Class-6 (Science)

Chapter-12

Origin and formation of the earth

Lecture-2 Date-09.05.2020

Lesson: 6-8

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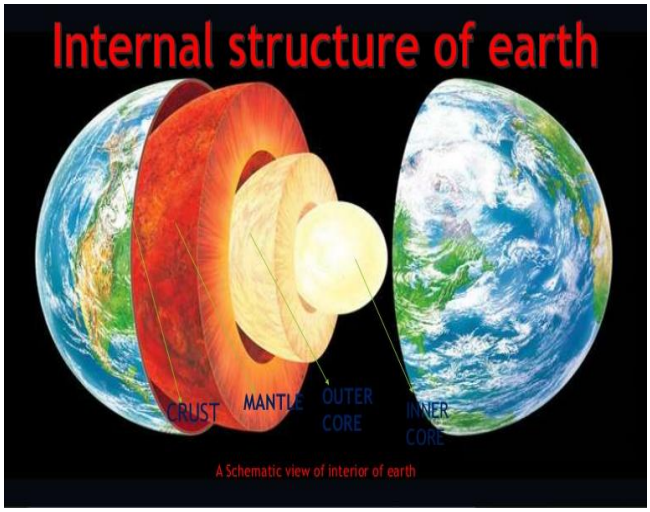
Earth surface

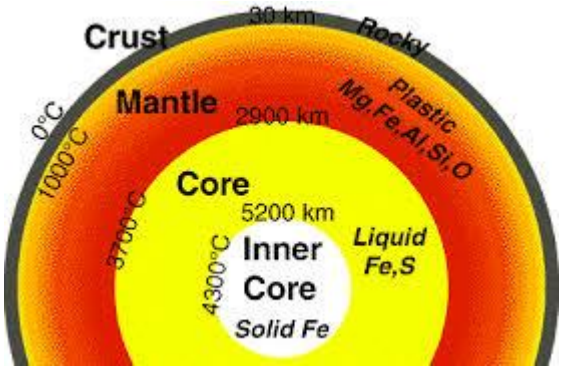
- The three-fourth portion of the earth-surface is covered by water.
- And only one-fourth is covered by dust particles or stone chips or soil.
- There are five oceans in the earth surface. The names of them are—
  - The pacific Ocean
  - The Atlantic Ocean
  - The North Ocean
  - The South Ocean
  - The Indian Ocean

How are the rivers created?

Generally ice melted water and rain water flows down creating rivers. The Himalayan range of mountains is situated to the north of our country. A huge amount of ice accumulates on the top of this mountain-range. When this ice melt, water comes down alongside the mountain and a narrow river is created. The river becomes wider when more rain water is added to this. There is excessive rain fall in Nepal, India, Bhutan and Bangladesh. The rivers created in the Himalayan range are responsible for bringing the rain water. So the rivers such as the Padma, the Jamuna and the Meghna are very large and wide.

The internal formation of the earth





The Geologists have divided the interior structure of the earth into three layers:

1. **Lithosphere:**
    - Below the earth's surface lies the solid layer covering the interior portion of the earth known as lithosphere.
    - The lithosphere may spreads up to 100 kilometers below the earth's surface.
    - The upper portion of lithosphere is known as earth crust.
    - The three-fourth portion of the earth-crust is covered by water and only one-fourth is covered by dust particles or stone chips or soil.
    - The lithosphere is divided into many seperate plates.
    - The mentionable elements of the lithosphere are oxygen, silicon, aluminium, iron, calcium, sodium, potassium, etc.
2. **Mantle:**
    - In the middle of lithosphere and centrosphere there is mantle zone.
    - Major portion of mantle is solid.
    - But some portion of it is semi-liquid or half-melted state.
    - Melted lava springs out by volcanic eruption from mantle.
    - It contains heavy metals like silicon and magnesium.
3. **Centrosphere or core:**
    - The spherical layer of about 3500 kilometers radius from the centre of the earth is the centrospheres or core.
    - The core is composed of some heavy metals like nickel, iron, lead, etc.
    - The centrospheres or core is divided into two parts, a solid inner core composed of solid metals and a liquid outer core composed of melted metals.

