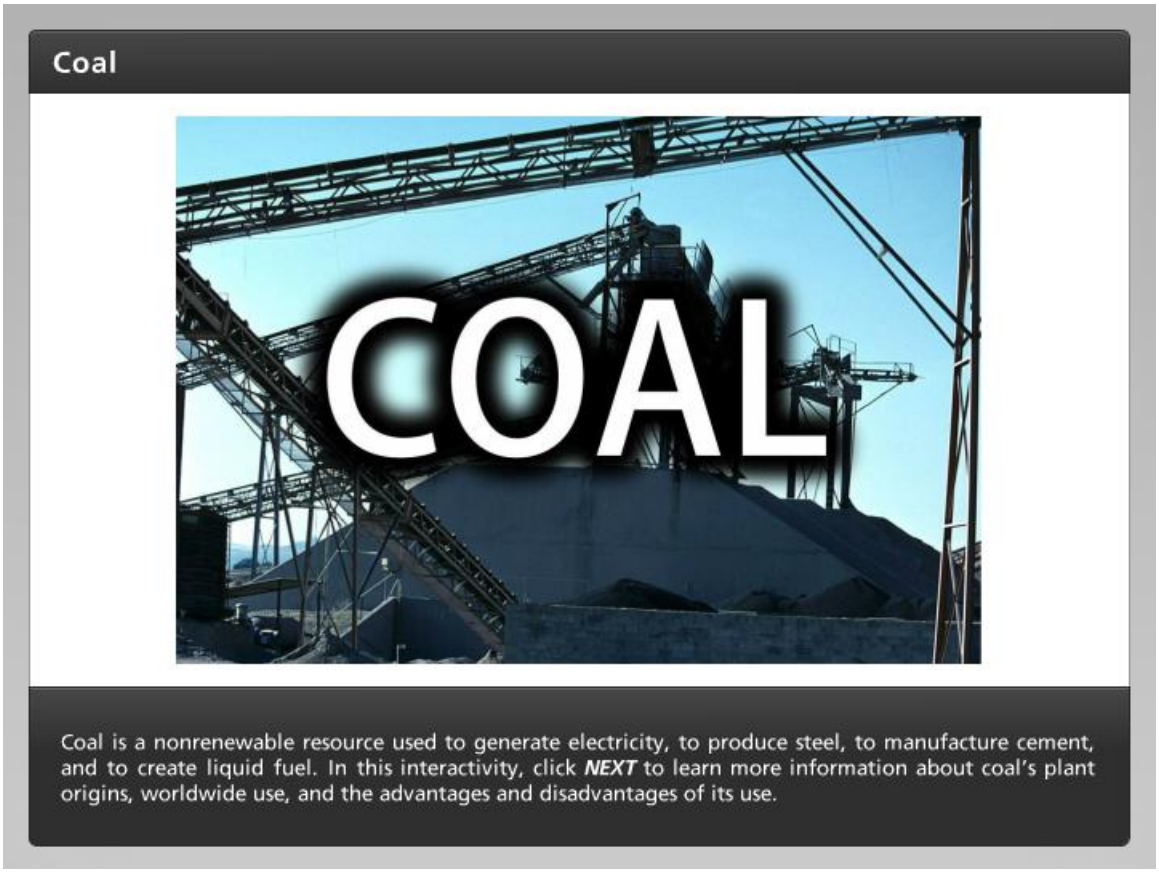
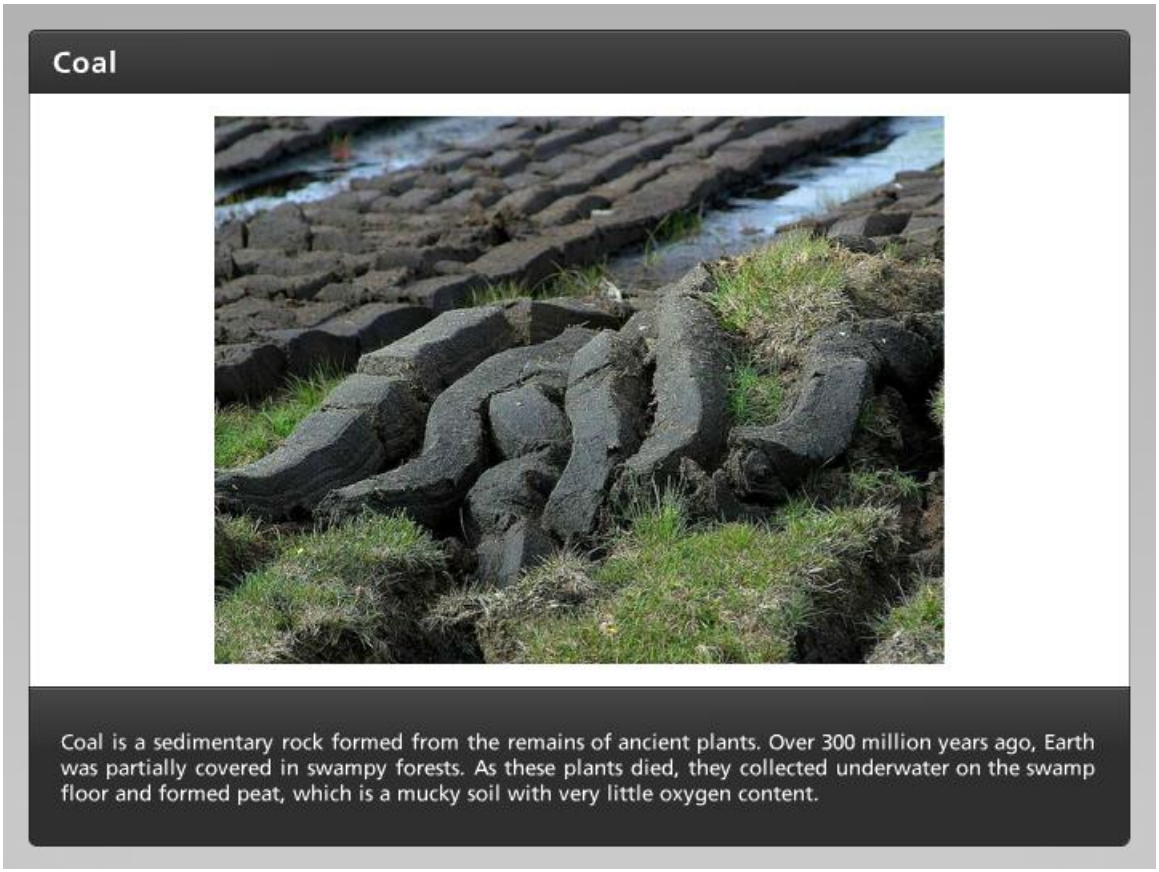
Module 10: Resources and Virginia Geology
Topic 2 Content: Coal Notes



