

Geography Notes Part 8

Maps and Globe

In the 6th century B.C The Greek philosopher mathematician Pythagoras had said that the earth is round which was not accepted by many at that time. The Indian astronomer Aryabhata-I (476 – 550 A.D) had written in his treatise Aryabhatia that the earth was like a sphere and spinning on its axis. The fact that the earth is spherical was confirmed when the earth was viewed from outer space. According to the astronauts the earth appears as a blue sphere with green and brown patches.

On July 19, 2013 NASA 'Distant spacecraft "Cassini" had sent pictures of the earth and the moon as seen from the Saturn, which is nearly 800 billion km away. In the Cassini images Earth and the moon appear as mere dots. The earth a pale blue and the moon a stark white, are visible between Saturn's rings.

The earth is spherical but not exactly a sphere. It is slightly bulged at the equator and flattened at the poles. The shape of the earth is called an "**Oblate Spheroid**".

Maps

A map is a visual representation of an entire area or a part of it that is drawn on paper or cloth.

There are different types of maps static or dynamic, interactive, 2 dimensional or 3 dimensional. They may represent various things like physical feature of a place, political boundaries, climate, natural resources, roadways and railway lines etc.

Map in which you may not be able to infer the actual distance is called is called as a "sketch map."

An architect or a civil engineer will represent the building by means of a diagram on a paper before construction. This is called a "blue print" and is commonly called as the "**plan**" of the building.

For map making certain conventions are followed.

Direction

In a map **direction** is always indicated at the top right hand corner as shown in the figure given below.

Scale

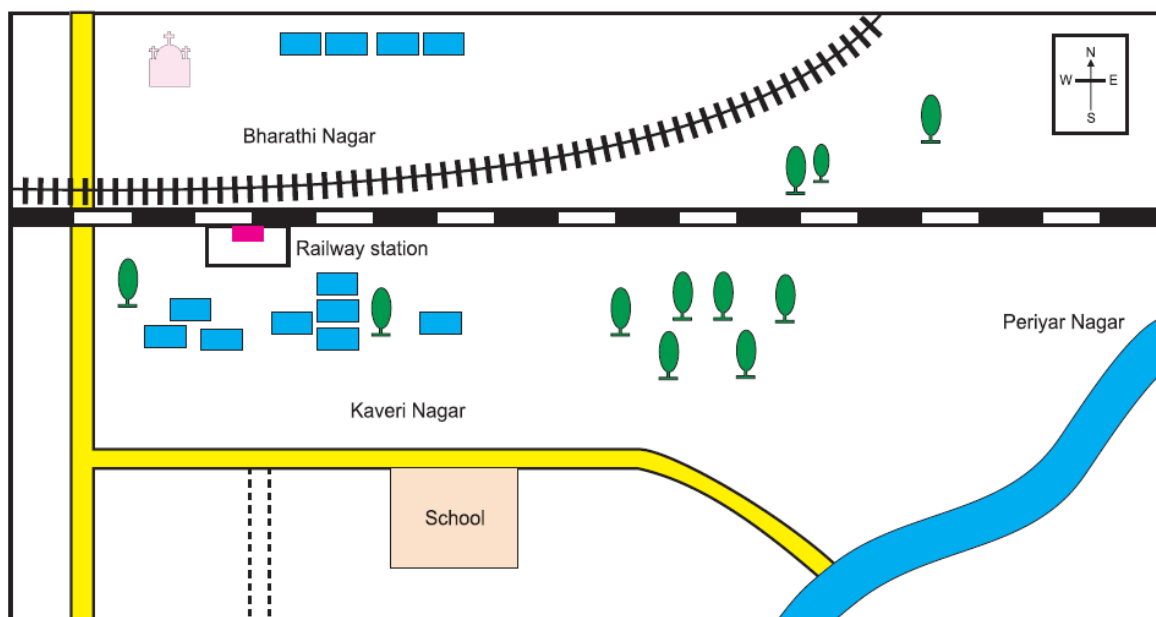
Scale is indicated at the bottom of the map.

A scale is a relationship between a certain distance on a map and the actual distance on the ground. It is expressed as a ratio.

There are three ways of representing the scale.

1. Statement form
2. Representative fraction
3. linear form or graphic scale

Sketch Map



For example:

(i) It may also be shown as $1\text{cm} = 1\text{km}$ or $1\text{cm} = 10\text{ km}$.

(ii) If the scale on a map is shown as $1 : 1,00,000$. It means 1 cm on the map is equal to 1,00,000 cm or 1 km on the ground. It means that if the distance between any two points on the map is equal to 1 cm, then the actual distance between the two places is equal to 1 km.

