

EARTH EXPLORATION HALL



SCIENCE CITY
NATIONAL COUNCIL OF SCIENCE MUSEUMS

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INTRODUCTION

Earth, the third planet from the Sun and our home planet is unique in many ways. It is the only planet known to support life. It formed 4.54 billion years ago, and life with vast diversity appeared on its surface within a billion years. Earth is unique, possessing liquid water in large quantities in oceans, rivers and lakes. It is a dynamic planet with continuous changes in its typical features like mountains, valleys, plateaus, plains, hills and volcanoes. It maintains many delicate, interacting and evolving systems like atmosphere, biosphere, oceans and cycles like water, carbon, nitrogen, oxygen etc whose stability is vital for our existence and well-being.



EARTH'S STRUCTURE

The Earth consists of several layers. The innermost is called the core. Above it, lies the mantle, that is 2,900 km thick and it makes up nearly 80 percent of the Earth's total volume. The outermost layer, the crust, forms the Earth's outermost shell. The oceanic crust, found below the oceans, is about 6 to 11 km thick and the continental crust, which forms the continents, is about 30 to 40 km in thickness.

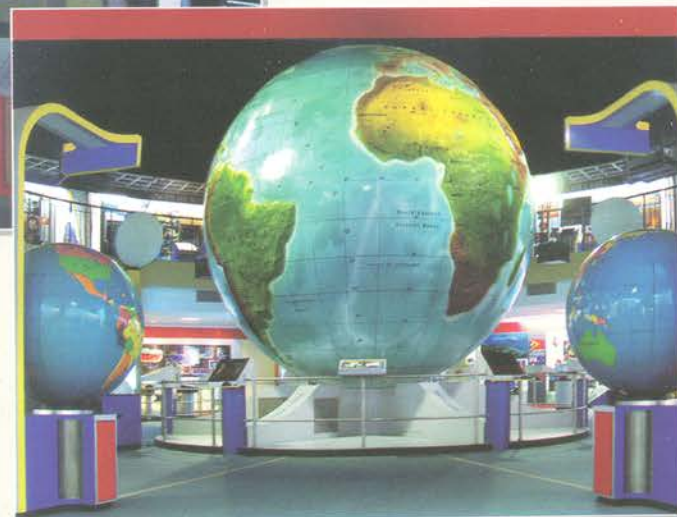


THE ATMOSPHERE

Atmosphere, the thick layer of gases surrounding the planet Earth is retained by the Earth's gravity. It extends to about 700 km above the surface of the Earth. Without atmosphere life on Earth would not be possible. It gives us air, water, heat and protects us from the harmful radiations of the Sun and showers of meteorites. The atmosphere is made up of different gases i.e. 78 % nitrogen, 21 % oxygen, 0.93 % argon, 0.038 % carbon dioxide, trace amount of other gases and water vapour.

PLATE TECTONICS

The Earth's crust consists of a number of moving pieces called plates that are always colliding or pulling apart. There are nine large plates and twelve smaller ones. The continents are embedded in continental plates and the oceanic plates make up much of the sea floor. The study of these plates - called Plate tectonics - helps to explain continental drifts, the spreading of the sea floor, volcanic eruptions and formation of mountains.

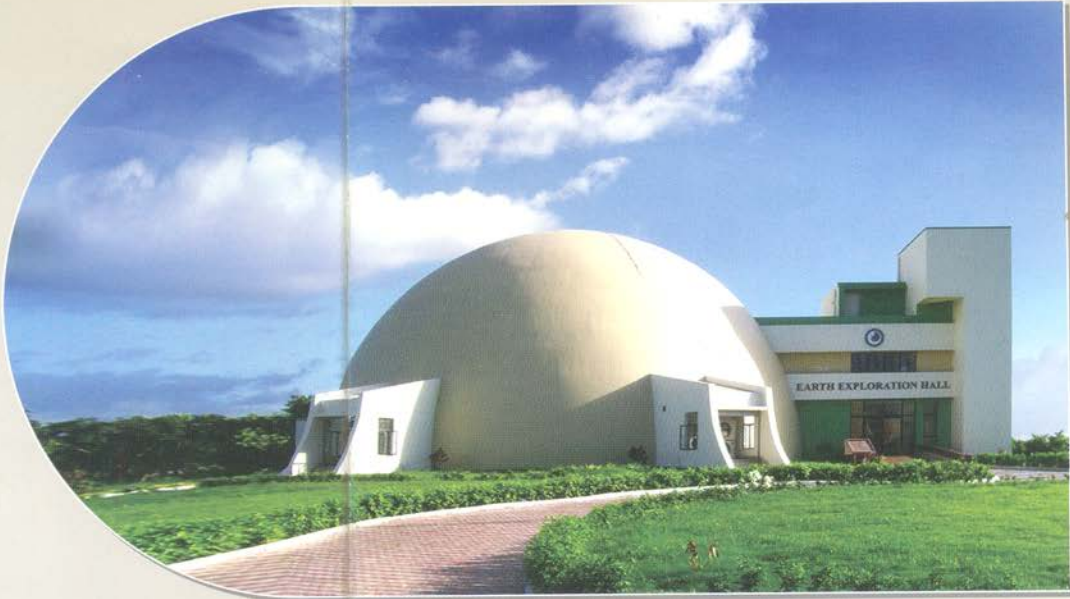


ORIGIN OF LIFE ON EARTH

Life is everywhere on Earth. According to one theory, life came to Earth from another planet. However, the most accepted viewpoint by the scientific community is that life formed on Earth from non-organic compounds and base elements. Eventually primitive living cells multiplied to give rise to multi-cellular life forms in all its bounties that exist today.

BIODIVERSITY

The variation of life forms within a given ecosystem, biome or for the entire Earth is termed as biodiversity. It is often used as a measure of the health of biological systems. Biodiversity found on Earth today consists of millions of distinct biological species of animals and plants, which is the product of 4.54 billion years of evolution.



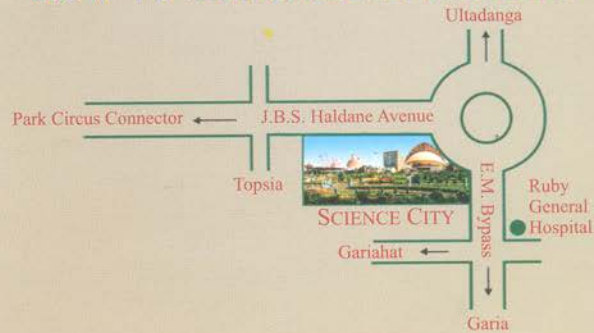
RESOURCES FROM THE EARTH

The wind, the tides and the Sun are just some of the Earth's amazing natural resources that we use to power our lives. There are numerous other resources all around us. These include air, water and soil, biological resources such as plants and animals and raw materials like minerals. However we need to understand that "Earth has enough for everyone's need but not enough for everybody's greed" (Gandhiji).

CLIMATE CHANGE

In our effort to control natural systems to meet our requirements, we have tampered with the delicate natural systems of the Earth. Its temperature is increasing, greenhouse effect is on the rise, the ozone layer is getting depleted, radiation hazards are becoming commonplace and many of the species have become extinct. If we have to keep this place as bio-friendly and as bountious as ever, we have to learn to live a life tuned to the Earth's natural systems. Knowing the Earth better would only increase our chances to survive and prosper.

HOW TO REACH SCIENCE CITY



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