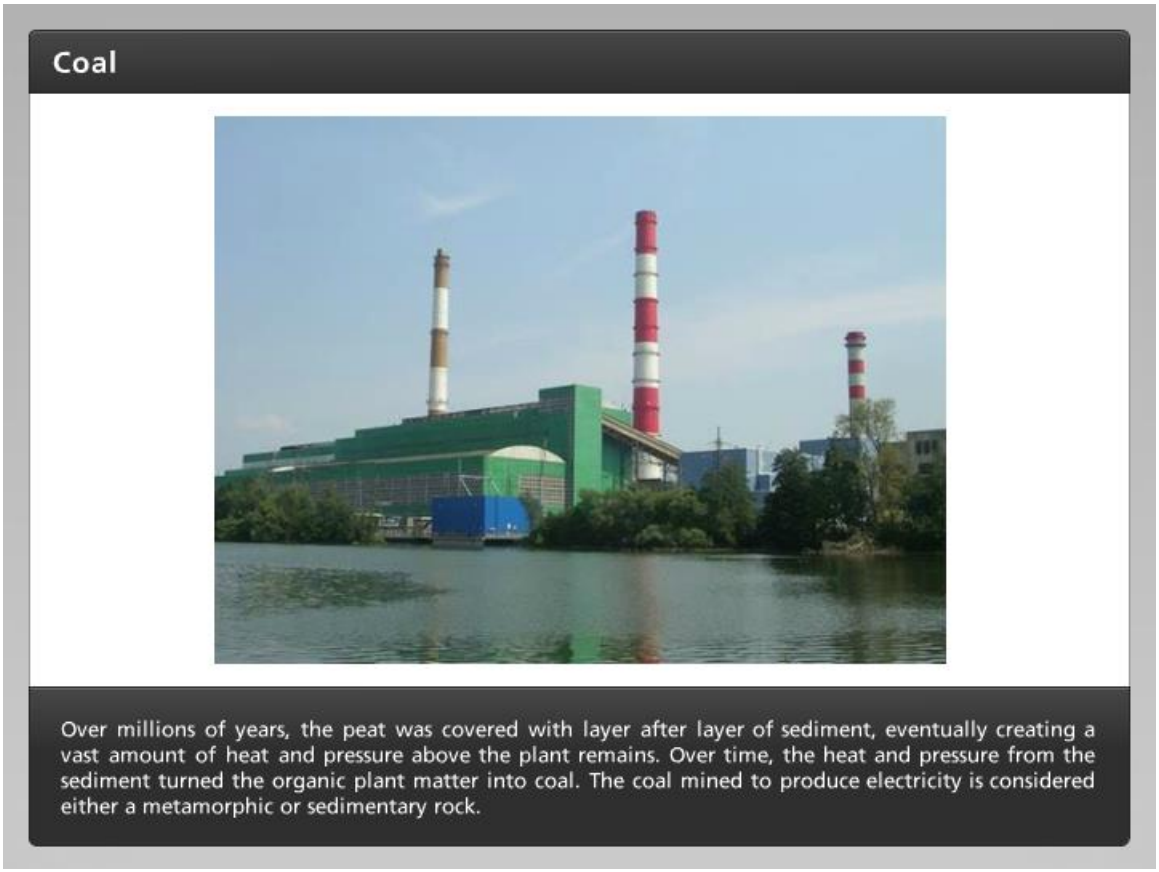
Coal is a nonrenewable resource used to generate electricity, to produce steel, to manufacture cement, and to create liquid fuel. In this interactivity, click ***NEXT*** to learn more information about coal's plant origins, worldwide use, and the advantages and disadvantages of its use.