Conventional Signs and symbols

We draw them with the help of certain symbols. The symbols are used within the map itself. The symbols are used within the map itself. The explanation for these symbols are given on the **right or left corner of the map**. It would be easy if the same symbols are used everywhere, hence standard, uniform **Conventional symbols** are used throughout the world.

Conventional Signs and symbols

International boundaries	
State boundaries	
District boundaries	
Railway lines	
Railway station	
River	
Well	
Temple	
Mosque	
Church	

Classification of maps

All the objects and the information about the earth cannot be shown on the same map. Hence maps can be classified into three types.

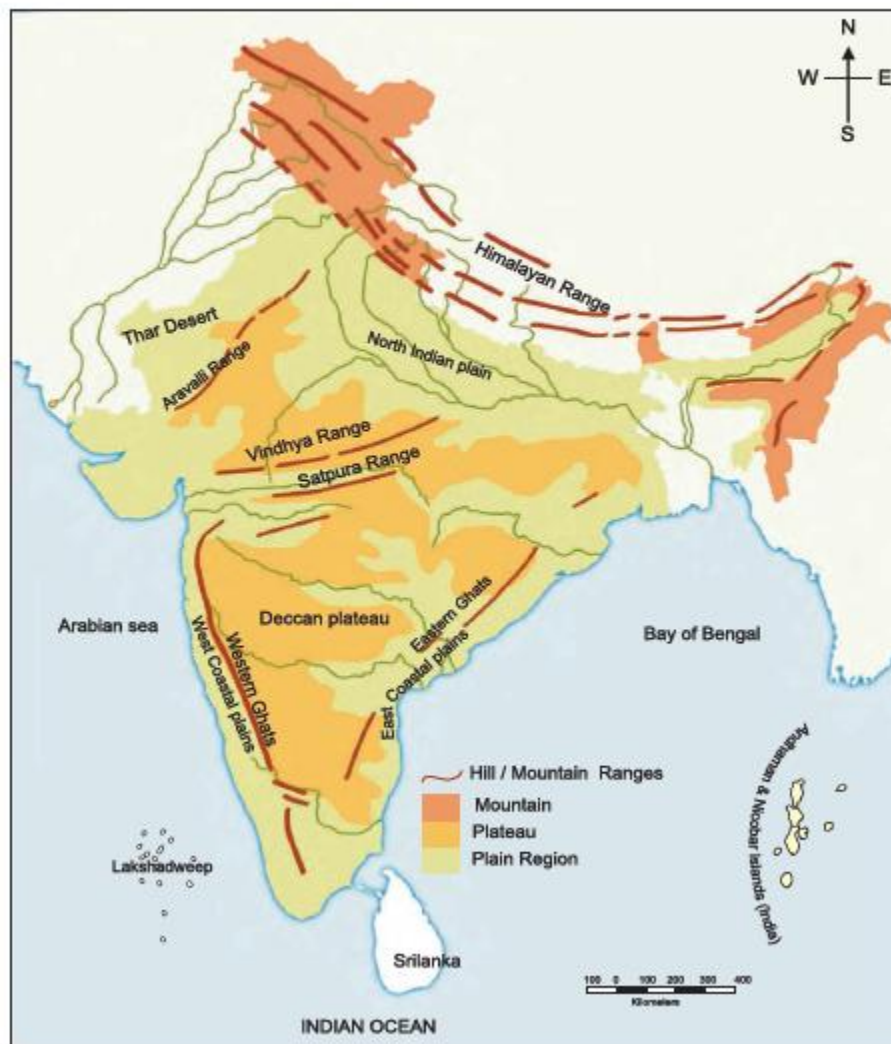
1. Physical features like mountains, plateaus, rivers and oceans are drawn on a **Physical map**. Eg. Refer the Physical map of India which is given.
2. Countries, states, districts, cities, villages and other boundaries are drawn on a **Political map**. eg. Refer the Political map of India and District map of Tamil Nadu which are given.
3. Maps that show temperature, forest, and minerals resources are drawn based on a theme, hence they are called **Thematic map**. eg. the Transport map of India and the Industrial map of Tamil Nadu which are given.

Uses of maps

1. It is used to **locate places**.
2. It is used to **locate resources** that are found on the earth.
3. It helps the **military** to move its **troops**.
4. It helps in **planning**.
5. It helps us to know the **movement** of the **satellite** and **planets** in the sky.
6. It is used for teaching and learning in a class room.



