CBSE Class 8 Geography Notes Chapter 3: Chapter 3 of CBSE Class 8 Geography, "Mineral and Power Resources," explores the types, extraction methods, and uses of minerals, which are naturally occurring substances with a definite chemical composition. It distinguishes between metallic and non-metallic minerals and emphasizes the importance of sustainable extraction due to their non-renewable nature.

CBSE Class 8 Geography Notes Chapter 3 also discusses power resources, dividing them into conventional (coal, petroleum) and non-conventional (solar, wind) types. It highlights the benefits of renewable energy and stresses the need for conservation to protect the environment and ensure resources for the future.

CBSE Class 8 Geography Notes Chapter 3 Overview

CBSE Class 8 Geography Notes Chapter 3, "Mineral and Power Resources," focuses on the various types of minerals and power resources found around the world. The chapter begins by defining minerals as naturally occurring substances with a definite chemical composition. It categorizes minerals into metallic (like iron, copper, bauxite) and non-metallic (like limestone, mica, gypsum). The chapter discusses the methods of extracting minerals, such as mining and drilling, and emphasizes the need for sustainable use due to their non-renewable nature.

CBSE Class 8 Geography Notes Chapter 3 covers power resources, including conventional resources like coal, petroleum, and natural gas, and non-conventional resources like solar, wind, and geothermal energy. The chapter highlights the advantages of non-conventional energy sources as they are renewable and less polluting. Additionally, it stresses the importance of energy conservation to reduce over-reliance on non-renewable resources and mitigate environmental impact.

CBSE Class 8 Geography Notes Chapter 3 Mineral and Power Resources

Here we have provided CBSE Class 8 Geography Notes Chapter 3 Mineral and Power Resources -

Types of Minerals

There are three thousand different kinds of minerals, and they can be divided into metallic and non-metallic categories according to their composition.

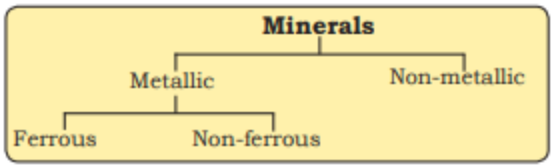

Fig. 3.2: Classification of Minerals

Raw metal can be found in metallic minerals. Metals are strong materials with a distinctive lustre or shine that can conduct heat and electricity. Examples include iron ore, manganese ore, and bauxite. Ferrous or non-ferrous metallic minerals are both possible. Iron is found in ferrous minerals such as manganese, chromites, and iron ore. Non-ferrous minerals can include other metals like gold, silver, copper, or lead but do not contain iron.

Metals are absent from non-metallic materials. Examples of these minerals are gypsum, mica, and limestone. Coal and petroleum are examples of non-metallic materials that are used as fuels. Minerals can be obtained through quarrying, drilling, or mining.

The process of mining involves taking minerals out of rocks that are buried beneath the surface of the earth. In contrast, shallow-depth minerals are collected through surface layer removal in open-case mining. In addition, shaft mining is the process of drilling deep holes, or shafts, to access mineral reserves that are located at extremely deep depths.

Drilling is also the process used to drill deep wells to extract natural gas and petroleum that are found far below the surface of the earth. Finally, minerals that are close to the surface are simply dug out using the quarrying technique.

Distribution of Minerals

Types of Minerals	Rock Formations	Examples
Metallic minerals	Igneous and metamorphic rock formations	Iron-ore in North Sweden, Copper and Nickel deposits in Ontario, Canada; Iron, Nickel, Chromites and Platinum in South Africa are examples of minerals
Non-Metallic Minerals	Sedimentary rock formation	Limestone deposits of Caucasus region of France, manganese deposits of Georgia and Ukraine and phosphate beds of Algeria.Mineral fuels such as coal and petroleum are also found in the sedimentary strata

Asia

- **Large iron ore deposits**-China & India
- **World's largest tin producer**-China, Malaysia and Indonesia
- **Production of lead, antimony and tungsten**-China leads
- **Deposits of manganese, bauxite, nickel, zinc and copper**-Asia

Europe

- **Leading producer of iron ore in the world**– Europe
- **Countries with large deposits of iron ore**– Russia, Ukraine, Sweden and France
- **Minerals deposits of copper, lead, zinc, manganese and nickel**– Eastern Europe and European Russia