Module 10: Resources and Virginia Geology
Topic 2 Content: Coal Notes



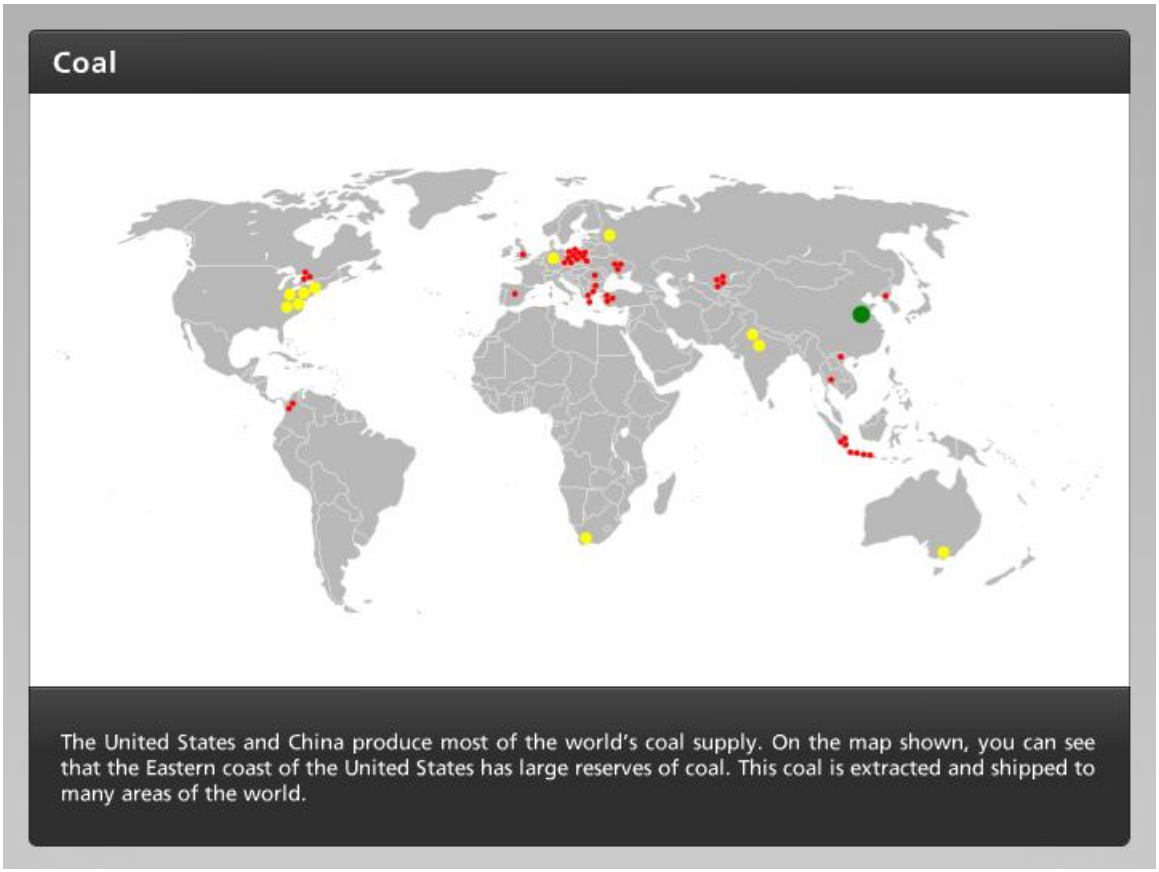
Coal is a sedimentary rock formed from the remains of ancient plants. Over 300 million years ago, Earth was partially covered in swampy forests. As these plants died, they collected underwater on the swamp floor and formed peat, which is a mucky soil with very little oxygen content.

