

## LESSON 5 - COAL AND PETROLEUM

**Subject: Science**

**Class: VIII**

### MODULE -1/3

#### **Introduction**

We use various materials for our basic needs. Some of them are found in nature and some have been made by human efforts.

**Natural resources**-The resources which are obtained from nature are called natural resources.

#### **Types of natural resources**

**1. Inexhaustible natural resources** - These resources are present in unlimited quantity in nature and are not likely to be exhausted by human activities. Examples: Sunlight, air, etc.

**2. Exhaustible natural resources** - The amount of these resources in nature is limited, they can be exhausted by human activities.

Examples: Forests, coal, petroleum. minerals, wild life, natural gas, etc.,

#### **Fossil fuels**

Exhaustible natural resources like coal, petroleum and natural gas were formed from the dead remains of living organism (fossils). So, these are called fossil fuels. Coal and petroleum are very important natural resources and play a vital role in modern society. They are found in the earth's crust.

**Coal**- It is as hard as stone and is black in colour. Coal is one of the fuels used to cook food. Earlier, it was used in railway engines to produce steam to run the engine. It is also used in thermal power plants to produce electricity. Coal is also used as a fuel in various industries.

**Story of the formation of coal** : It is believed that millions of years ago, the ground below the forests was split open by natural forces such as earthquakes and

volcanoes. The forests got buried under the surface of earth. Thus, the plants had no contact with oxygen. Successive layers of sediments sealed the buried plants. Over millions of years, these deposits were subjected to tremendous pressure and heat and these forces finally transformed the deposits into coal.



**Carbonisation:** The chemical process involved in the transformation of plant matter into coal is called the carbonization of plant matter.

**The main products obtained by the destructive distillation of coal are:**

**(1) Coke:**

It **contains** 98 % carbon. It is porous, tough and black and is the purest form of coal. Like charcoal, it is a good fuel and burns without smoke. It is largely employed as a reducing agent in the extraction of metals from their ores. It is also used in the manufacture of steel.



**(2) Coal tar (liquid):**

Coal tar is a mixture of different carbon compounds. It is a thick, black liquid with an unpleasant smell. The fractional distillation of coal tar gives us many chemical substances which are used in the preparation of dyes, explosives, paints, synthetic fibres, drugs and pesticides. Naphthalene balls used to repel moth and other insects are also obtained from coal tar.

**Note:** These days, bitumen, a petroleum product is used in place of coal tar for metalling the roads.



**(3) Coal Gas:**

Coal gas is mainly a mixture of hydrogen, methane and carbon monoxide. The gases present in coal gas are combustible and hence, it is an excellent fuel. It has high calorific value. It was used for lighting houses, factories and streets in Mumbai until 1950. It was also used for cooling earlier. It is used as a fuel in many industries situated near the coal processing plants.

Prepared by:  
Pushpalata Khullar  
A.E.C.S-2, Mumbai