

Atmosphere Encyclopedia Article

Atmosphere

The following sections of this BookRags Literature Study Guide is offprint from Gale's For Students Series: Presenting Analysis, Context, and Criticism on Commonly Studied Works: Introduction, Author Biography, Plot Summary, Characters, Themes, Style, Historical Context, Critical Overview, Criticism and Critical Essays, Media Adaptations, Topics for Further Study, Compare & Contrast, What Do I Read Next?, For Further Study, and Sources.

(c)1998-2002; (c)2002 by Gale. Gale is an imprint of The Gale Group, Inc., a division of Thomson Learning, Inc. Gale and Design and Thomson Learning are trademarks used herein under license.

The following sections, if they exist, are offprint from Beacham's Encyclopedia of Popular Fiction: "Social Concerns", "Thematic Overview", "Techniques", "Literary Precedents", "Key Questions", "Related Titles", "Adaptations", "Related Web Sites". (c)1994-2005, by Walton Beacham.

The following sections, if they exist, are offprint from Beacham's Guide to Literature for Young Adults: "About the Author", "Overview", "Setting", "Literary Qualities", "Social Sensitivity", "Topics for Discussion", "Ideas for Reports and Papers". (c)1994-2005, by Walton Beacham.

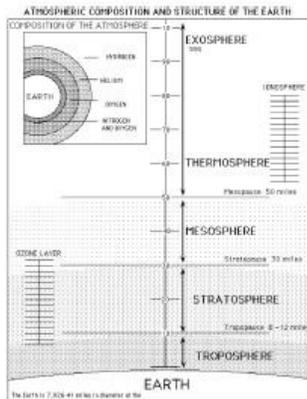
All other sections in this Literature Study Guide are owned and copyrighted by BookRags, Inc.

Contents

Atmosphere Encyclopedia Article.....	1
Contents.....	2
Atmosphere.....	3

Atmosphere

The atmosphere is the envelope of gas surrounding the earth, which is for the most part permanently bound to the earth by the gravitational field. It is composed primarily of **nitrogen** (78% by volume) and oxygen (21%). There are also small amounts of argon, **carbon dioxide**, and water vapor, as well as trace amounts of other gases and **particulate matter**.



(Illustration by Hans & Cassidy.)

Trace components of the atmosphere can be very important in atmospheric functions. **Ozone** accounts on average for two **parts per million** of the atmosphere but is more concentrated in the **stratosphere**. This stratospheric ozone is critical to the existence of terrestrial life on the planet. Particulate matter is another important trace component. **Aerosol loading** of the atmosphere, as well as changes in the tiny **carbon dioxide** component of the atmosphere, can be responsible for significant changes in **climate**.

The composition of the atmosphere changes over time and space. Outside of water vapor (which can vary from 0–4% in the local atmosphere) the concentrations of the major components varies little in time. Above 31 mi (50 km) from sea level, however, the relative proportions of component gases change significantly. As a result, the atmosphere is divided into two compositional components: Below 31 mi (50 km) is the homosphere and above 31 mi (50 km) is the heterosphere.

The atmosphere is also divided according to its thermal behavior. By this criteria, the atmosphere can be divided into several layers. The bottom layer is the *troposphere*; it contains most of the atmosphere and is the domain of weather. Above the **troposphere** is a stable layer called the stratosphere. This layer is important because it contains much of the ozone which **filters** ultraviolet light out of the incident solar radiation. The next layer, is the *mesosphere*, which is much less stable. Finally, there is the *thermosphere*; this is another very stable zone, but its contents are barely dense enough to cause a visible degree of solar radiation scattering.

Resources

Books

Anthes, R. A., et al. *The Atmosphere*. 3rd ed. Columbus, OH: Merrill, 1981. Schaefer, V., and J. Day. *A Field Guide to the Atmosphere*. New York: Houghton Mifflin, 1981.

Periodicals

Graedel, T. E., and P. J. Crutzen. "The Changing Atmosphere." *Scientific American* 261 (September 1989): 58–68.