Module 10: Resources and Virginia Geology
Topic 2 Content: Coal Notes



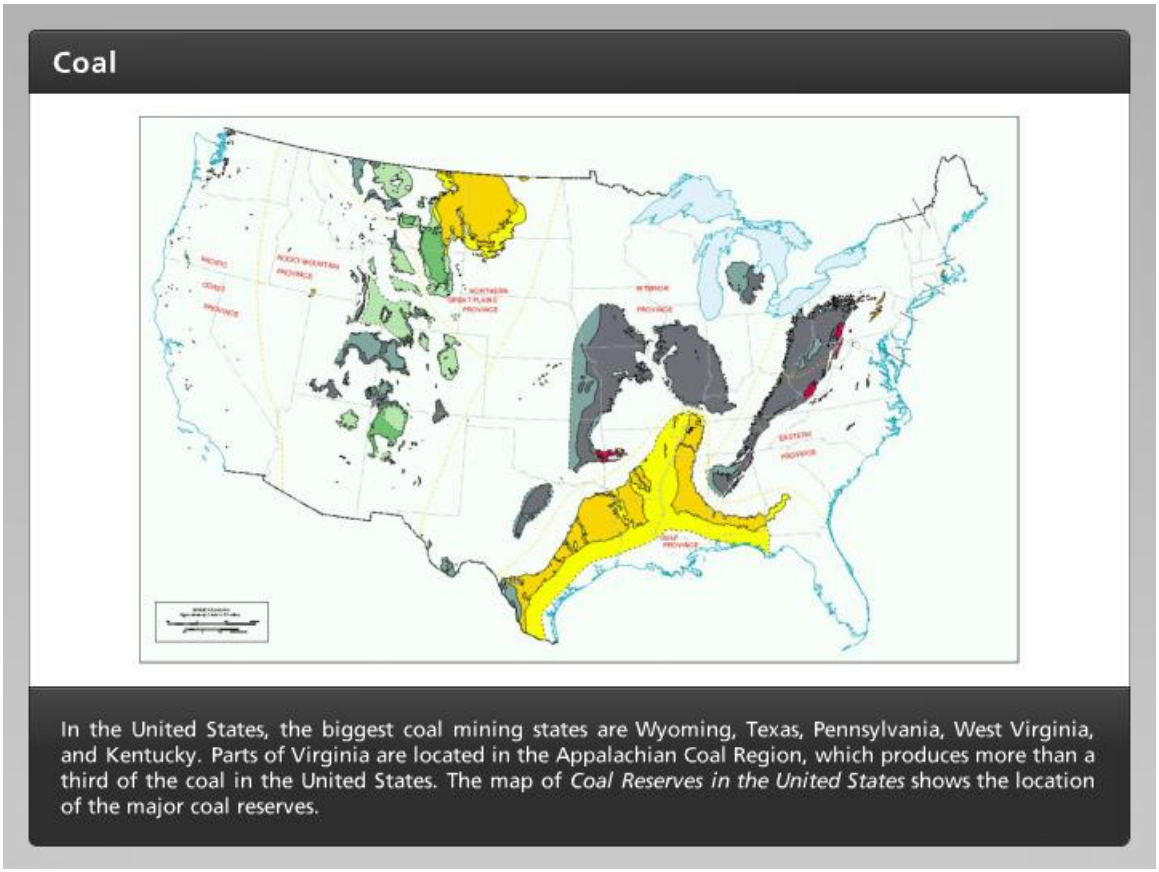
Over millions of years, the peat was covered with layer after layer of sediment, eventually creating a vast amount of heat and pressure above the plant remains. Over time, the heat and pressure from the sediment turned the organic plant matter into coal. The coal mined to produce electricity is considered either a metamorphic or sedimentary rock.