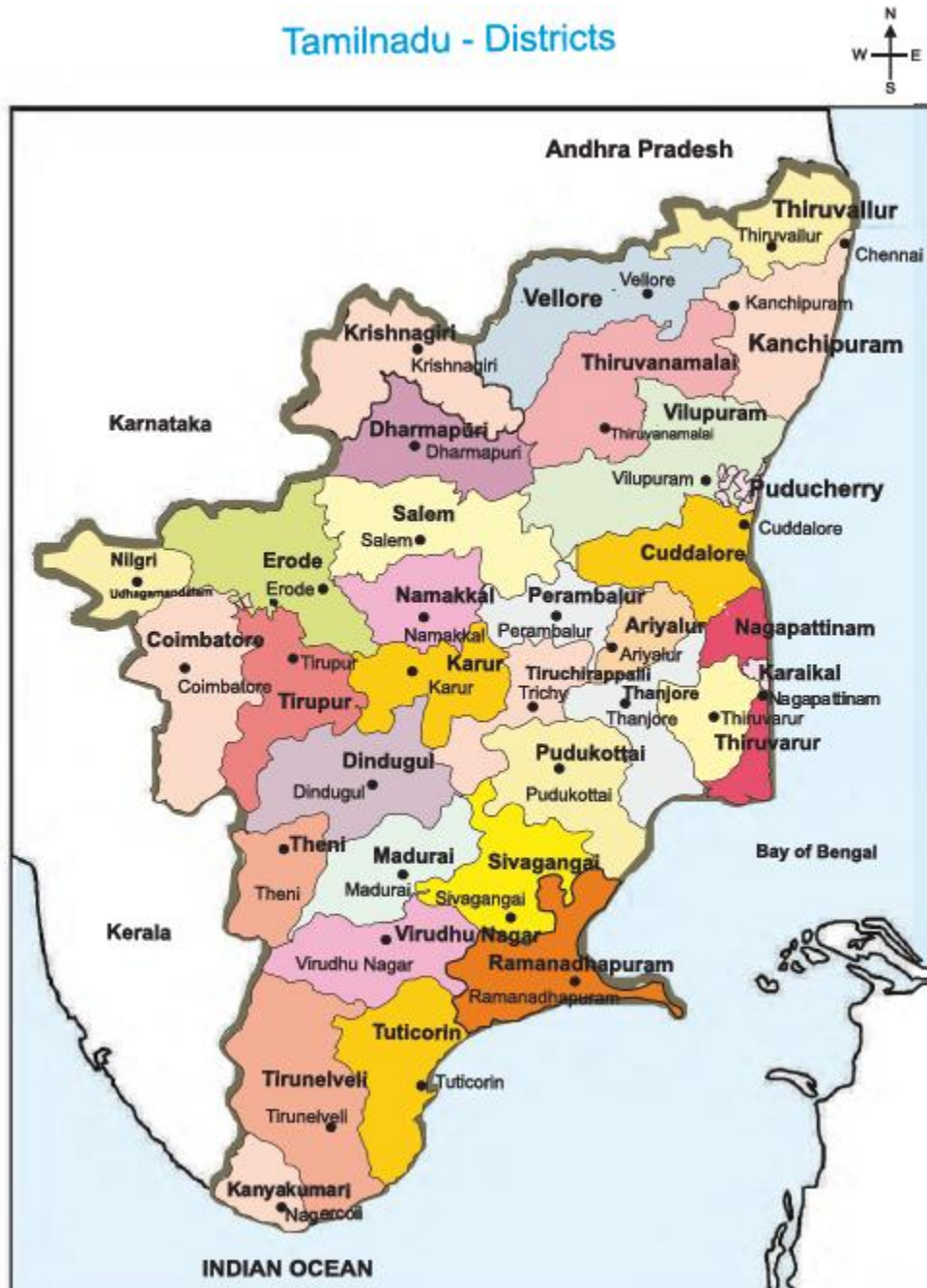
INDIA - PHYSICAL



INDIA - TRANSPORT



Tamilnadu - Districts





Globe

A **globe** is a three dimensional model of the earth. On its surface continents, oceans, islands and other landforms are marked. The latitudes and the longitudes are also marked. The globe spins on an axis and its axis is a metal stick which passes through its centre. The axis is kept inclined just like the earth's axis at an angle $23\frac{1}{2}$ degrees.

It is the most accurate map of our world. All the countries are shown in true size relative to each other. You can see how far apart different cities are, and where they are located.

The Lines on the Earth

To help us locate a place correctly imaginary lines are drawn on the surface of the earth. These imaginary lines are called **latitudes and longitudes**. Ptolemy the Greco-Roman mathematician, astronomer and a geographer was the first man to draw latitudes and longitudes on a map.

