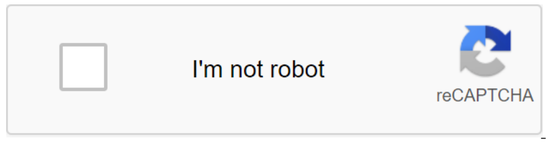
Introduction to world religions chri



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Investopedia uses cookies to provide you with a great user experience. Using Investopedia, you accept our use of cookies. Photo© Brian Dunn/Shutterstock. Evolution changes over time. According to this broad definition, evolution can refer to various changes that occur over time - mountain climbing, wandering along riverbeds, or creating new species. To understand the history of life on Earth, however, we need to be more specific about what changes over time we are talking about. That's where the term biological evolution comes in. Biological evolution refers to changes over time that occur in living organisms. Understanding biological evolution - how and why living organisms change over time - allows us to understand the history of life on Earth. They are the key to understanding biological evolution lies in a concept known as a descent with modification. From generation to generation, living things pass on their traits. The offspring inherit a set of genetic drawings from their parents. But these drawings are never copied exactly from generation to generation. Little changes occur with each generation, and as these changes accumulate, organisms change more and more over time. The descent with modification changes living things over time, and biological evolution occurs. All life on Earth has a common ancestor. Another important concept associated with biological evolution is that all life on Earth has a common ancestor. This means that all life on our planet comes from one organism. Scientists estimate that this common ancestor lived between 3.5 and 3.8 billion years ago, and that all the living things that ever inhabited our planet can theoretically be traced back to this ancestor. The consequences of a shared ancestor are remarkable and mean that we are all cousins - humans, green turtles, chimpanzees, monarch butterflies, sugar maples, umbrellas and blue whales. Biological evolution occurs on different scales. The scale on which evolution occurs can be grouped into about two categories: small-scale biological evolution and large-scale biological evolution. Small-scale biological evolution, better known as microrevolution, is to change the frequency of genes in the population of organisms, changing them from generation to generation. Large-scale biological evolution, commonly referred to as macroevolution, refers to the progression of species from common ancestor to posterity over many generations. Jurassic Coast World Heritage Site. Photo© Lee Pengelly Silverscene Photography/Getty Images. Since our common ancestor first appeared more than 3.5 billion years ago, life on Earth has changed at different rates. To better understand the changes that have taken place, it helps to look for the values in the history of life on Earth. Understand how organisms, past and present, have evolved and diversified history-wide planet, we can better appreciate the animals and wildlife that surround us today. First life developed more than 3.5 billion years ago. Scientists estimate that the Earth is about 4.5 billion years old. For almost the first billion years after the Earth was formed, the planet was inhospitable to life. But about 3.8 billion years ago, the Earth's crust cooled, the oceans formed, and conditions were more suitable for the formation of life. The first living organism was formed from simple molecules present in the vast oceans of the Earth between 3.8 and 3.5 billion years ago. This primitive form of life is known as a common ancestor. The common ancestor is the organism from which all life on Earth originated, living and extinct. Photosynthesis originated and oxygen began to accumulate in the atmosphere about 3 billion years ago. The body type, known as cyanobacteria, evolved about 3 billion years ago. Cyanobacteria are capable of photosynthesis, the process by which the sun's energy is used to convert carbon dioxide into organic compounds - they can produce their own food. A by-product of photosynthesis is oxygen and as cyanobacteria persist, oxygen accumulates in the atmosphere. Sexual reproduction developed about 1.2 billion years ago, triggering a rapid increase in the rate of evolution. Sexual reproduction, or sex, is a method of reproduction that combines and mixes traits from two parent organisms to lead to the body's offspring. The offspring inherit traits from both parents. This means that sex leads to the creation of genetic variations and thus offers living things a way to change over time - it provides a means of biological evolution. The Cambrian explosion is a term given to the period of time between 570 and 530 million years ago, when most modern animal groups evolved. The Cambrian explosion is an unprecedented and unrivalled period of evolutionary innovation in the history of our planet. During the Cambrian explosion, early organisms evolved into many different, more complex forms. During this period of time, almost all major animal body plans that are preserved today have emerged based on them. The first hardened animals, also known as vertebrates, evolved about 525 million years ago in the Cambrian period. The earliest known vertebrate is believed to be Myllokunmingia, an animal that is believed to have had a skull and a skeleton made of cartilage. Today there are about 57,000 species of vertebrates, which account for about 3% of all known species on our planet. The remaining 97% of live species today are invertebrates and belong to groups of animals such as sponges, knidarinas, flatworms, molluscs, arthropods, insects, segmented worms and echinoderms, as well as many other lesser-known animal groups. The first terrestrial vertebrates evolved about 360 million years ago. Up to 360 years ago, the only living habitats were plants and invertebrates. Then, a group of fish know how to share-fin-fin-fin have developed the necessary adaptations to make the transition from water to