

COAL AND PETROLEUM

INTRODUCTION:

In our day-to-day life, we use various materials to fulfill our needs.

Some of them are naturals while others are artificial/man-made resources.

Some examples of natural resources are:

| Natural resources | Man-made resources |
|--------------------------|---------------------------|
| Silk | clothes |
| Wood | Paper |
| Leather | shoes |
| Rubber | Tyre |
| Fur | Pillow |

In this chapter we will learn about the properties, formation and uses of coal and petroleum. Before going to the topic let us know about the energy

All living things need energy. We learned in life and Living that energy is one of the requirements for life. However, it is not only living things which need energy to move and carry out various processes. The machines and appliances in our world around us need energy to do work. Where does the energy come from? Let us know in detail.

What is energy?

Energy is the ability to do any work. We cannot do any work without energy of power. We can say that the capacity to do any work is called **energy**. There are different forms of energy are stored in energy sources in different ways. This energy source is used in daily routine

For example: Bulb

When we turn the bulb on, energy comes in the form of heat and light. That is the reason we are unable to touch the bulb from outside as it gets very hot. The electrical energy of the bulb gets converted into heat and light. Thus, we need a cloth to hold it.

Energy is always conserved or constant.

We can say that say that energy neither be created nor destroyed. But it can be conserved. Energy is converted from one form to another form. For example, solar energy. We get energy from the sun in the form of heat and light. It gets stored in different sources and can be used in every day.



SOURCES OF ENERGY:

Sources of energy contain energy in them in forms that cannot be used directly but living organisms require energy to stay alive. The different sources of energy are as follows:

Biomass: Any substance which is obtained from plants and animals or it refuse is known as biomass.

Hydle power: It means dams. Dams are used to store river water in reservoir.

The water released from the reservoir flows through a turbine, spinning it, which in turn activates a generator to produce electricity.

Geothermal: geothermal energy is obtained from earth. It is clean and sustainable. There are hot spots which are present beneath the earth and these spots degrade and its mass is automatically converted into energy.

Wind energy: The energy obtained from wind mills.

Solar energy: The energy obtained from sun.

EXERCISE 1:

1. In exhaustible natural resources in nature are-

- a. Limited
- b. Unlimited
- c. Scare
- d. Not present

2. Various materials are obtained from nature are called natural resources. Which of the following is not a natural resource?

- a. Minerals
- b. Water
- c. Soil
- d. Plastic



3. Which of the following is a pair of exhaustible natural resources?

- a. Coal and soil
 - b. Air and sunlight
 - c. Water and petroleum
 - d. Wild life and minerals
4. Which of the following is a pair of inexhaustible natural resources?
- a. Coal and soil
 - b. Air and sunlight
 - c. Water and petroleum
 - d. Wild life and minerals
5. Inexhaustible natural resources are:
- a. Unlimited in quantity
 - b. Not dependent on nature
 - c. Limited in quantity
 - d. Not exhausted by human activities.
6. Exhaustible natural resources are:
- a. Unlimited in quantity
 - b. Not dependent on nature
 - c. Limited in quantity
 - d. Not exhausted by human activities.
7. The resources present unlimited quantity in nature and can be used over and over again are known as
- a. Gases
 - b. Fuels
 - c. Renewable Resources
 - d. Energy

FUELS:

What are fuels?

A fuel is any substance that releases large amounts of energy in the form of heat and light when it is burned. For example, some commonly used fuels are wood, cow dung cakes, kerosene, LPG, diesel coal and petroleum are fuels



We use fuels for cooking, heating in automobiles and for generation of electricity.

Based on their physical state, fuels can be classified as solid, liquid, or gaseous.

| Solid fuels | Liquid fuels | Gaseous fuels |
|---|--|--|
| Fuels that exist in solid state at room temperature are called solid fuels. Examples: wood, charcoal, cow dung, cakes, agriculture waste, core and coal etc. | Fuels that exist in liquid state at room temperature are called liquid fuels. For example, kerosene, petrol, diesel and fuel oil are some more examples | Fuels that exist in gaseous state at room temperature are called gaseous fuels. Petroleum gas, natural gas, and biogas are examples of gaseous fuels. |

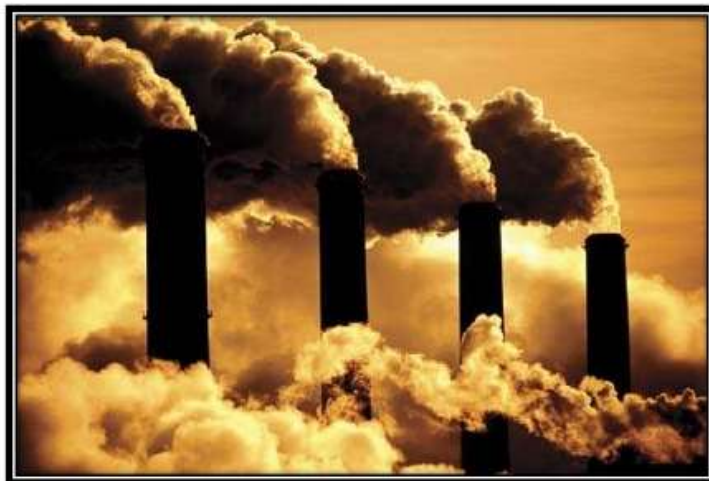
Characteristics of fuels:

The characteristics of good fuel are:

1. It should be economical.
2. It should be available easily
3. It should not emit poisonous gases on burning
4. It should produce large amounts of heat with respect to its mass (it should have a high calorific value)
5. It should be easy to transport and handle
6. It should not produce a bad odour
7. It should be clean and should not produce many ashes
8. It should not ignite easily at room temperature

FOSSIL FUELS:

Fossil Fuels are natural resources such as coal, oil and natural gas, containing hydrocarbons. These fuels are formed in the Earth over millions of Years and produce carbon dioxide when burnt.



Fossil fuels are formed from the buried remains of plants and animals over a period of millions of years. Fossil fuels are a type of nonrenewable **energy resources** **Coal, petroleum and natural gas are examples of fossil fuels.**

why do we need fossil fuels?

Fuels are required for different purposes such as:

1. **Transportation:** fuels are used to run different vehicles such as cars, trucks, motor cycles, trains, airplanes etc.
2. **Cooking:** fuels are needed for cooking. For instance, LPG is used in urban areas while firewood, coal and cattle dung is used in rural areas.
3. **Heating:** fuel is also used to generate heat
4. **Electricity production:** Different fuels such as coal, petrol, natural gas and diesel are used to generate electricity in power plants
5. **Industrial usage:** many industries use fuels for different purposes such as producing electricity, running their machinery and heating
6. **Rockets and other space vehicles:** fuels called propellants are used in rockets that help in launching the space vehicles

EXERCISE 2:

1. Fossils are-
 - a. The dead remains of plastics
 - b. The dead remains of living organism
 - c. Kind of natural resource
2. Which of the following is not a petroleum product?
 - a. Gas
 - b. Petrol
 - c. diesel
 - d. Coal
3. Fossil fuels are obtained from:

- a. Remains of non-living materials.
- b. Dead remains of birds only.
- c. Dead remains of insects only.
- d. Dead remains of living organisms.

NAVA VISION