



The Origin of Species: The Making of a Theory

OVERVIEW

[*The Making of a Theory*](#) is one of three films in HHMI's Origin of Species collection. This film chronicles the epic adventures and the evidence gathered from careful observations of the natural world by British naturalists Charles Darwin and Alfred Russel Wallace. During their voyages across the globe, they documented the variation among individual members of a species, the relationships among species, and the patterns of geographic distribution across many species. Based on such evidence, they independently came to the same revolutionary conclusions: species change over time by means of natural selection, and species descend from other species. The film emphasizes the processes of science, the passions of scientists, and the insights they gained in understanding life on our planet. It serves as an introduction to a unit on evolutionary science and the evidence on which the theory of evolution by natural selection was founded.

KEY CONCEPTS

- A. Charles Darwin and Alfred Russel Wallace *independently* discovered the natural origin of species and formulated the theory of evolution by natural selection based on distinct sets of observations and facts.
- B. The natural origin and evolution of species provide scientific explanations for both the diversity and the relatedness of species, as well as the sequence of change found in the fossil record.
- C. Natural selection acts on variation among individuals within populations. The differential survival and reproductive success of individuals with different traits causes populations to change over time.
- D. By comparing organisms living today with the fossil record of extinct organisms, it is possible to reconstruct evolutionary history.
- E. Observations of the natural world raise questions. Scientific hypotheses provide tentative answers to such questions, which can then be tested by additional observations, experiments, evidence, and facts, which form the basis of a scientific theory.
- F. Not all hypotheses can be tested in a controlled laboratory experiment. For example, the study of evolution requires gathering multiple lines of evidence to support conclusions about events that occurred in the past. As evidence accumulates, some hypotheses will be eliminated, while ever more detailed inferences are drawn.

CURRICULUM CONNECTIONS

Standards	Curriculum Connection
NGSS (2013)	LS2.A, LS3.B, LS4.B, LS4.C, ESS1.C
AP Bio (2015)	1.A.1, 1.A.2, 1.A.4, 1.C.1
IB Bio (2016)	5.1, 5.2, C.1
AP Env Sci (2013)	II.C
IB Env Systems and Societies (2017)	3.2
Common Core (2010)	ELA.RST.9-12.4, WHST.6-12.9, MP2
Vision and Change (2009)	CC1, CC5

KEY REFERENCE

Darwin, Charles. 1859. *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*. London: John Murray.