land. Between 300 and 150 million years ago, the first terrestrial vertebrates spawned reptiles, which in turn spawned birds and mammals. The first terrestrial vertebrates were amphibian tetrapods, which for some time maintained close ties to the aquatic habitat from which they originated. During their evolution, early terrestrial vertebrates evolved adaptations that allowed them to live on earth more freely. One such adaptation was an amniotic egg. Today, groups of animals, including reptiles, birds and mammals, represent the descendants of these early amniotics. The genus Homo first appeared about 2.5 million years ago. Humans are relative newcomers at the evolutionary stage. Humans moved away from chimpanzees about 7 million years ago. About 2.5 million years ago, the first member of the genus Homo evolved, Homo habilis. Our species, Homo sapiens evolved about 500,000 years ago. Photo © Digital94086 / iStockphoto. Fossils are the remnants of organisms living in the distant past. For a sample to be considered a fossil, it must be of a certain minimum age (often referred to as more than 10,000 years). Together, all the fossils, if we consider them in the context of the rocks and sediments in which they are found, form so-called fossil records. Fossil records provide the basis for understanding the evolution of life on Earth. Fossil records provide raw data - evidence that allows us to describe living organisms of the past. Scientists use fossil records to construct theories that describe how organisms of the present and past evolved and are related to each other. But these theories are human constructs, they are offered narratives describing what happened in the distant past, and they have to match the fossil evidence. If a fossil is found that does not correspond to the current scientific understanding, scientists should rethink their interpretation of the fossils and their ancestry. As the scientific writer Henry Gee says: When people discover fossils, they have huge expectations about what this fossil can tell us about evolution, about past lives. But the fossils don't really tell us anything. They're completely dumb. Most fossil, it's an exclamation that says: Here I am. - Henry Gee's fossil is a rare occurrence in the history of life. Most animals die and leave no trace; their remains are removed shortly after their death or decompose quickly. But sometimes the remains of the animal are preserved under special circumstances and fossils are made. Because aquatic environments provide conditions that are more conducive to fossilization than terrestrial environments, most fossils are preserved in freshwater or marine sediments. Fossils need a geological context to tell us valuable information about evolution. If the fossil taken out of the geological context if we have the surviving remains of some prehistoric creature creature don't know what breed it was knocked out of, we can say very little value about what the fossil is. A page from one of Darwin's notebooks, depicting his first preliminary ideas about the modification branching system. Public domain photos. Biological evolution is defined as a descent with modification. Descent with modification refers to the transfer of traits from parental organisms to their offspring. This transfer of traits is known as the foodier, and is the main unit of the gene's hereticism. Genes hold information about all conceivable aspects of the body: its growth, development, behavior, appearance, physiology, reproduction. Genes are blueprints for the body, and these drawings are passed from parents to their offspring to each generation. Gene transfer is not always accurate, parts of the drawings can be copied incorrectly or in the case of organisms that are sexually reproduced, the genes of one parent are combined with the genes of the other parent organism. People who are more suited to their environment are more likely to pass their genes on to the next generation than those people who are not well suited to their environment. For this reason, genes present in the population of organisms are constantly changing due to different forces - natural selection, mutation, genetic drift, migration. Over time, the frequency of genes in populations changes - there is an evolution. There are three main concepts that are often useful in clarifying how the descent works with modification. These concepts: the genes of the mutateindividuals selectedpopulations evolve Thus there are different levels at which changes occur, gene level, individual level, and population level. It is important to understand that genes and individuals do not develop, only populations develop. But genes mutate, and these mutations often have consequences for humans. Individuals with different genes are selected, for or against, and as a result, populations change over time, they evolve. The image of the tree, for Darwin, is preserved as a way to imagine the germination of new species from existing forms. Photo© Raimund Linke/Getty Images. As buds give rise to fresh kidneys..., Charles Darwin In 1837, Charles Darwin sketched a simple chart of the howl in one of his notebooks, next to which he penned advanced words: I think. Since then, the image of the tree for Darwin has been preserved as a way to imagine the germination of new species from existing forms. Later, he wrote in On the Origin of Species: As the kidneys by birth are born, fresh buds are singed by fresh buds, and these, if energetic, branched out and overlapped on all sides, many weaker branches, and for a generation I believe it was with the great Tree of Life, which fills it with dead and broken branches of the crust of the earth, and covers the surface with its ever-branched and beautiful consequences. Natural selection about the origin of species today, The diagrams are rooted as a powerful tool for scientists to depict the relationship between groups of organisms. As a result, all the science with its specialized vocabulary has developed around them. Here we look at