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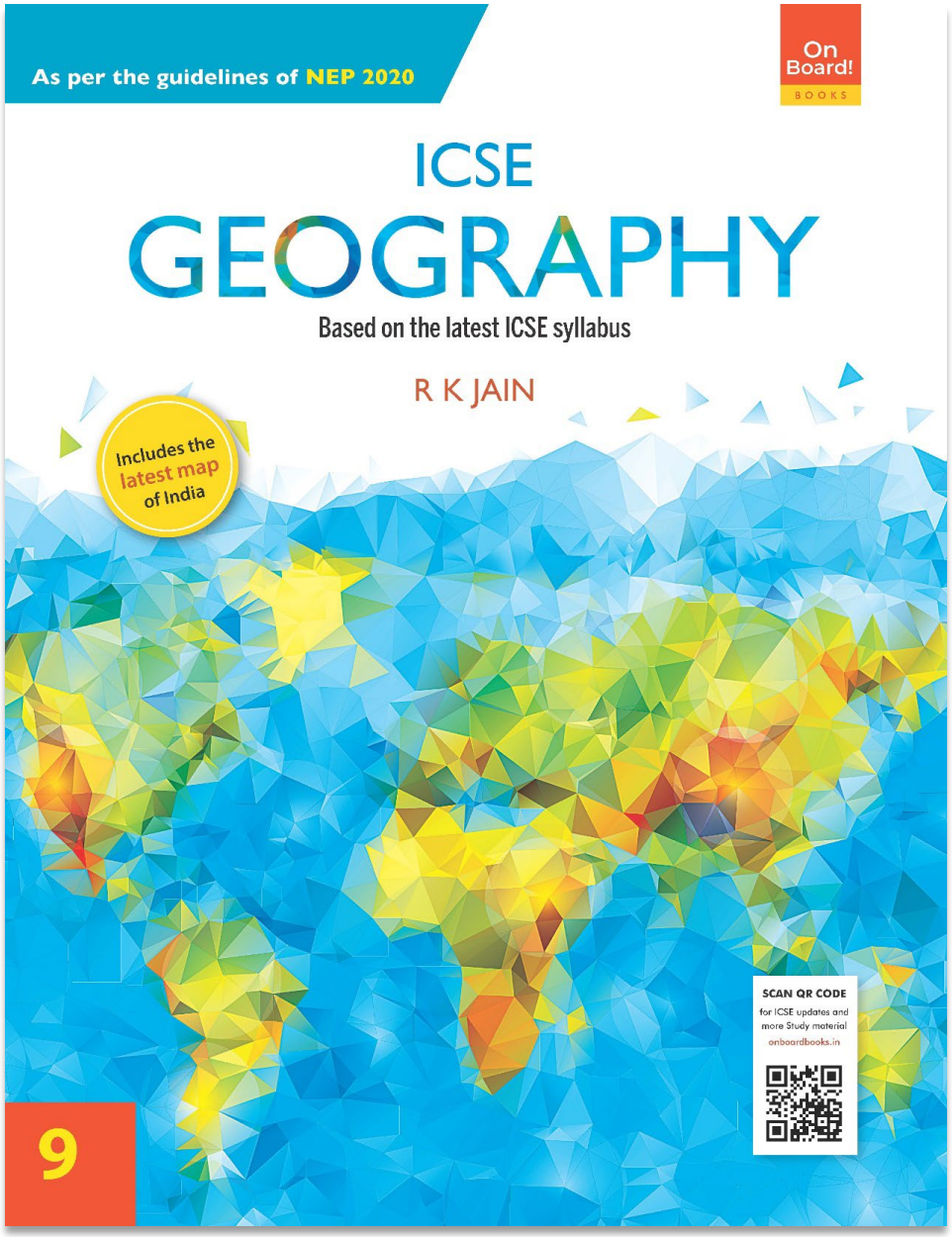