Latitudes

Latitudes are imaginary lines that run horizontally from east to west on a globe or a map. Latitudes are marked by degrees numbered from 0° to 90° north and South.

The imaginary line that runs through the centre of the earth is called the **Equator** which is at **0° degree latitude**. It divides our planet into the northern and southern hemispheres. The earth's surface to the north of the equator is called the **Northern Hemisphere** and the surface to the south of the equator is called the **Southern Hemisphere**. **90° north is the North Pole and 90° south is the South Pole.** And we write it as 90° N and 90° S.

Longitudes

Longitudes are imaginary lines that run vertically from the North Pole to the South Pole.

The lines of longitude are also known as **meridians**. They converge at the poles and are widest at the equator (about 69 miles or 111 km apart). A space observatory is located at Greenwich in London. The longitude that passes through Greenwich is called the **Greenwich meridian (or prime meridian)** and it is considered as **0° longitude**. The degrees continue 180° east and 180° west where they meet and form the International Date Line in the Pacific Ocean.

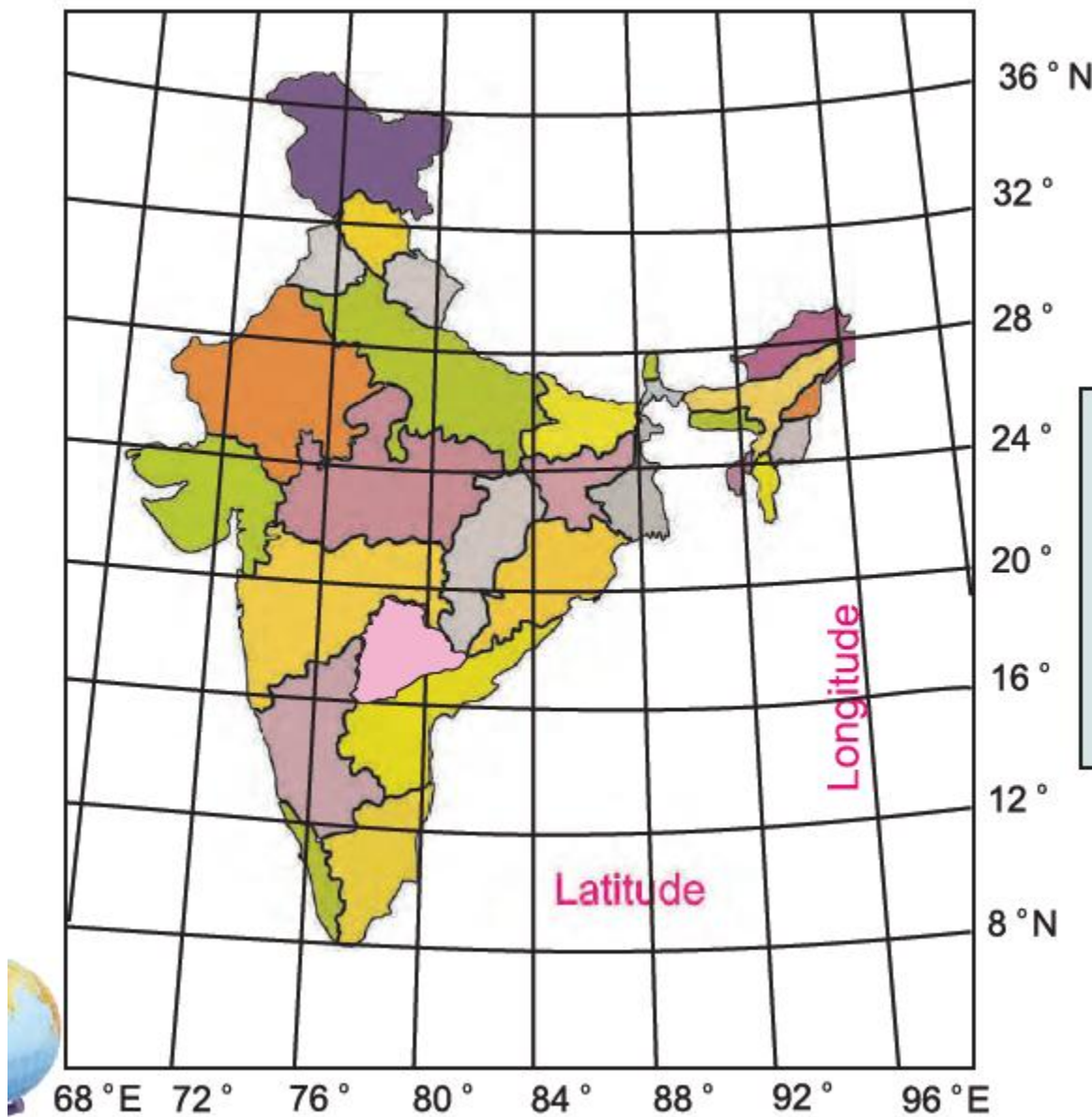
1° latitude/ longitude is equal to 111 km.