North America

- **Three regions in North America are home to mineral deposits:** the Appalachian region, the Canadian area north of the Great Lakes, and the western mountain ranges.
- **The Canadian Shield Region** is home to uranium, copper, nickel, gold, and iron ore mining.
- **Appalachian Region:** Coal
- **Large**-scale silver, gold, lead, zinc, and copper deposits in the Western Cordilleras

South America

- **The largest producer of high-grade iron ore in the World**– Brazil
- **Leading producers of copper**-Chile and Peru
- **World's largest producers of tin**-Brazil and Bolivia
- **Large deposits of gold, silver, zinc, chromium, manganese, bauxite, mica, platinum, asbestos and diamond**-South America
- **Mineral oil is found-** in Venezuela, Argentina, Chile, Peru and Columbia

Africa

- **Abundant in natural resources—**the world's top producer of gold, platinum, and diamonds
- **generate a sizable amount of the world's gold:** Zimbabwe, Zaire, and South Africa
- Other minerals that are discovered in Africa include bauxite, copper, iron ore, chrome, uranium, and cobalt.
- Oil is present in Angola, Libya, and Nigeria.

Australia

- **The world's top producer** of gold, diamonds, iron ore, tin, and nickel; abundant in copper, lead, zinc, and manganese; largest bauxite producer
- Western Australia's Kalgoorlie and Coolgardie regions contain the biggest gold deposits.

Antarctica

A variety of mineral deposits are found, some probably large.

- **The significant size of deposits of coal-** the Transantarctic Mountains
- **Deposits of Iron forecasted near** the Prince Charles Mountains of East Antarctica

- **Iron ore, gold, silver and oil are present** in commercial quantities

Uses of Minerals

minerals for hard-set gems in a variety of jewellery designs
Coins and pipes are made of copper.
Quartz is the source of silicon utilised in computers.
Aluminium is used in buildings, vehicles, aircraft, the bottling industry, and kitchenware. It is derived from the mineral bauxite.

Conserving Minerals

The production and concentration of minerals require thousands of years, making them a nonrenewable resource. Compared to the pace at which humans eat these minerals, the formation rate is far lower. Reducing waste in the mining process is essential. Metal recycling is an additional strategy for protecting mineral resources.

Power Resources

Energy, or power, is essential to our existence. Power is also required for transportation, manufacturing, agriculture, communication, and defence. Conventional and non-conventional resources can be used to broadly classify power resources.

Conventional Sources

The energy which has been in common use for a long-time examples are firewood and fossil fuels.

Firewood

Firewood is widely utilised for cooking and heating, accounting for 50% of the villagers' energy use. Fossil fuels are formed from plant and animal remains that have been buried beneath the earth for millions of years due to heat and pressure.

Coal, oil, and natural gas are examples of fossil fuels, which are the primary sources of conventional energy. They are being consumed considerably more quickly by the expanding global population than they are being formed. Thus, these will probably run out shortly.

Coal

fossil fuel that is widely available and utilised to power steam engines and other home industries like iron and steel. Coal-derived electricity is referred to as thermal power. The coal was created millions of years ago when swamps and enormous ferns were buried beneath the Earth's strata.

That's why coal is called Buried Sunshine. China, the United States of America, Germany, Russia, South Africa, and France are the world's top producers of coal. India's coal-producing regions include Jharia, Bokaro, Dhanbad, and Raniganj in Jharkhand.

Petroleum

Petroleum is the thick black liquid that keeps your car running, and oil prevents your bike from squeaking. Drilling from offshore and coastal oil fields yields crude oil, which is found between the layers of rocks.

The crude oil is processed in refineries to create a range of goods, including lubricants, wax, polymers, kerosene, diesel, and petrol. Petroleum and its byproducts are extremely precious and are referred to as "Black Gold."

Chief petroleum-producing countries- are Iran, Iraq, Saudi Arabia and Qatar. Other major producers are the USA, Russia, Venezuela, and Algeria.

Leading producers in India-Digboi in Assam, Bombay High in Mumbai and the deltas of Krishna and Godavari rivers.

Natural Gas

found near petroleum reserves; utilised as a fuel for homes and businesses; discharged when crude oil is brought to the surface.

