

# What is and what is not science

[Science](#)



What Is and What Is Not Science Both the methods of natural science and methods of social sciences involve use of experiments and observations. Natural science methods are mainly quantitative whereas social science methods are both quantitative and qualitative. Just like science, art brings things closer. However, it differs from science since it lacks a method for investigating the art process. In other words, science is all about investigating things.

The discovery of DNA is claimed to have taken place 50 years ago. However, the saga for its discovery started in 1869 when Friedrich Miescher secluded a new substance from the nucleus of the white blood cells. In 1930, Oswald Avery together with his friends explained the transforming principle of DNA. In early 1950s, Erwin Chargaff decided to work on the work of Avery in order to determine the number of nucleotides in the DNA. In 1953, Francis Crick and James Watson reported the discovery of DNA structure. The identification of the DNA strands appeared more clear through the aid of X-ray crystallographic developed by Maurice Wilkins and Rosalind Franklin (Aldridge, 2015).

To be alive requires breathing; it is to inhale oxygen and exhale carbon dioxide. Life generates significant amount of chemical free energy which skips not only limitations, but also inefficiencies linked to transfer of power within the planet's thermodynamic hierarchy. Some people such as Frank Drake believe humankind is alone in the universe. Drake argued that if there were aliens in deep space, their communication would have been discovered. However, Enrico Fermi believed otherwise. Fermi argued that there existed extraterrestrial intelligence in nearby stellar systems.

According to Fermi, we are not the only humans in the universe. Only

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Drake's argument is a science. Science involves qualitative and quantitative testing; Drake believed if there were other humans in the universe, their communication would have been discovered. Fermi's argument is not science because he used only observation to make his claim.

Radiocarbon dating determines the age of a material or object. Carbon decays at a constant rate ( $5,730 \pm 40$  years), as a result of this, the date at which an organism died can be estimated by measuring the sum of its residual radiocarbon. Radiocarbon measurements were made a shroud that was believed to have covered Jesus to determine its age. The result of the study which took place in Turin showed the shroud was made in 1260-1390 AD. The current controversy of the shroud shows that the shroud is 2000 years. Giulio Fanti used infrared and Roman spectroscopy to determine the amount of cellulose in the shroud fiber. This controversy is based on science because it involved testing the amount of cellulose which degrades over time.

An Early Start is an essay by Steve Gould that talks about the origin of life. According to the essay, life forms when certain conditions like liquid water are met. The essay proves that prokaryotic life existed before 4.5 billion years ago. Bacterial and prokaryotic lives were remnants of bacteria. All eukaryotes including bacteria and blue-green algae shared a common ancestor. This essay by Gould is important to the course because it expounds on the evolutionary biology. The essay affirms that methanogens existed before bacteria and blue-green algae because the earth's atmosphere constituted mainly of carbon dioxide. Additionally, the essay shows that bacteria, blue-green algae, and methanogens shared one ancestor because they use the same genetic code and material.

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## Reference

Aldridge, S. (2015). The DNA Story. 2003. Royal Society of Chemistry.

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