To specify latitude we need to say how many degrees it is away from the equator and in which direction north or south. For example 10° N latitude is the 10^{th} line north of the equator and 10° S is the 10^{th} line to the south of the equator.

Similarly 10° E and 10° W represent the longitudes to the east and west of the Greenwich meridian respectively.

A particular place is located with the help of the latitude and longitude. The location of Chennai is given as $13^{\circ} 04'$ N, $80^{\circ} 17'$ E. It means it is at the intersection of the latitude 13 degrees 4 min to the north of the equator and the longitude 80 degrees 17 minutes to the east of the prime meridian.

Location of India



India is located between $8^{\circ} 4' \text{ N}$ to $37^{\circ} 6' \text{ N}$ latitude and $68^{\circ} 7' \text{ E}$ to $97^{\circ} 25' \text{ E}$ longitude.

Geography Notes Part 9

Resources

1. Resources and their types

Our planet Earth is made up of three major spheres. They are the Lithosphere or land, the Hydrosphere or water and the Atmosphere or the air that envelops the Earth. These three spheres together support the Biosphere or life sphere. These spheres provide humans with all their material requirements. Any material that is found in these spheres that is useful to man is called a **resource**. Resources play an important role in the economic development of a country.

Figure 1 helps us to understand the important natural resources of the Earth.



Natural Resources

Resources can be classified into different types based on different criteria.

On the basis of **development**, resources are classified into Potential resources and Developed resources, **Potential resources** are those resources which have not yet been utilized by humans. For example, resources of Siberia and Antarctica. **Developed resources** are the resources which are used by humans. For example coal, iron ore etc.

On the basis of **renewability**, resources are classified into non-renewable or **stock** resources and renewable or **flow** resources. Today, we are concerned about resource depletion

since the economic development of a nation depends on its resources. We will now examine in detail this category of resource in view of the depleting resources worldwide.

Non-renewable resources

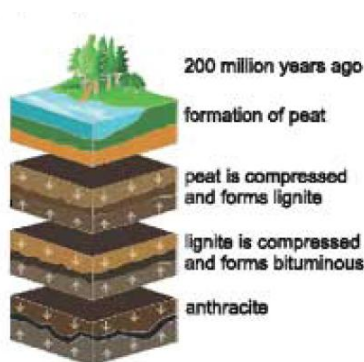
Non-renewable resources are exhaustible resources because nature has a fixed stock of these resources. They are consumed faster than that nature can replace them. For example, minerals are mined or extracted from the Earth's crust and once extracted they cannot be replaced. The minerals which are now being used extensively can be grouped into:

- a) Metallic minerals or minerals that contain metals in their ore form.
- b) Non-metallic minerals or minerals that do not contain metals in their ore form.
- c) Power minerals or minerals from which energy can be produced.

Of these minerals, **power minerals** will be dealt with in detail as they play a very important role in the economic development of a country. It is required to run industries, homes and offices. The important power resources which are exhaustible in nature are coal, oil and natural gas and Nuclear minerals.