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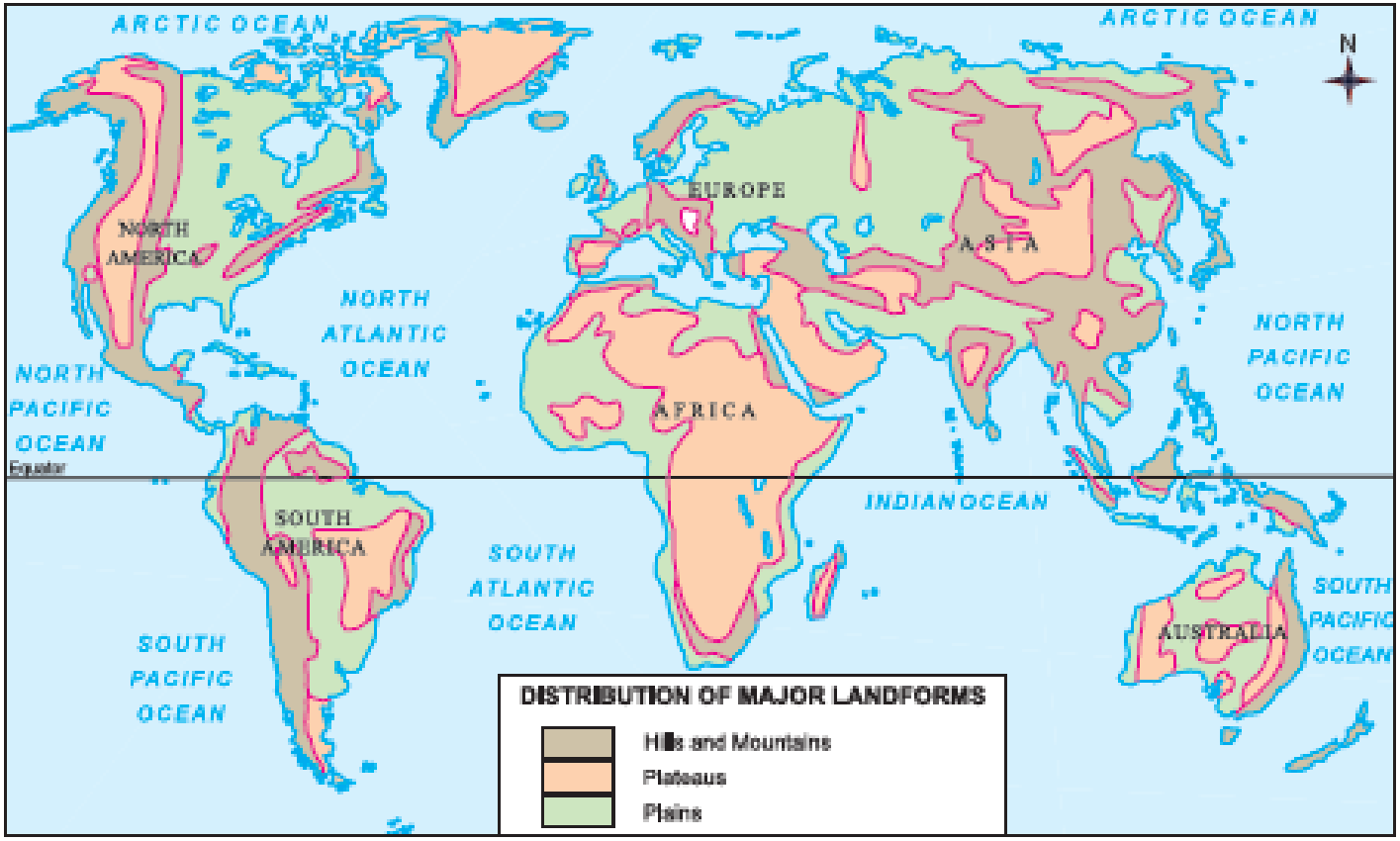
CONTENTS

