



Bi-weekly Newsletter

May 4, 2006

Evolution: Fact vs. Theory

When non-biologists talk about biological evolution they often confuse two different aspects of the definition. On the one hand there is the question of whether modern species are continuing to change over time. On the other hand there are questions about the mechanism of the observed changes... how did evolution occur? Biologists consider the existence of biological evolution to be a **fact**. It can be demonstrated today and the historical evidence for its occurrence in the past is overwhelming. However, biologists readily admit that they are less certain of the exact mechanism of evolution. There are several **theories** for the mechanism of evolution, Darwin's natural selection being one of them. Facts are the world's data, and theories are structures of ideas that explain and interpret the facts. Facts don't go away when scientists debate rival theories to explain them. The changes biologists document in species over time are **facts** that support evolution. The mechanisms by which these evolutionary changes come about can be explained by several **theories**. For more information go to: <http://www.talkorigins.org/faqs/evolution-fact.html> http://www.stephenjaygould.org/library/gould_fact-and-theory.html

Sleepy Science in the News

As the pace of life quickens and it becomes harder to balance home and work, many people meet their obligations by getting less sleep. Scientific studies have shown that sleep is necessary for a healthy functioning brain. Lack of sleep impairs cognitive function causing a shorter attention span, impaired memory, and a longer reaction time. The latest research suggests that the brain may require more sleep than any other part of the body. The hippocampus is the one area of the brain that undergoes neurogenesis, the unique ability to generate brain cells throughout life. This area of the brain can be stimulated during spatial learning. Sleep deprivation can interfere with this spatial learning and the resulting neurogenesis. For a complete explanation of this study (middle school appropriate) go to: <http://www.medicalnewstoday.com/medicalnews.php?newsid=35985>

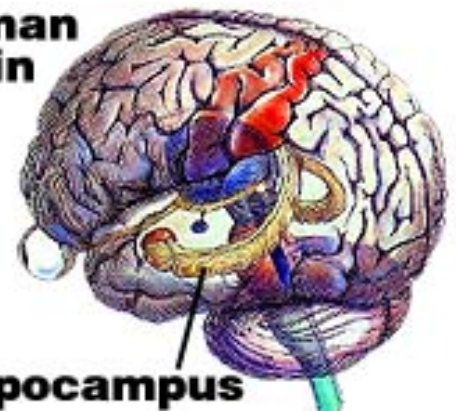
Radical Rainforest Evolution



A new study suggests that plants and animals living in warm, tropical climates evolve faster than those living in more temperate zones. This could help to explain why rainforests have such rich biodiversity. Scientists looked at the rate of molecular evolution for 45 tropical plants and compared it to that of related species living at more temperate latitudes. The researchers examined the rate at which DNA bases in the plants' genetic code are substituted. Warmer temperatures increase the rate of metabolism and DNA replication. Researchers found that tropical plants had more than twice the rate of base substitution compared to their temperate cousins.

<http://www.msnbc.msn.com/id/12583046/>

Human Brain



Hippocampus