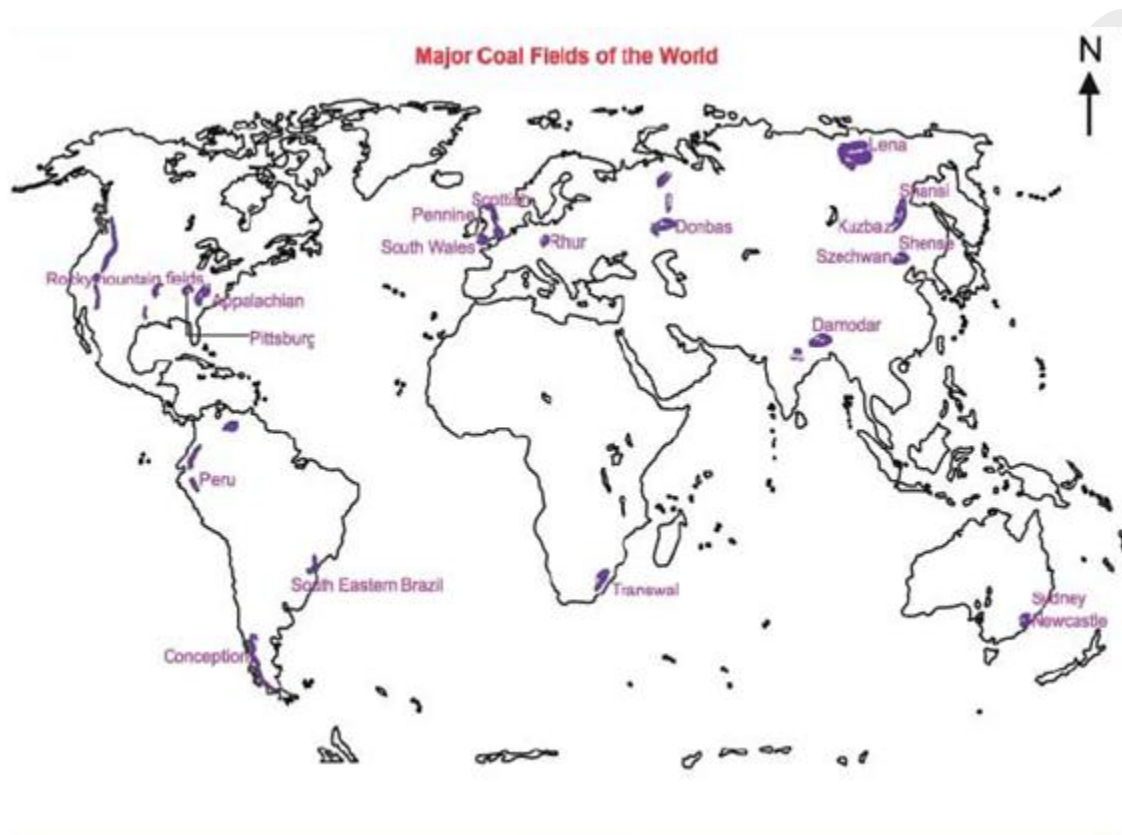
Coal

Coal is called a 'fossil fuel' because it was formed many million years ago. Large forest were buried in sedimentary basins by geological processes. Over time the buried plant matter got converted into coal, due to pressure and heat.



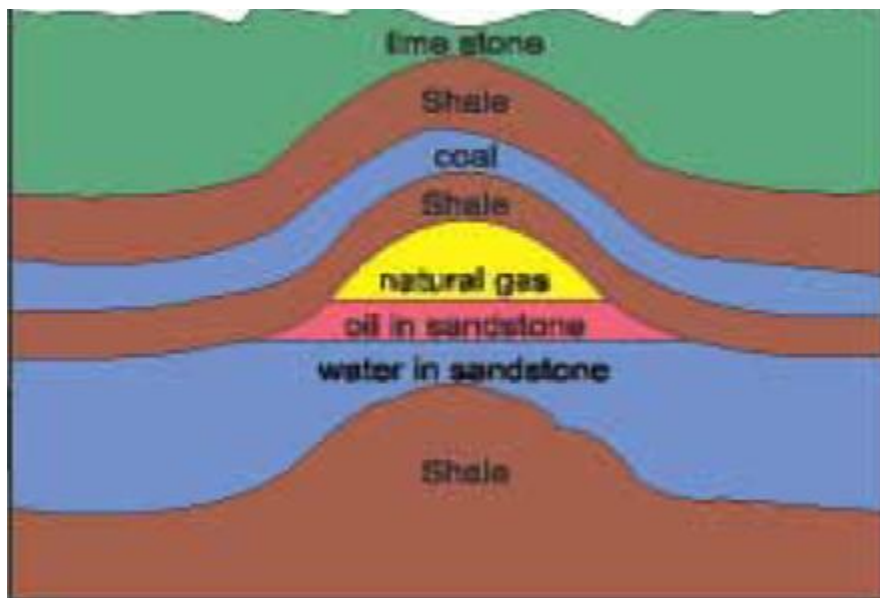
Formation of coal

The important coal fields of the world are found in USA, Russia, Germany and the UK. In Asia, important coal fields are in China and India. In Tamil Nadu, coal is mined at Neyveli which has large reserves of lignite or brown coal.



Oil and Natural Gas

Oil is usually found in some strata of marine sedimentary rocks like mudstone, shale, sandstone etc (figure 3) The remains of plants and calcareous animals (shelled animals) which were buried in the Earth, were subjected to heat and pressure. They changed into oil and this is found trapped in the pore spaces of the rocks. Natural gas, which is a lighter hydro-carbon, is found in the strata above the oil.