Module 10: Resources and Virginia Geology
Topic 2 Content: Coal Notes



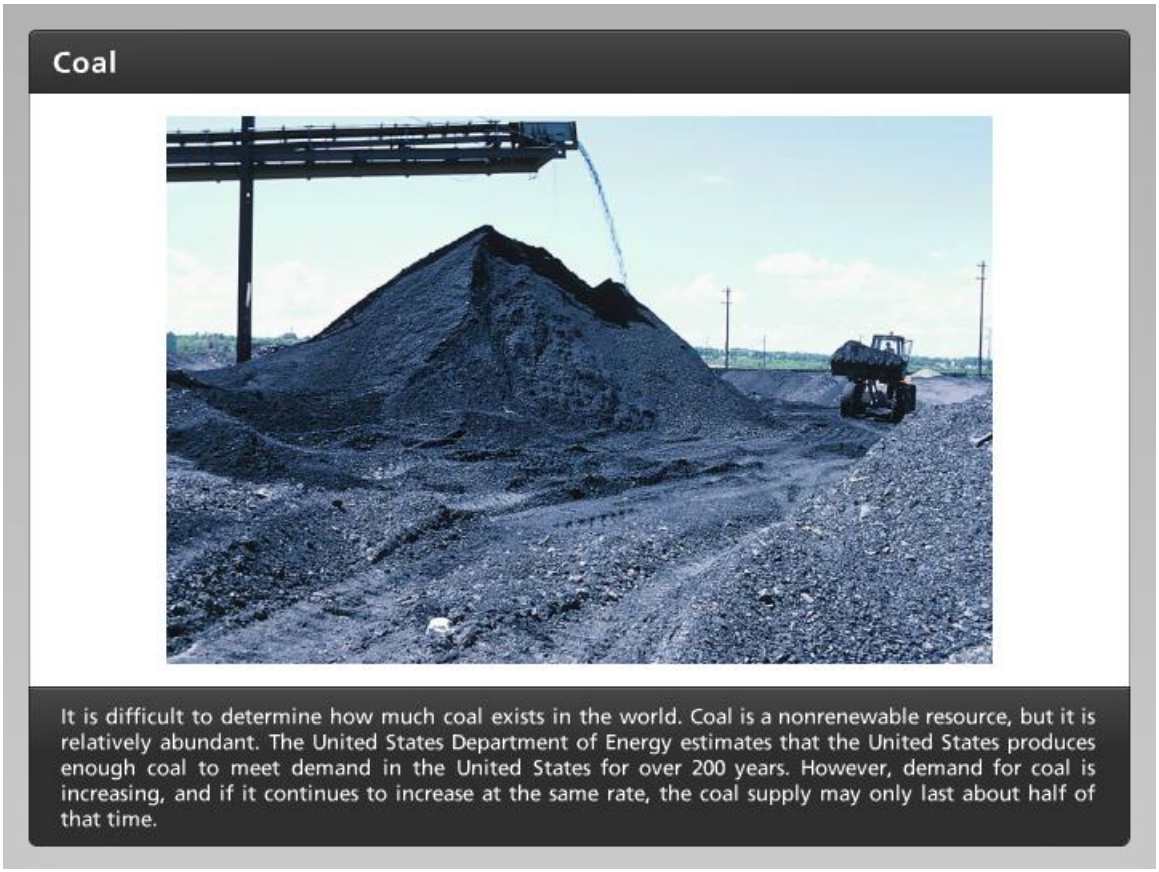
The United States and China produce most of the world's coal supply. On the map shown, you can see that the Eastern coast of the United States has large reserves of coal. This coal is extracted and shipped to many areas of the world.

