

Topic Page: [Geography & Travel](#)

Definition: **geology** from *Philip's Encyclopedia*

Study of the materials of the Earth, their origin, arrangement, classification, change and history. Geology is divided into several categories, the major ones being mineralogy (arrangement of minerals), petrology (rocks and their combination of minerals), stratigraphy (succession of rocks in layers), palaeontology (study of fossilized remains), geomorphology (study of landforms), structural geology (classification of rocks and the forces that produced them), and environmental geology (study of use of the environment).



Image from:

[Australasia and Oceania in Geography of the World](#)

Summary Article: **geography**

From *The Columbia Encyclopedia*

the science of place, i.e., the study of the surface of the earth, the location and distribution of its physical and cultural features, the areal patterns or places that they form, and the interrelation of these features as they affect humans.

Methods and Branches

Geography is a synoptic science that uses the same elements as the other sciences but in a different context. It integrates data spatially, making elaborate use of maps as its special tool. Geography may be studied by way of several interrelated approaches, i.e., systematically, regionally, descriptively, and analytically. The systematic approach organizes geographical knowledge into individual categories that are studied on a worldwide basis; the regional approach integrates the results of the systematic method and studies the interrelationships of the different categories while focusing on a particular area of the earth; the descriptive approach depicts where geographical features and populations are located; the analytical approach seeks to find out why those features are located where they are.

In the study of geography two main branches may be distinguished, physical geography and human (or cultural) geography, originally anthropogeography. The first, based on the physical sciences, studies the world's surface, the distribution, delineation, and nature of its land and water areas. Climate, landforms (see geomorphology), and soil are examined as to origin and are classified as to distribution. Drawing on the biological sciences, fauna and flora (biogeography) are brought into an areal pattern. Through the mathematical sciences the motion of the earth and its relationship to the sun (seasons), the moon (tides), and the planets are studied, as well as mapmaking and navigation.

Human geography places humans in their physical setting; it studies their relationship with that environment as well as their conscious activities and continuous progress in adapting themselves to it (and to other humans) and in transforming their environment to their needs. Human geography may in turn be subdivided into a number of fields, such as economic geography, political geography (with its 20th-century offshoot, geopolitics), social geography (including urban geography, another 20th-century ramification), environmental perception and management, geographical cartography, geographic information systems, and military geography. Historical geography (which reconstructs geographies of the past and attempts to trace the evolution of physical and cultural features) and urban and regional planning are sometimes considered branches of geography.

History of Geographic Study

Evolution

Geography was first systematically studied by the ancient Greeks, who also developed a philosophy of geography; Thales of Miletus, Herodotus, Eratosthenes, Aristotle, Strabo, and Ptolemy made major contributions to geography. The Roman contribution to geography was in the exploration and mapping of previously unknown lands. Greek geographic learning was maintained and enhanced by the Arabs during the Middle Ages. Arab geographers, among whom Idrisi, Ibn Battutah, and Ibn Khaldun are prominent, traveled extensively for the purpose of increasing their knowledge of the world. The journeys of Marco Polo in the latter part of the Middle Ages began the revival of geographic interest outside the Muslim world.

With the Renaissance in Europe came the desire to explore unknown parts of the world that led to the voyages of exploration and to the great discoveries. However, it was mercantile interest rather than a genuine search for knowledge that spurred these endeavors. The 16th and 17th cent. reintroduced sound theoretical geography in the form of textbooks (the *Geographia generalis* of Bernhardus Varenius) and maps (Gerardus Mercator's world map). In the 18th cent. geography began to achieve recognition as a discipline and was taught for the first time at the university level.

Modern Geography

The modern period of geography began toward the end of the 18th cent. with the works of Alexander von Humboldt and Karl Ritter. Thenceforth two principal methods of approach to geography can be distinguished: the systematic, following Humboldt, and the regional, following Ritter. Of the national schools of geography that developed, the German and the French schools were the most influential. The German school, which dealt mainly with physical geography, developed a scientific and analytical style of writing. The French school became known for its descriptive regional monographs presented in a lucid and flowing manner; human and historical geography were its forte. Although emphasis has shifted several times between the approaches and viewpoints, their interdependence is recognized by all geographers.

Since the end of World War II, geography, like other disciplines, has experienced the explosion of knowledge brought on by the new tools of modern technology for the acquisition and manipulation of data; these include aerial photography, remote sensors (including infrared and satellite photography), and the computer (for quantitative analysis and mapping). The quantitative method of geographical research has gained much ground since the 1950s, Edward Ullman and William Garrison of the United States and Peter Haggett of Great Britain being leading exponents.

Important contributions to the advancement of geography and to the development of geographic concepts have been made by Ferdinand von Richthofen, Albrecht Penck, Friedrich Ratzel, Alfred Hettner, Karl Haushofer, and Walter Christaller in Germany; Paul Vidal de la Blache, Jean Brunhes, Conrad Malte-Brun, Elisée Reclus, and Emmanuel de Martonne in France; and William Morris Davis, Isaiah Bowman, Ellen Churchill Semple, Carl O. Sauer, Albert Brigham, and Richard Hartshorne in the United States. Today geography is studied by governmental agencies and in many of the world's universities. Research is stimulated by such noted geographic institutions as the Royal Geographical Society (1830, Great Britain), the American Geographical Society (1852, United States), and the Société de Géographie (1821, France).

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