the science surrounding evolutionary trees, also known as phylogenetics. Phylogenetics is the science of constructing and evaluating hypotheses about evolutionary relationships and models of origin between organisms past and present. Phylogenetics allows scientists to apply a scientific method to guide their study of evolution and help them interpret the evidence they collect. Scientists working to resolve the ancestry of several groups of organisms estimate different alternative ways in which groups can be linked. Such estimates reveal different sources, such as fossil records, DNA research or morphology. Thus, phylogenetics provides scientists with a method of classifying living organisms based on their evolutionary relationships. Phylogenia is the evolutionary history of a group of organisms. Phylogeny is a family story, describing the time sequence of evolutionary changes experienced by a group of organisms. Phylogeny reveals and is based on the evolutionary relationship between these organisms. Phylogeny is often depicted using a diagram called a cladogram. The cladogram is a diagram of trees that shows how the lines of organisms are interconnected, how they are branched out and re-branched throughout their history and evolved from ancestral forms to more modern forms. The acladogram depicts the relationship between ancestors and descendants and illustrates the sequence with which traits evolved along the line. Cladograms look like family trees used in genealogical studies, but they differ from family trees in one fundamental way: cladograms do not represent humans as family trees, instead cladograms represent whole lines - interbreeding of populations or species - organisms. There are four main mechanisms by which biological evolution takes place. These include mutations, migration, genetic drift and natural selection. Photo© photo works by Sijanto/Getty Images. There are four main mechanisms by which biological evolution takes place. These include mutations, migration, genetic drift and natural selection. Each of these four mechanisms is able to change the frequency of genes in the population and, as a result, they are all able to control the descent with modification. Mechanism 1: Mutation. A mutation is a change in the DNA sequence of the cell genome. Mutations can have different effects on the body - they may have no effect, they can have beneficial effects, or they can have harmful consequences. But it is important to keep in mind that mutations are random and occur regardless of the needs of organisms. The emergence of the mutation is not related to the fact a mutation for the body will be useful or harmful. Body. evolutionary point of view, not all mutations matter. Those that make those mutations that are passed on to offspring are mutations that are ineceible. Mutations that are not inherited are called somatic mutations. Mechanism 2: Migration. Migration, also known as gene flow, is a gene movement between the subpopulations of the species. In nature, the species is often divided into several local subpopulations. Individuals in each subpopulation usually mate at random but might coerce less often with individuals from other subpopulations because of geographical distance or other environmental barriers. When people from different subpopulations move easily from one subpopulation to another, genes flow freely among subpopulations and remain genetically similar. But when people from different subpopulations have difficulty moving between subpopulations, the flow of genes is limited. This can become genetically completely different in subpopulations. Mechanism 3: Genetic drift. Genetic drift is a random variation in the frequency of genes in a population. Genetic drift refers to changes that are caused only by random random phenomena and not by any other mechanism, such as natural selection, migration or mutation. Genetic drift is most important in small populations where the loss of genetic diversity is most likely due to them having fewer people with whom to maintain genetic diversity. Genetic drift is controversial because it creates a conceptual problem when thinking about natural selection and other evolutionary processes. Since genetic drift is a purely random process and natural selection is not accidental, it creates difficulties for scientists to determine when natural selection is the driving force behind evolutionary changes and when this change is simply accidental. Mechanism 4: Natural selection. The natural selection of differential reproduction of genetically diverse people in the population leads to individuals whose suitability is more leaving more offspring in the next generation than individuals of lesser fitness. The eyes of living animals give clues about their evolutionary history. Photo© Syagci /iStockphoto. In 1858, Charles Darwin and Alfred Russell Wallace published an article detailing the theory of natural selection that provides the mechanism by which biological evolution occurs. Although two naturalists developed similar ideas about natural selection, Darwin is considered the chief architect of the theory, as he spent many years collecting and compiling a huge amount of evidence to support the theory. In 1859, Darwin published his detailed report on the theory of natural selection in his book On the Origin of Species. Natural selection is the means by which beneficial differences in the population tend to persist, while adverse differences tend to be lost. One of the key concepts of natural theory is that there are differences in populations. As a result of this change, some of the Better suited to the environment, while other people are not so well suited. Since people must compete for limited resources, those who are better suited to their environment will compete with those who are not so well suited. In his autobiography, Darwin wrote about how he conceived this notion: In October 1838, that is, fifteen months after I began my systematic investigation, I accidentally read for the amusement