Module 10: Resources and Virginia Geology
Topic 2 Content: Coal Notes



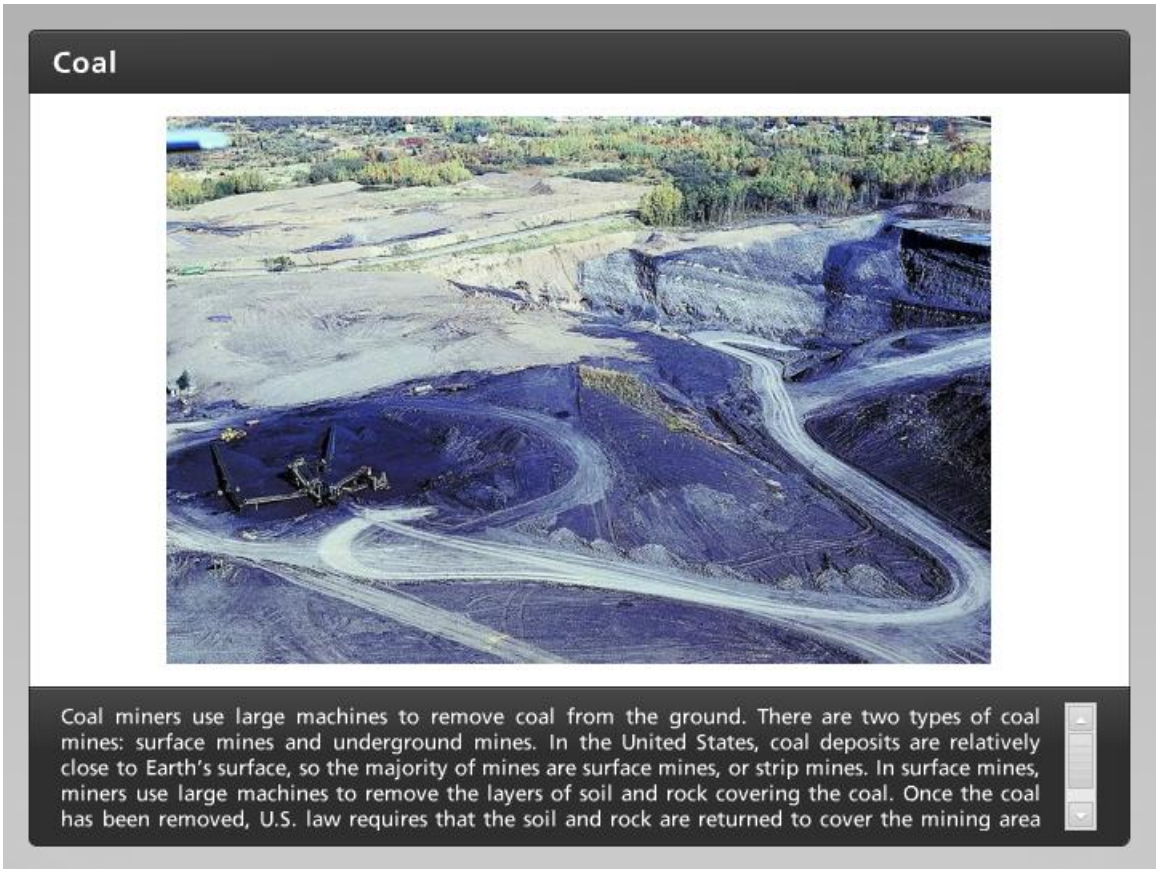
In the United States, the biggest coal mining states are Wyoming, Texas, Pennsylvania, West Virginia, and Kentucky. Parts of Virginia are located in the Appalachian Coal Region, which produces more than a third of the coal in the United States. The map of Coal Reserves in the United States shows the location of the major coal reserves.

