

Introduction

From the molecular and subcellular level to ecosystems and global conditions, biology holds and demands our attention. The spectacular discoveries and achievements in molecular biology in the last fifty years have created a gene-based medical revolution, with implications from crime-scene testing to stem cell research. The discovery of the structure of DNA (or deoxyribonucleic acid) in 1953 by Dr. James D. Watson and Dr. Francis Crick was one of the great advances in science, providing a universal key to understanding all forms of life. Crick and Watson discovered that DNA consisted of two complementary strands, a structure that solved the mystery of how the genetic material could be copied when a cell divides. Their original research has led to our deciphering of the human genome, which consists of some three billion units of DNA encoded with all the biological information needed to generate and maintain a living person.

The Handy Biology Answer Book explores the quantum leap in our understanding of biology, answering more than 1,600 questions in plain English on all aspects of human, animal, plant, and microbial biology. In the new millennium, biology continues to generate hot-button medical and political issues, including cloning, stem cell therapy, and genetic manipulation.

In this informative book, you'll find answers to such intriguing questions as: What is cell cloning? What are DNA and RNA? When and how did cells first evolve? Can two blue-eyed people have a brown-eyed child? How serious a disease is influenza? Do overweight children have a greater risk of being overweight adults? What is an atom? Why are some fats "good" and others "bad"? Why do humans need cholesterol? How do northern birds know to fly south in winter? Can the environment determine the sex of an animal? When was the first microscope developed?

Easy to use with special appeal to the general science reader and student, *Handy Biology* is organized in sixteen chapters with 100 illustrations and 150 tables and charts. *Handy Biology* covers such topics as cell structure and function, bacteria and viruses, plant and animal diversity, DNA and chromosomes, genetics, biotechnology and genetic engineering, evolution and adaptation, the environment, laboratory tools

and techniques, and related topics. A chronology lists major accomplishments and milestones in biological research, and a resources section lists books, periodicals, and Web sites where readers can explore each subject in greater depth.

The selection of chapter titles and the content within each chapter provide a solid overview of the entire subject of biology. The information in *Handy Biology* will appeal to those with a background in biology as well as those seeking an introduction to biology. We've included questions that are interesting, unusual, frequently asked at the reference desk or in the classroom, or difficult to answer. The questions range from the history and development of biology to current topics and controversies. Each chapter was a collaborative effort between the librarians (Jim and Naomi) and the biologists (Sandi and Laurel).

Each of us is pleased to contribute another addition to the "Handy Answer" family. It is wonderful to see literary growth paralleling biological growth, from the parent of all of the titles in this series, *The Handy Science Answer Book* (first published in 1994) to this most recent offspring.

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