ICSE GEOGRAPHY

Class 9

Chapter 5: Landforms of The Earth

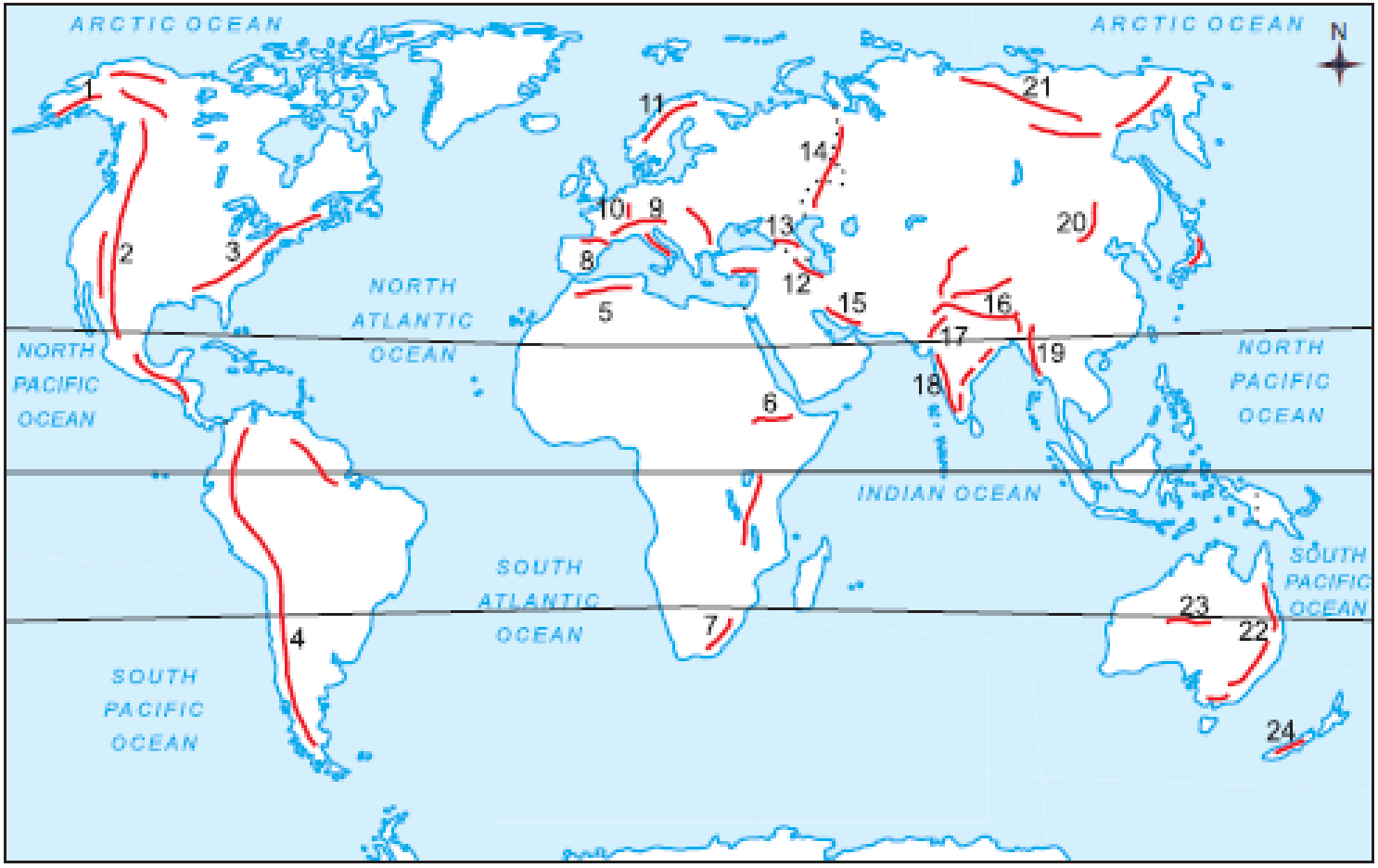
The landforms on the Earth's surface have been created and developed by two types of forces – the **tectonic** forces and the **gradational** forces.
The tectonic forces originate from within the Earth and create irregularities on the surface of the Earth.
The gradational forces originate from outside the Earth and work to modify and smoothen the irregularities created by the tectonic forces.
The work of these two forces develops the landforms on the Earth's surface. The major landforms, on the basis of relief, slope, etc. are classified into **mountains**, **plateaus** and **plains**.



World – Distribution of major landforms

MOUNTAINS

- Landmasses which rise more than 900 m above the mean sea level are called the **mountains**.



World – Major mountain ranges

1. Alaska Range	7. Drakensberg	13. Caucasus Mountains	19. Arakan Yoma
2. Rocky Mountains	8. Pyrenees	14. Ural Mountains	20. Khingan Shan
3. Appalachian	9. Alps Mountains	15. Zagros Mountains	21. Verkhoyansk Range
4. Andes Mountains	10. Black Forest	16. The Himalayas	22. Great Dividing Range
5. Atlas Mountains	11. Scandinavian Highlands	17. Aravalli Range	23. Musgrave Range
6. Ethiopian Highlands	12. Elbruz Mountains	18. Western Ghats	24. Southern Alps

