Base Pairing Encyclopedia Article

Base Pairing

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

Base Pairing Encyclopedia Article.....1

Contents.....2

Base Pairing.....3

Base Pairing

DNA is formed of a double helicaly wound strand. The information found in a molecule of DNA is coded for by four different molecules arranged in particular orders. These information coding sections of DNA comprise four different organic bases. Adenine (A), guanine (G), thymine (T), and cytosine (C). In RNA thymine is replaced with uracil (U). C, U, and T are members of a group of compounds known as pyrimidines, and A and G are purines. To hold together the double helix of DNA a purine produces hydrogen bonds with a pyrimidine. A always bond with T (or U in RNA) and G always bonds with C. The practical application of this is that if one has a single strand of DNA then it is possible to make the complimentary strand using this constant relationship of the pairing of the nucleotide bases. This allows replication of the DNA molecule in cell division, the production of RNA from DNA and the ability of the DNA molecule to carry conserved information is encoded in this pattern of base pairing. The sizes of the molecules and the arrangements of the atoms within them ensures that a purine never joins with a purine (the molecule produced would be too large to fit into the DNA chain) and a pyrimidine never joins with a pyrimidine (the molecule would be too small). Also when A links with T or U then two hydrogen bonds are produced whereas when G links with C three hydrogen bonds are produced, so an attempted mis pairing would produce a distorted molecule as well as being physically the wrong size for the DNA chain, this provides a self check mechanism when new DNA is manufactured.