Natural gas deposits can be found in India in Jaisalmer, the Krishna Godavari Delta, Tripura, and certain offshore areas of Mumbai. Major producers of natural gas include Norway, the UK, the Netherlands, and Russia.

Reason for concern: burning fossil fuels releases harmful pollutants; burning fossil fuels excessively is like letting a tap run dry without control. Our usage of fossil fuels has increased dramatically, which has caused their depletion at an alarming rate. As a result, numerous unconventional energy sources that are more environmentally friendly than fossil fuels are being used.

Hydel Power

Dams are used to retain river or rainwater. Water falling from the dam runs over turbine blades positioned at its base through pipelines inside the structure. The generator is then turned by the rotating blades to generate power. We refer to this as hydroelectricity. Irrigation uses the water released after power is generated. Hydel power generates one-fourth of the world's electrical power.

Leading hydel electricity producers worldwide: China, Brazil, Norway, and Paraguay.
India's major hydroelectric power plants include the Damodar Valley, Gandhi Sagar, Nagarjunsagar, and Bhakra Nangal projects.

Non-conventional Sources of Energy

Fossil fuel consumption is increasing, which will eventually deplete its reserves if current consumption trends continue. Additionally, the use of fossil fuels pollutes the environment. As a result, it is necessary to use renewable non-conventional energy sources like tidal, wind, and solar power.

Solar energy

Solar energy is the sun's stored energy that powers solar cells to generate electricity.

A large number of these cells are integrated into solar panels to produce electricity for lighting and warmth. In addition to traffic signals and community lighting, solar energy is also used in solar dryers, heaters, and cookers.

Wind energy

An endless supply of energy, wind farms may be found in the Netherlands, Germany, Denmark, the UK, the USA, and Spain. Windmills are used for raising water and grinding grain.
High-speed winds rotate the windmill, which is connected to a generator to produce electricity.

Nuclear Power

generated in nuclear reactors through the nuclear fission of energy held in the nuclei of naturally occurring radioactive elements like uranium and thorium, which releases energy.

- **Greatest producers of nuclear power**– USA and Europe
- **Large deposits of Uranium in India**-Rajasthan and Jharkhand
- **Thorium found in large quantities-** in the Monazite sands of Kerala
- **Nuclear power stations in India**-located in Kalpakkam in Tamilnadu, Tarapur in Maharashtra, Ranapratap Sagar near Kota in Rajasthan, Narora in Uttar Pradesh and Kaiga in Karnataka.

Geo-Thermal Energy

Heat energy from the earth can exist in the form of hot springs; this energy can be used to generate power as well as for cooking, heating, and bathing. The temperature of the earth's interior rises continuously with depth.

- **World’s largest geothermal power plants**– in the US, followed by New Zealand, Iceland, Philippines and Central America
- **Geothermal plants in India**-located in Manikaran in Himachal Pradesh and Puga Valley in Ladakh

Tidal Energy

Building dams near sea entrances allows one to capture the energy of the tides, which is then utilised to turn a turbine inside the dam to generate electricity during high tide.

- **Huge tidal mill farms-**Russia, France and the Gulf of Kachchh in India

Biogas

Organic waste can be transformed into biogas, a gaseous fuel, including dead plant and animal matter, animal dung, and kitchen trash. Biogas digesters use bacteria to break down organic waste, producing a mixture of carbon dioxide and methane that is good for cooking and lighting. This process generates large amounts of organic manure annually, which can be expensive to extract.

Benefits of CBSE Class 8 Geography Notes Chapter 3

The benefits of studying Chapter 3, "Mineral and Power Resources," in CBSE Class 8 Geography are:

Understanding Natural Resources: Students gain insights into the types of minerals and power resources available on Earth, helping them understand the importance of these resources in daily life.

Awareness of Resource Conservation: The chapter emphasizes the need for sustainable use of non-renewable resources, promoting environmental responsibility among students.

Knowledge of Energy Sources: It introduces both conventional and non-conventional energy sources, encouraging students to think about alternative, eco-friendly energy solutions.

Preparation for Future Studies: The chapter builds a foundational understanding of geography and resource management, which is crucial for advanced studies in environmental science, geography, and related fields.

Critical Thinking: By exploring the environmental impact of resource extraction and energy use, students develop critical thinking skills about global sustainability challenges.