

Lesson 16-Coal, Oil, Natural Gas and Petroleum

KEY TERMS

coal
fossil fuels
fuel
methane
petroleum

OBJECTIVES

- ⇒ Compare coal, oil and natural gas
- ⇒ Explain the process of refining petroleum

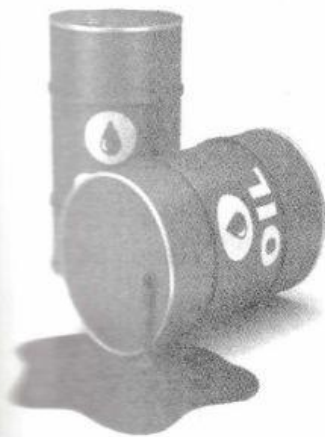
Coal, oil and natural gas are some of the most important fuels. A **fuel** is a substance that is burned to release its stored energy. They are also called fossil fuels. **Fossil fuels** are made from decayed plants and animals that lived long ago.

Coal

Coal was formed from the remains of plants. Coal is grouped as either hard or soft. Soft coals were formed most recently. They were formed under low pressure and low temperature. Hard coals are the oldest coals and were formed under high temperature and high pressure.



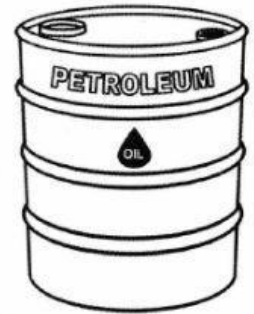
Oil and Natural Gas



Oil and natural gas were formed the same way that coal was formed. However, they were formed from the remains of simple animals and plants. These tiny organisms lived on the Earth many millions of years ago. Over time, high pressures and temperatures have changed their remains to oil and natural gas. Many common products are made from oil. Gasoline and diesel fuel are both made from oil. One of the main products made from natural gas is methane. **Methane** is the gas that is burned in most stoves. *Coal, oil and natural gas* are non-renewable resources.

Petroleum

Petroleum is a liquid that is found underground. It is sometimes called oil. Oil can be as thick and black as tar or as thin as water. Petroleum has a lot of energy. It is turned into different fuels like *gasoline, kerosene* and *heating oil*. Most plastics and ink are made from petroleum.



Long ago people did not dig for oil. The oil seeped from under the ground into ponds. It floated on the water. People gathered the oil from the top of the water. The energy in petroleum came from the energy in the plants and animals. It was formed from long ago. That energy came from the sun. Petroleum that is used today was formed millions of years ago. It is a non-renewable resource. Petroleum has to be drilled from small pockets in rocks.



Oil wells are drilled into the rocks to reach the oil. A lot of oil is also under the oceans. Oil rigs that float are used to get this oil. After the oil is pumped, it is sent to refineries. At the refineries, it is separated into different kinds of fuels. Most of the oil is made into gasoline. Oil is also used to make products such as *plastic, paint, medicine* and *soap*.

Burning fuels made from oil can pollute the environment. Natural gas is a gaseous fossil fuel consisting mainly of methane. Before it becomes a fuel, it must undergo extensive processes to have almost all other materials removed from it except methane. Compressed natural gas is a substitute for gasoline. It is environmentally "clean" and it is safer than other motor fuels in the event of an oil spill. Natural gas is lighter than air, so it disperses quickly. Natural gas is also cheaper and is being used more in vehicles.

Coal, Oil, Natural Gas and Petroleum-Assessment

Name: _____

Date: _____

Read and answer the following questions correctly.

1. The word **renewable** means which of the following? Shade in the LETTER next to the correct answer. [1]
(A) easily broken down
(B) cannot be decomposed easily
(C) can be easily replaced and reused

2. Which type of **natural gas** is used in most stoves? Shade in the LETTER next to the correct answer. [1]
(A) carbon dioxide (B) gasoline (C) methane

3. Which one of the following is the best definition for **fuel**? Shade in the LETTER next to the correct answer. [1]
(A) a substance that is burned to release stored energy
(B) a substance that has stored energy
(C) a substance that is burned

4. Under which conditions was **soft coal** formed? Shade in the LETTER next to the correct answer. [1]
(A) recent, high temperature and high pressure
(B) long time, low pressure and high temperature
(C) recent, low temperature and low pressure

5. What is a synonym for **petroleum**?

[1]

6. Name **TWO** products made from **petroleum**.

[2]

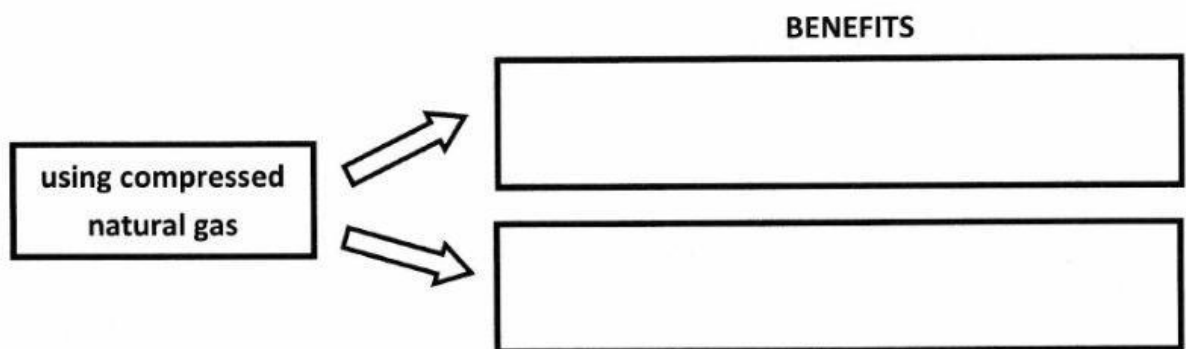
a. _____

b. _____

7. Explain why **petroleum** is a **non-renewable** resource.

[1]

8. Complete the chart below to show **TWO** benefits of using compressed natural gas. [2]



TOTAL MARKS-10