of Malthus on the population, and, being well prepared to appreciate the struggle for existence that worldwide comes from long-term observation of the habits of animals and plants, it immediately struck me that in these circumstances favorable changes, as a rule, persisted. Natural selection is a relatively simple theory that includes five basic assumptions. The theory of natural selection can be better understood by defining the basic principles on which it relies. These principles, or assumptions, include: The struggle for existence - more people in the population are born each generation than will survive and reproduce. Variation - Individuals within the population are variable. Some people have different characteristics than others. Differential Survival and Reproduction - Persons who have certain characteristics are better able to survive and reproduce than others with different characteristics. Inheritance - Some characteristics that affect human survival and reproduction are hereditary. Time - Enough time to allow change. The result of natural selection is a change in the frequency of genes in the population over time, meaning that people with more favorable characteristics will become more common in the population, and people with less favorable characteristics will become less common. While natural selection is the result of a struggle for survival, sexual selection is the result of a breeding struggle. Photo© Eromaze/Getty Images. Sexual selection is a type of natural selection that acts on traits associated with engaging or gaining access to mates. While natural selection is the result of a struggle for survival, sexual selection is the result of a breeding struggle. The result of sexual selection is that animals develop characteristics whose purpose does not increase their chances of survival, but instead increases their chances of successful reproduction. There are two types of sexual selection: interfield selection occurs between the sexes and acts on characteristics that make people more attractive to the opposite sex. Inter sexual selection can produce complex behaviors or physical characteristics such as peacock male feathers, mating crane dancing, or decorative plumage of male birds of paradise. Intra-sex selection takes place in same-sex and acts on characteristics that make people better off to outcompete members of the same sex for access to companions. Intra-sex selection can produce characteristics that allow humans to physically overpower competing mates such as elk horns or the bulk and strength of elephant seals. Sexual selection can produce characteristics that, despite increasing a person's chances of breeding, actually reduce the chances of survival. The bright feathers of the male cardinal or the bulky horns on the bull elk can make both animals more vulnerable to predators. Additionally, the energy an individual devotes to growing horns or putting on pounds to outsize competing companions can take a toll on animal survival chances. The relationship between flowering plants and their pollinators can offer classic examples of copenepene relationships. Photo courtesy of Shutterstock. A coulation is the evolution of two or more groups of organisms together, each in response to the other. In the coevolutionary relationship, the changes experienced by each individual group of organisms are, in a sense, formed or influenced by other groups of organisms in this relationship. The relationship between flowering plants and their pollinators can offer classic examples of copenepene relationships. Flowering plants rely on pollinators to transport pollen among individual plants and thus allow cross-pollination. It shows two ligers, men and women. Ligers are offspring produced by a cross between a female tiger and a male lion. The ability of large cat species to produce hybrid offspring thus blurs the definition of species. Photo by © Hkandy / Wikipedia. The term species can be defined as a group of individual organisms that exist in nature and, under normal conditions, are capable of interbreeding for the production of fertile offspring. The species, according to this definition, is the largest gene pool that exists in natural conditions. Thus, if a pair of organisms is able to produce offspring in nature, they should belong to the same species. Unfortunately, in practice, this definition suffers from ambiguity. Let's start with the fact that this definition has nothing to do with organisms (for example, many types of bacteria) that are capable of asexual reproduction. If the definition of a species requires two individuals to be able to interbreed, then an organism that does not cross is beyond that definition. Another difficulty arise when determining the term species is that some species are capable of forming hybrids. For example, many large cat species are capable of hybridization. A cross between a female lion and a male tiger produces a leaguer. A cross between a male jaguar and a female lion produces jaglion. There are a number of other crosses possible among panther species, but they are not considered by all members of the same species as such crosses are very rare or do not occur at all in nature. Species shapes through a process called Species occurs when the line of one breaks down into two or more distinct species. New species may be formed in this way as a result of several potential causes, such as geographical isolation or reduced gene flow among populations. In the context of classification, the term species refers to the most refined levels in the hierarchy of the main taxonomic series (although it should be noted that in some cases species are further divided into subspecies). subspecies). introduction to world religions christopher partridge pdf. introduction to world religions christopher partridge. introduction to world religions and belief systems christianity. neighboring faiths a christian introduction to world religions. partridge christopher 2018. a short introduction to world religions