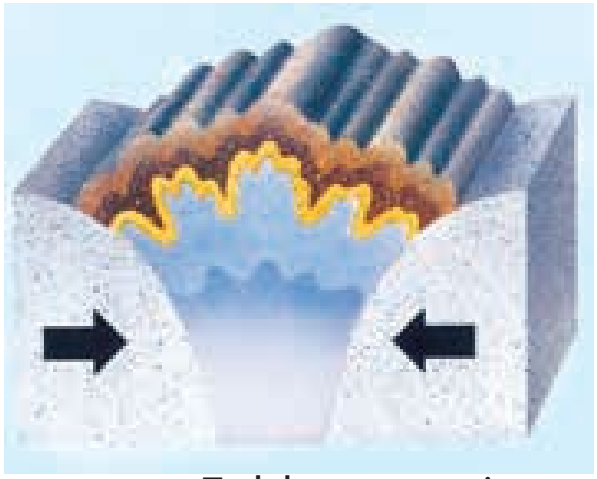
- About half of the surface of the mountains should have steep slopes.
- Some mountains occur as single isolated landmasses like the **Kilimanjaro** in Africa.
- Some mountains form extensive chains or ranges like the **Andes** in South America.
- Some mountains are young and are still rising like the **Himalayas** in Asia.
- The mountains are created when large parts of the Earth's crust are folded, faulted and deformed.
- The processes involved in the creation of mountains are called **orogenesis**, which means the birth of mountains. **Orogeny** is defined as the period of mountain building.

TYPES OF MOUNTAINS

The main types of mountains about which we will study are **fold**, **residual** and **block** mountains.

Fold Mountains

Most of the prominent mountain ranges in the world such as the Himalayas, the Rockies and the Andes are fold mountains. The fold mountains are formed by the **horizontal compressional forces** that crumple the crust of the Earth into arches and troughs.

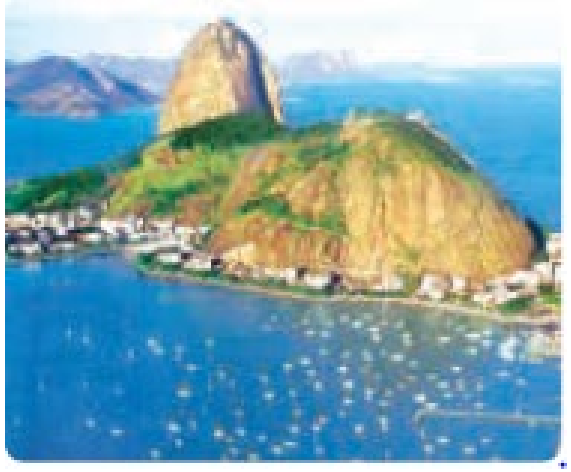


Fold mountain

The fold mountains that have formed recently are known as the **young fold mountains** such as the Himalayas, the Rockies and the Andes. The **Aravallis in India** is the oldest fold mountain on the Earth's surface.

Residual Mountains

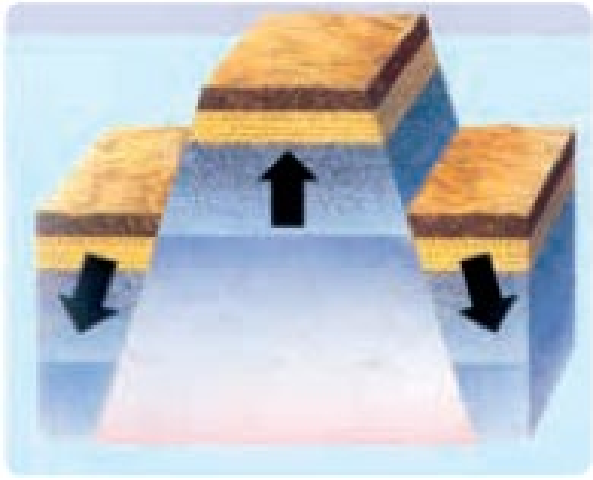
The residual mountains are created due to the erosional work of rivers, glaciers, wind and other agencies. They have been reduced to their present shape and form from a previously existing fold mountain or plateau. The main examples are the Nilgiris and the Rajmahal Hills in India and the Catskill Mountains in the USA.



The layers of the Earth

Block Mountains

The block mountains are formed by the **horizontal tensional forces**, which cause faults in the Earth's crust. The faults break the crust into blocks. When these blocks are raised, the block mountains are formed.
Block mountains are found throughout the world, but most of them have been modified by the work of the rivers. Some examples are the Black Forest in Germany, the Vosges in France, the Sierra Nevada in California (USA) and the Salt Range in Pakistan.