Module 10: Resources and Virginia Geology
Topic 2 Content: Coal Notes



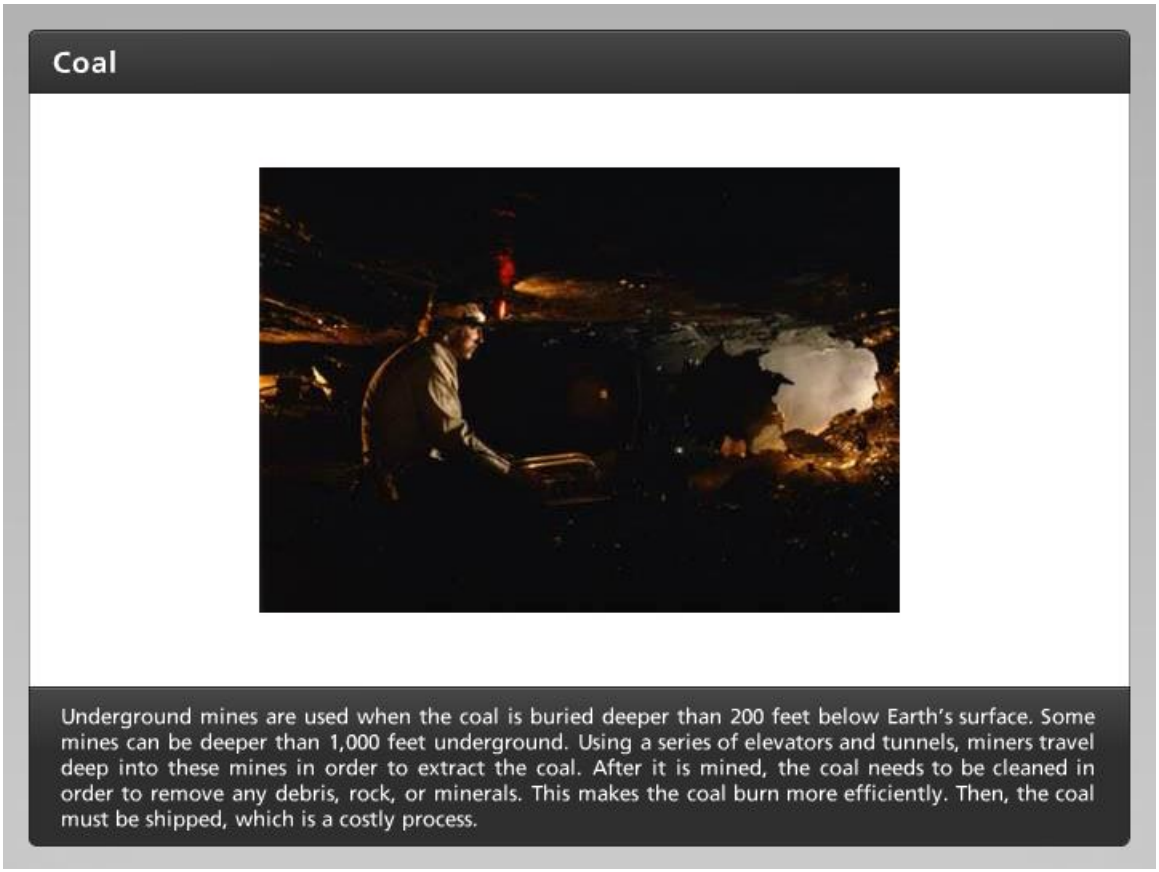
It is difficult to determine how much coal exists in the world. Coal is a nonrenewable resource, but it is relatively abundant. The United States Department of Energy estimates that the United States produces enough coal to meet demand in the United States for over 200 years. However, demand for coal is increasing, and if it continues to increase at the same rate, the coal supply may only last about half of that time.

