WHY STUDY SCIENCE?

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Science study helps the fundamental curiosity of human beings to flow in a systematic way. It provides sound educational base while honing analytical abilities. It intends to improve one's problem solving skills.

Science (from Latin *scientia*, meaning "knowledge" [1]) is a systematic enterprise that builds and organizes knowledge in the form of testable explanations and predictions about the universe[2,3]. In an older and closely related meaning, "science" also refers to a body of knowledge itself, of the type that can be rationally explained and reliably applied. A practitioner of science is known as a scientist.

Since classical antiquity science as a type of knowledge has been closely linked to philosophy. In the early modern period the words "science" and "philosophy of nature" were sometimes used inter changeably[4]. By the 17th century natural philosophy (which is today called "natural science") was considered a separate branch of philosophy [5].

In modern usage, "science" most often refers to a way of pursuing knowledge, not only the knowledge itself. It is also often restricted to those branches of study that seek to explain the phenomena of the material universe [6]. In the 17th and 18th centuries, scientists increasingly sought to formulate knowledge in terms of laws of nature such as Newton's laws of motion. And over the course of the 19th century, the word "science" became increasingly associated with the scientific method itself, as a disciplined way to study the natural world including physics, chemistry, geology and biology. It was in the 19th century also that the term scientist was created by the naturalist-theologian William Whewell to distinguish those who sought knowledge on nature from those who sought other types of knowledge [7].

However, "science" has also continued to be used in a broad sense to denote reliable and teachable knowledge about a topic, as reflected in modern terms like library science or computer science. This is also reflected in the names of some areas of academic study such as "social science" or "political science".

The interaction of human brain with nature has led to reveal many mysteries. Let us see how life has evolved through the geological time frame. Evidence from radiometric dating indicates that Earth is about 4.570 billion year old. The geological or deep time of Earth's past has been organized into various units according to events which took place in each period. Different spans of time on the time scale are usually delimited by major geological or paleontological events, such as mass extinctions. For example, the boundary between the Cretaceous period and the Paleogene period is defined by the Cretaceous –Tertiary extinction event, which marked the demise of the dinosaurs and of many marine species. Older periods which predate the reliable fossil record are defined by absolute age. Each era on the scale is separated by a major and/or changing event.

The largest defined unit of time is supereon, composed of eons. Eons are divided into eras, which are in turn divided into periods, epochs and ages. The terms eonothem, erathem, system, series, and stage are used to refer to the layers of rock that correspond to these periods of geologic time. Years are expressed as MYA or MA, meaning "million years ago." The better explanation of interesting Geological Time Scale is explained below.

Eon: Half a billion years or more. Era: Several hundred million years.

Epoch: Tens of millions of years. Age: Millions of years.

The mention of dinosaurs arouses the curiosity about the origin of life on earth. This curiosity led to the discovery of oldest life (3.2 b.y.) evidences (Avasthy, 1978) from Iron Ore Formation of Orissa, India[8].These primitive life evidences suggest how life originated from simple solitary cell. It is further interesting to know that the different cells responsible for

the growth of any organism are the result of division and subdivision of one solitary cell initially. This solitary cell initially divided into two cells. These two cells are identical and similar to mother cell in nature and character. This process of cell division continue till the process of differentiation initiated. This process is responsible for creation of different type of cells which are responsible for the growth of different organs of the body. The striking observation suggests that these different cells and thus developed organs always work in the coordinated and synchronized fashion to facilitate the different tasks performed by the organism. Understanding this complex phenomenon in a simplified way opens the vista of evolution of life on mother earth through geological time.

Evolution of Life during the Different Geological Eras.

Paleozoic Era

Period	**MYA**	**Life Forms**
Cambrian	600-500	Algae and simple invertebrates, like jellyfish & worms. Arthropods, brachiopods, & trilobites.
Ordovician	500-440	Graptolites, orthocerous, & primitive fish. The first vertebrates begin to appear.
Silurian	440-395	The first true plants appear. Crinoids & eurypterids are abundant. The first air breathers.
Devonian	395-345	Fish evolve into more complex animals. Sharks and amphibians multiply.
Carboniferous	345-280	Plentiful ferns. Reptiles evolve. Spiders, cockroaches, & scorpions appear. Life on dry land.
Permian	280-225	Reptiles become abundant. Pine-like trees develop. Trilobites become extinct.

Mesozoic Era

Period	**MYA**	**Life Forms**
Triassic	225-190	The beginning of the dinosaurs. Plant eaters, meat eaters, flying reptiles, and crocodiles.
Jurassic	190-136	Giant dinosaurs develop. Abundant plant life & shellfish, like ammonites, lobsters, and shrimp.
Cretaceous	136-65	The peak of development. Downfall of the great dinosaurs, like triceratops, t-rex, & pterodactyls. Deciduous trees develop.

Cenozoic Era

Period	MYA	Life Forms
Tertiary	65-2	Mammals develop, such as camels, bears, cats, monkeys, rodents, and dogs. Grasses & fruit like todays appear.
Quaternary	2-Present	More mammals develop, like the saber-toothed tiger and mastodon. Modern man appears.

This journey into the deep past of mother earth has revealed the very systematic approach of nature. Thus we conclude that the modern science is a discovery as well as an invention. It was a discovery that nature generally acts regularly enough to be described by laws and even by mathematics, and required invention to devise the techniques, abstractions, apparatus, and organization for exhibiting the regularities and securing their law-like descriptions (J. L. Heilbron2003, editor-in-chief).

Acknowledgement: The data presented in this paper is freely used from Open Source, USGS and Geological Survey of India which is thankfully acknowledged.

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6. Isaac Newton's Philosophiae Naturalis Principia Mathematica (1687), for example, is translated "Mathematical Principles of Natural Philosophy_ Oxford English Dictionary
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