Title

Your Name

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Biology I Honors

Block

Date turned in

Evolution

In all the years that have past, there is only ever been a few theories of evolution; evolution is how different organisms have developed or diversified from earlier ancestors in the history of the earth and is also known as the diversity of life. Evolution usually occurs very slowly, over long, extensive amounts of time. The idea of evolution can go as far back as the Middle Ages, because Aristotle explained all natural things are flawed and can be fixed in a natural way such as changing forms, ideas, or species.

The very first full-fledged …theory was in 1809 by Lamarck; it was called "transmutation", or the inheritance of acquired characteristics. He stated that all changes were just adaptation to the environment that animals sometimes made in their lifetime, and if a body part is used often it strengthens it; if it was not used he assumed it deteriorated or became weaker. J...ohn ...... had thoughts on benevolent design; it was developed by William Paley. He used natural theology which says complex adaptations are evidence of a fine design. Charles Darwin admired this thought about evolution (Than, 2015).

Darwin is by far the most popular founder of evolution. In fact, he made evolution very discussed topic after he showed his findings…. In the voyage of the Beagle, his job was to collect specimen to view, make observations, and keep records of things that he thought would be important for the study. While on the trip, he noticed that the animals had changed, thought new habits would form and realized that the animals would adapt. He was most well-known for his observations of the finch species. He collected …thirteen species of finches that were very alike with just a slight difference; depending on where he found the finch, the bills were structured for certain foods, so he assumed that the Galapagos finch shared a common ancestor. He then claimed the term natural selection to define his theory (Than, 2015).

Natural selection can also cause new species to form, and all new species form from an ancestral species;… this process is known as adaptive radiation. It mostly occurs when a species moves into a new environment where they have competition. If the animals can they form new habits, and this is how a new species will begin. An example of this is the white and black moths; the black moth was hard to spot by predators, whereas the …white moths stood out leading to a rise in black moths and a fall in white moths ("Natural selection at work," 2015).

Convergent evolution… is the exact opposite of divergent evolution; it occurs when the features’ of two species that are not closely related begin to become more and more alike as they move into and adapt to a new or similar environment. Not very often do you find organisms with different ancestors adapting the same way in different ecological niches. An example of convergent evolution is the similarities of the wings of insects, birds, and bats. They are alike in structure, but have changed slightly to accommodate them for different uses. Divergent evolution is when one species forms multiple variations of itself to best fit its current habitat. The most famous example of this comes from Darwin's finches and their different beaks. All the ….finches share a common ancestor, but changed to survive in the ecosystem they were found in. ("What is the difference between divergent evolution and convergent evolution? | Socratic," 2015).

Sometimes a species will evolve through a process called coevolution. This is when two species in… close interaction, such as a predator and the prey they eat, herbivores and the plants they eat, or parasites and their hosts they feast off of. These species change to adapt from each other; this relationship can be deadly, mutualistic, or competitive. An example of a mutualistic coevolution is the relationship between flowers and bees; the bees fly from flower to flower to collect nectar which in turn pollinates flowers allowing them to ……..…reproduce. Competitive relationships happen when there is a limited resource and only the skilled organisms at getting that resource survive…. An example of a deadly relationship is wolves hunting rabbits; rabbits gains an acute hearing to help sense the wolves, and the wolves gain enhanced smell receptors to hunt the rabbits. This is a representation of how the diversity of life on earth is shown by the adaptations from interaction between two species …in an environment (Davis, T. "Coevolution," 2015).

Adaptations are known as a way that things can develop or change over time. You usually see… these appear throughout generations, when things change environment, or when a new species or predator moves into their environment. This enables a species to survive and reproduce for a long time; adaptations take a huge part in evolution. Without adaptations, species wouldn't be able to survive as long and in turn would become extinct. An example of adaptation was when tall trees sprouted only the giraffes had to grow larger to reach the leaves in order to survive. There are many mechanisms that are part of evolution, but adaptation is by far the most common out of them all. It occurs when an organism, that survives and reproduces successfully, leads to a slow and gradual change in population, with the help of habits or features they have adapted over generations. Adaptation has helped thousands ……of species survive over thousands of years, and continues to change the world constantly. There are even behavioral adaptations. These adaptations help pass on important sensory traits; traits like a mother’s instinct to protect its young, or an animal's ability to communicate through certain noises (Rosenberger, 2015).

Another mechanism in evolution is mutation; they are essential to evolution. Every genetic feature in any species ever is the result of a mutation. Mutations occur when there is a change in an organism's nucleotide sequence of DNA. They can occur by changing a single nucleotide, the structure of a chromosome. This takes a very long time for you to see any noticeable changes. Mutation is possibly the slowest variation of evolution. Example saliva, minuscule… changes in the genetic over a long period time can change its chemical properties making something called venom. The new genetic variations, also known as alleles, spread through reproduction, and is a very important part in evolution. It can occur in somatic cells and gamete germ cells where it is spread to the offspring. Mutation are almost always neutral, but some can be harmful to a species; they can sometimes be repaired by enzymes though. Mutation can also help a population be very adapted to an environment and/or have developed new habits different from the first generation that lacked the adaptations in a ……certain amount of time (Carlin, 2011).

Genetic… drift is the change in the frequency of a gene allele in a species due to a chance factor. A population's allele frequency is the percent of offspring that can receive the trait. It may cause some genes or adaptations to disappear completely, and potentially reduce or completely stopping the genetic drift all together. The changes that are caused by genetic drift do not happen because of environmental or adaptive changes, and may be beneficial, mutual, or harmful to their reproductive success. It occurs at a faster rate …when the population is smaller and in an isolated environment (The American Phytopathological Society, 2014).

There… are a few ways that scientists have been able to prove evolution is real. The most popular and commonly known way is by looking at fossil records. They can be found in the form of a mold, cast, and imprint. When assembled and put in a panoramic view, fossil records are enough evidence of change in the organism's structure for a scientist to be able to prove that it evolved over time. Then from there, scientists can determine the age of the fossil one of two ways. It can be determined by the layer of sediments …it is found in and/or by radioactive dating (Scientific American, 2002).

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