Buckminsterfullerene Encyclopedia Article

Buckminsterfullerene

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

Buckminsterfullerene Encyclopedia Article.....1

Contents.....2

Buckminsterfullerene.....3

Buckminsterfullerene

Buckminsterfullerene (also known as buckyballs) are one of a class of hollow, aromatic **carbon** compounds constructed of carbon atoms arranged in 12 pentagonal and variable numbers of hexagonal faces.

The non-metallic element carbon, atomic number 6, is a highly versatile element that can exist in many solid forms, called allotropes. Graphite, for example, is a relatively soft allotrope of pure carbon that is used in lead pencils. Diamond is another allotrope of pure carbon. Diamond, the hardest substance known, is a colorless crystalline form of solid carbon that is a famed, highly valuable, gem widely used in industry and jewelry. A third, allotrope of solid carbon is comprised of a class called fullerenes. Fullerenes are cage-like, hollow configurations of chemically bonded carbon atoms. Shaped into hollow spheres, the carbon atoms of fullerenes are arranged into alternating, conjoined hexagons and pentagons that create faceted, globular surfaces resembling soccer balls. Fullerenes containing from 32 to 600 carbon atoms have been detected. The most stable fullerene is a sphere containing 60 carbon atoms termed Buckminsterfullerene

Buckminsterfullerene are fullerenes specifically composed of 60 carbon atoms. They are found in the soot that results from burning carbon-containing organic materials in the presence of too little **oxygen**. Buckminsterfullerenes or buckyballs, were first discovered in 1985 by the Nobel Prize winning scientists Richard E. Smalley, Robert F. Curl, and Harold W. Kroto. Buckminsterfullerenes were later isolated in pure form in 1990. The structure of this allotrope of carbon resembles the structure of geodesic domes and so was named after the architect who invented the domes, Buckminster Fuller. Currently, chemists are developing practical applications for the durable and highly stable buckminsterfullerenes. Potential uses include use in superconductor materials and in drug-delivery systems, where an active drug can be attached to the inert and stable buckyball for delivery to a target tissue.