Formation of oil and Natural gas

Oil deposits may be found on-shore or in the land area as in South West Asia.

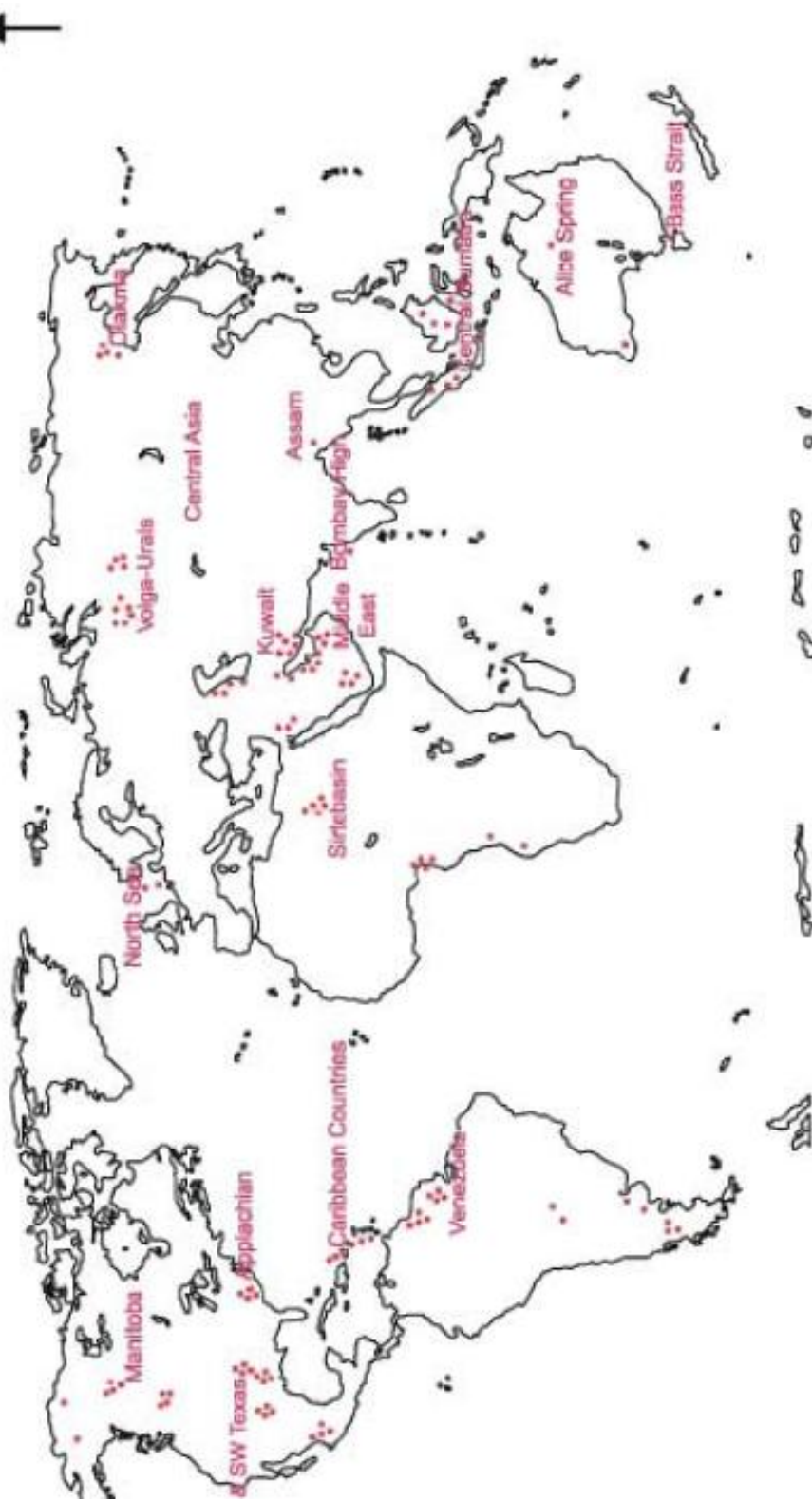


Mumbai High oil Fields

It may also be found offshore in the continental shelves of the sea as in the North Sea.

In India, major oil fields are found on shore in Assam. India's largest offshore oil field is in Mumbai High. Production of oil has also started developing in the Cauvery Basin.