Plate Tectonic Theory

Plate tectonics theory dealing with the dynamics of Earth's outer shell, the lithosphere by providing a uniform context for understanding mountain-building processes, volcanoes, and earthquakes and this theory is accepted by all to a great extend.

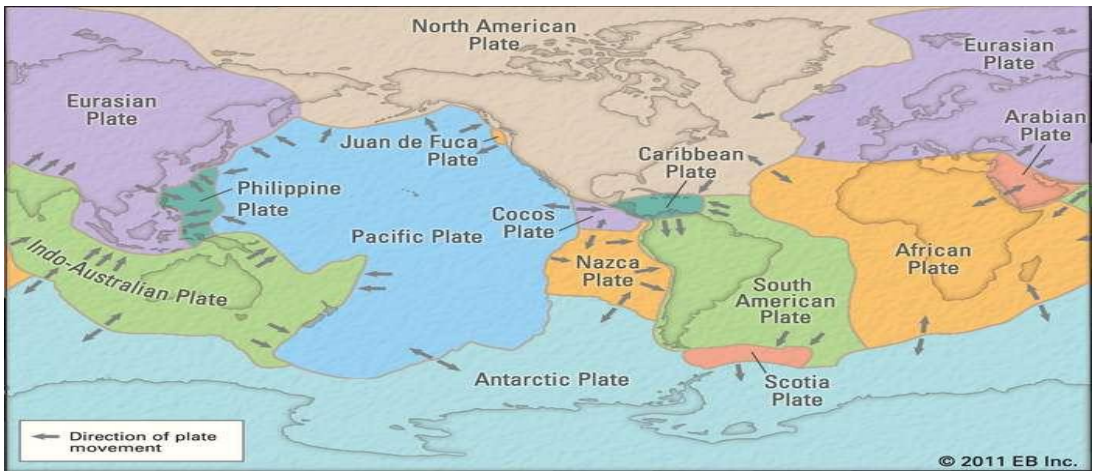
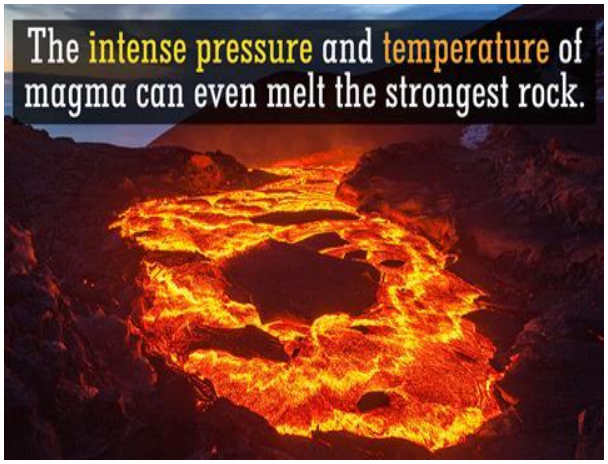


Figure- Earth's tectonic plates

The basic conception of this theory is based on the findings that—

- The lithosphere below the earth is separated into many portions or parts. These are called plates.
- These plates are in floating condition over a region of mantle zone.
- These plates are displaced by few centimeters per year toward any direction and interact along their boundaries.
- Sometimes, these plates move away from one another or diverse causing continents to fracture and oceans to form.
- Plate motions cause mountains to rise where plates come close to one another or converge. And these mountain and high hill areas become more prone to earth-quake and volcanic eruption.
- Even sometime plates move up or down by few millimeters per a year.

Magma:



During volcanic eruption the substances inside the earth get melted due to the excessive heat and this melt substance gashes out from below the earth's surface due to the pressure. This split, melted and hot liquid or semi-liquid substances (rocks) are known as magma.

Questions

1. Where do we find excessive rainfall?
2. How is a river formed?
3. Describe the interior structure of earth.
4. Describe the Plate Tectonic Theory.
5. What is earth-crust?
6. Why does the volcanic eruption occur?
7. What are the reasons behind earth-quake?
8. What is magma?