Block mountain

SIGNIFICANCE OF MOUNTAINS

The mountains are very useful to man in the following ways:

- They act as an effective barrier against the cold and the hot winds.
- They influence the condensation of moisture by forcing the winds to rise and reach their dew point.
- Rivers originating from the mountains provide water even during the dry periods.

- The mountain slopes provide rich pastures and valuable forests. The forests provide wood for fuel, building material and paper.
- The rugged slopes provide sites for the development of hydroelectric and multi-purpose projects.
- The mountains serve as tourist and health resorts due to cool climate in summers.
- Some mountains have rich reserves of minerals.
- Mountain passes can be used for developing roadways and railways.
- Mountain rocks can be used as building material.

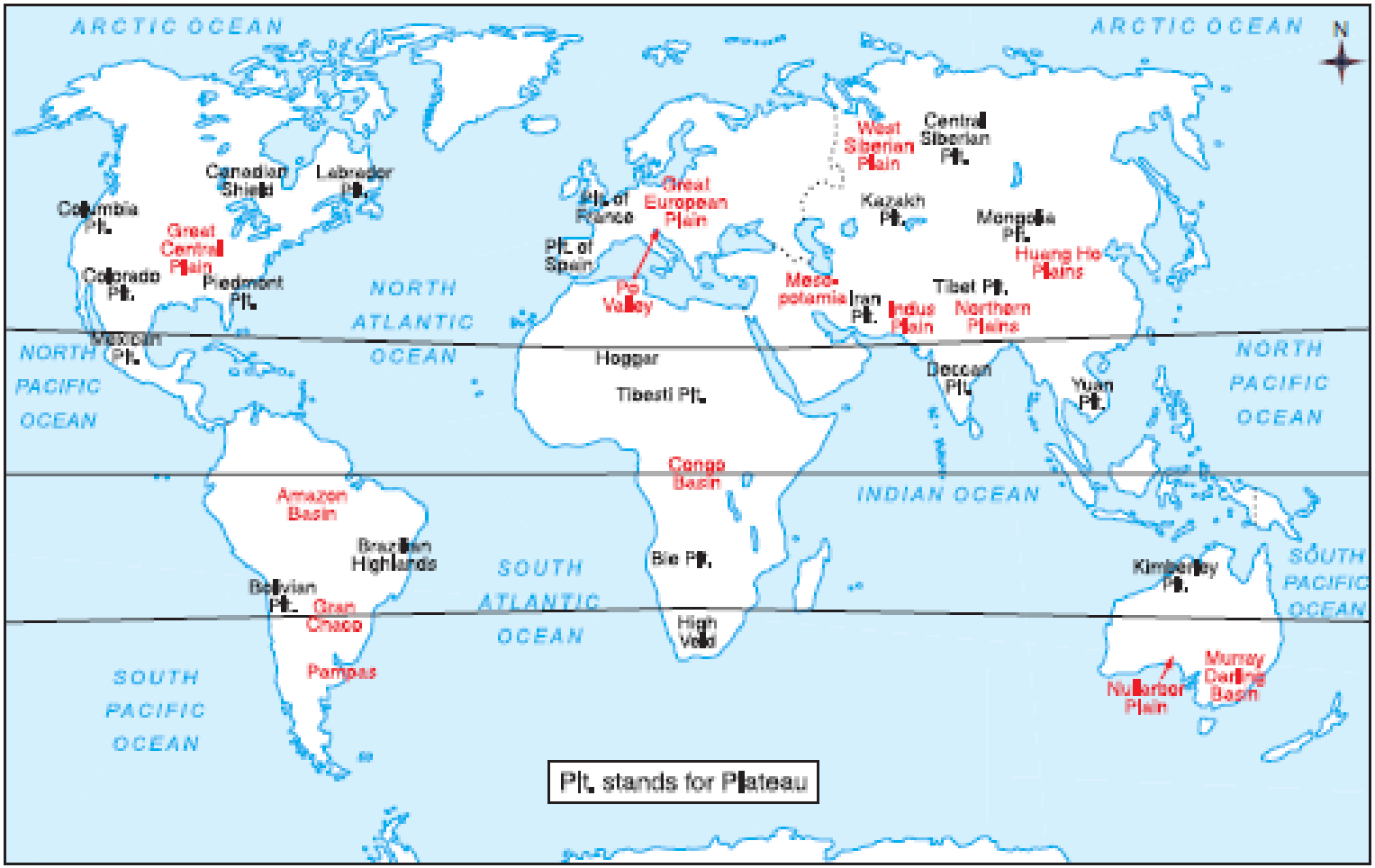
The Himalayan mountain ranges (fold mountains)

PLATEAUS

❖ Plateaus occupy a large portion of the Earth's surface. They are the oldest landforms. South India and Africa are vast plateau regions.