Major Oil producing regions of the World



Nuclear Minerals

Minerals like uranium and thorium are used to generate nuclear power. Rich deposits of Uranium are found in Namibia, Kazakhstan and Canada. In India, some of the coastal sands of Tamil Nadu and Kerala are rich in Ilmenite. The USA is the world's largest producer of nuclear power, (30% of worldwide nuclear generation of electricity). France is the largest user of nuclear power. (over 75% of its electricity is from nuclear energy).

Nuclear power plants in India

Madras Atomic Power Station, Rajasthan APS, Kaiga APS, Tarapore APS, Kakrapar APS, Narora APS and Kudankulam APS.

Renewable Resources

Renewable resources are those which are infinite or are constantly renewed by nature. They continue to be available even after a part of it is consumed. For example, wind energy. The renewable sources of power are very important today.

Hydroelectric power

Hydro-electric power is the most developed source of renewable power. It is generated from falling water. Hydroelectric power is used extensively in many parts of the world where there are large rivers. The three Gorges Dam across the river Yangtze in China is the largest hydro electric power project in the world. In India, the Bhakra Nangal Dam is the largest source of Hydro-electric power.



Three Gorges Dam across the Yangtze



Solar Power

Solar energy, is used to light homes, buildings and heat water. Photovoltaic cells are required to store the sun's energy. Germany is the world's largest producer of solar power.

Tropical regions have enormous potential to develop solar power. But it has not developed much because of the high cost of production. This is very expensive especially for the developing countries in the tropical regions.

Wind Energy

Wind energy is generated by using the wind to run turbines in areas where there is a constant flow of wind. Europe is a major user of wind energy. Twenty percent of Denmark's electricity comes from wind power. In India, Maharashtra and Tamil Nadu have developed wind energy.

Aralvaimozhi, a wind farm located in Kanyakumari district in Tamil Nadu is the world's largest wind farm.



Windmills at Aralvaimozhi

Biomass

The main sources of biomass are trees, crops and agricultural and animal wastes. Among these, wood fuel is the most important in the developing countries. Gobar gas or methane is generated from cow manure. Biofuels are now being produced from crops like sugarcane and Jatropha.



Jatropha plant from which biodiesels is obtained

Conservation of Resources

Since human life and progress is dependent on the Earth's natural resources, man must learn to use these resources wisely. He must learn to manage the non-renewable resources with care, since they cannot be replaced. He must utilize the renewable resources for which extensive research and development are essential.

Man depends on resources for his living. The type of resources available in a place determines his occupation. We will see this in the following lesson.

2. Resources and Economic Activities

Man depends on resources for his living and the natural resources are unevenly distributed over the surface of the Earth. Hence, human activities differ from place to place, depending on the available resources.

The availability of resources in different parts of the Earth has determined the different occupations include food gathering, hunting, fishing, mining, growing crops, processing, manufacturing, assembling and trading goods. Through all these actions, man attains economic gains. Therefore, these actions of humans are otherwise called economic activities.

According to the stage of evolution of these activities, they can be grouped into 5 main types such as Primary activities, Secondary activities, Tertiary activities, Quaternary activities and Quinary activities.

Primary activities

In the first stage, humans were involved directly with the resources of nature. These are age old activities-food gathering, hunting animals, grazing, extracting minerals(mining), fishing, lumbering and cultivation of the land. These activities are called primary activities and workers involved in primary activities are called red-collar workers.

Secondary activities

Humans are able to increase the value of resources by processing and converting the raw materials into a valuable product. Examples of such activities are the production of sugar from sugarcane, and iron and steel from its raw materials, etc. these activities are called secondary activities. Raw materials are processed with other inputs like technology, capital, transport, labour (both skilled and unskilled) power, market and government licence. Workers involved in secondary activities are called blue-collar workers.

Tertiary activities

Trade, Transport and Communication, which are related to services that promote secondary activities, are called the Tertiary activities. Tertiary activities involve the expertise provided by the specialized skill of technicians, workers, bankers etc. the workers involved with tertiary activities are called Pink-collar workers.

Quaternary Activities

Services rendered by professionals in education, legal aid, medicine, entertainment, recreation, management, research and development, which have specialized environments fall under the category of Quaternary activities. People working in these sectors are called White-collar workers. Generally, this activity is concentrated in urban centres.

Quinary activities

Decision makers and policy makers at the highest level fall into this category. The decision making activity of advisors or consultants, like legal authorities and professional consultants, in private and Government sectors in all fields are included in this type of occupation. They are called as Gold-collar workers. Quinary activities are seen more in metropolitan centres.

In the developing countries the primary and secondary activities predominate whereas in developed countries the people are involved more in tertiary, quaternary and quinary activities.