Module 10: Resources and Virginia Geology
Topic 2 Content: Coal Notes

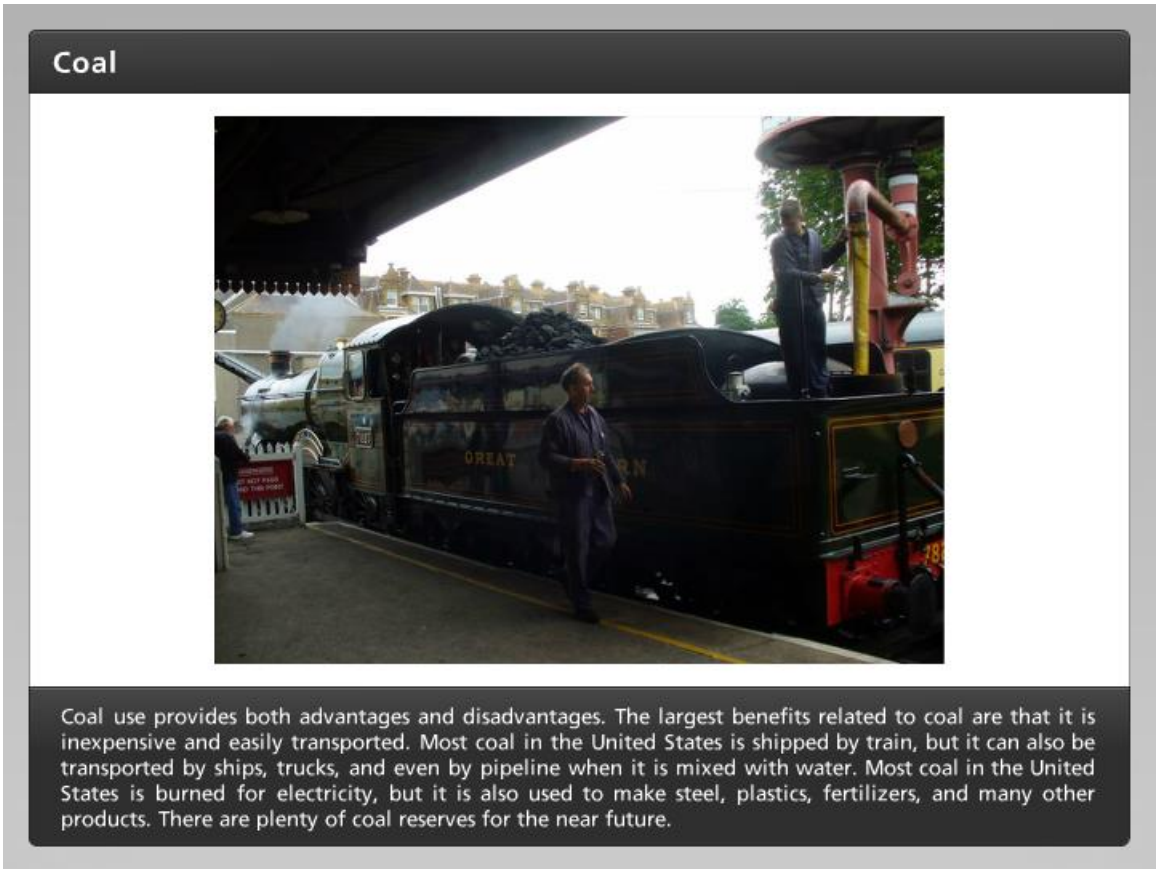


Coal miners use large machines to remove coal from the ground. There are two types of coal mines: surface mines and underground mines. In the United States, coal deposits are relatively close to Earth's surface, so the majority of mines are surface mines, or strip mines. In surface mines, miners use large machines to remove the layers of soil and rock covering the coal. Once the coal has been removed, U.S. law requires that the soil and rock are returned to cover the mining area and that the area is then replenished with trees and other plants.

Module 10: Resources and Virginia Geology
Topic 2 Content: Coal Notes



Underground mines are used when the coal is buried deeper than 200 feet below Earth's surface. Some mines can be deeper than 1,000 feet underground. Using a series of elevators and tunnels, miners travel deep into these mines in order to extract the coal. After it is mined, the coal needs to be cleaned in order to remove any debris, rock, or minerals. This makes the coal burn more efficiently. Then, the coal must be shipped, which is a costly process.



Coal use provides both advantages and disadvantages. The largest benefits related to coal are that it is inexpensive and easily transported. Most coal in the United States is shipped by train, but it can also be transported by ships, trucks, and even by pipeline when it is mixed with water. Most coal in the United States is burned for electricity, but it is also used to make steel, plastics, fertilizers, and many other products. There are plenty of coal reserves for the near future.

Module 10: Resources and Virginia Geology
Topic 2 Content: Coal Notes

Since coal is a fossil fuel, burning coal produces greenhouse gases. Coal produces the highest amount of pollution when compared to the other fossil fuels. The process of extracting coal destroys habitats and is considered dangerous to surrounding areas, as well as the employees who mine the coal.