❖ A plateau is a highland with a steep slope and a large summit area. It rises abruptly from the surrounding region. The surface of the plateau can be plain, rolling or hilly.

❖ Rivers and streams cut deep valleys and canyons in the plateau region. This action can change the smooth topography of a plateau into a rugged one. Such a plateau is called a **dissected plateau**.



World – Major plateaus and plains

TYPES OF PLATEAUS

The main types of plateaus about which we will study are the **Intermontane** and the **Volcanic** plateaus.

Intermontane Plateaus

The intermontane plateaus are the highest, largest and the most complex in the world. They are partly or completely enclosed by the mountains. Most of them have been formed along with the mountain ranges which enclose them. The Tibetan Plateau in Asia, called the **Roof of the World** is the largest and the highest intermontane plateau in the world.

Volcanic Plateaus

The volcanic plateaus are formed by the work of the fissure flows. It is difficult to locate the fissure from which the lava flow has actually occurred. The total thickness and the area covered by the lava is extensive.

SIGNIFICANCE OF PLATEAUS

The response of man to the plateau region is varied due to variations in relief, climate and soils.

- Most of the plateaus are in the semi-arid or arid regions as they are situated near the tropics or on the leeward side of the mountains.
- Due to higher elevation, the temperature is low and the growing season is short, thus farming is not an important economic activity.
- The streams coming from the surrounding mountains dissect the flat and rolling surface of the plateaus into deep canyons.

- The grasslands in the plateau region are extensively used for livestock rearing. Crop farming is possible, if water is available for irrigation.
- The plateau regions are rich in mineral resources and thus, mining is the chief occupation.

PLAINS

- Plains are the lowlands, where the slope of the land is gradual, but never abrupt.
- The plain areas can be flat, moderately rolling or even hilly. The plains are seldom alike and their height above the sea level varies.
- Plains are formed both by the internal forces of the Earth and the external forces of aggradation and degradation.
- They range in size from being very small to very large and are found in all latitudes. Some of them are found near the sea coast, while others are found

Northern plain of India (depositional plain)

TYPES OF PLAINS

The main types of plains about which we will study are the **structural** plains and the **depositional** plains.

Structural Plains

Most of the structural plains have been formed due to the upliftment of the submerged landmasses. The coastal plains are also formed by the uplift of a part of the sea floor bordering a continent.

Depositional Plains When the sediments brought down by the natural agents of transportation such as water, ice and wind get deposited in the depressions, the depositional plains are formed. These plains can be further divided into **alluvial plains**, **drift plains** and **loess plains**.

The Gangetic Plains in India, the Huang Ho Plain in China and the Po Valley in Italy are examples of **alluvial plains**.

The Canadian Plains and the Plains of north-western Eurasia have been formed by the deposits brought down by the glaciers. These plains are called **drift plains**.

The **loess plains** are formed by the depositional work of the wind. A typical example is the plains of north-western China.

When the sediments are deposited in a lake basin, the **lacustrine plains** are formed. The valley of Kashmir in India is a typical example.

SIGNIFICANCE OF PLAINS

The plain regions of the world are suitable for agriculture, settlement, transportation, etc. Thus these regions, particularly in the tropical and the temperate regions, are thickly populated.

The alluvial plains of the world account for more than 50 per cent of the world's population.

- Depositional plains are more useful to man as they have fertile soils and their water table is near the surface.
- The terrain is suitable for irrigation and thus has better agricultural prospects.
- The plain areas generally have a longer growing season, which helps to grow more than one crop in a year, particularly in the tropical climate.
- The plains in the river valleys have been the cradle of civilizations from the earliest times.
- Most of the big cities are located in the plains.
- It is easier to construct roads, railways, canals and airports in the plain areas.
- The high density of population helps in the development of industries.

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