



chemistry, the textbook is their key resource and their students' core source of information. Science education historiography recognizes the role played by the history and philosophy of science in developing the content of our textbooks, and with this in mind, the authors analyze more than 120 general chemistry textbooks published in the USA, based on criteria derived from a historical reconstruction of wave-particle duality. They come to some revealing conclusions, including the fact that very few textbooks discussed issues such as the suggestion, by both Einstein and de Broglie, and before conclusive experimental evidence was available, that wave-particle duality existed. Other large-scale omissions included de Broglie's prescription for observing this duality, and the importance of the Davisson-Germer experiments, as well as the struggle to interpret the experimental data they were collecting. Also untouched was the background to the role played by Schrödinger in developing de Broglie's ideas. The authors argue that rectifying these deficiencies will arouse students' curiosity by giving them the opportunity to engage creatively with the content of science curricula. They also assert that it isn't just the experimental data in science that matters, but the theoretical insights and unwonted inspirations, too. In addition, the controversies and discrepancies in the theoretical and experimental record are key drivers in understanding the development of science as we know it today. Prepared by Roxy Wilson of the University of Illinois-Urbana-Champaign. Full solutions to all of the red-numbered exercises in the text are provided. (Short answers to red exercises are found in the appendix of the text).

This outstanding textbook provides an introduction to electronic materials and device concepts for the major areas of current and future information technology. On about 1,000 pages, it collects the fundamental concepts and key technologies related to advanced electronic materials and devices. The obvious strength of the book is its encyclopedic character, providing adequate background material instead of just reviewing current trends. It focuses on the underlying principles which are illustrated by contemporary examples. The third edition now holds 47 chapters grouped into eight sections. The first two sections are devoted to principles, materials processing and characterization methods. Following sections hold contributions to relevant materials and various devices, computational concepts, storage systems, data transmission, imaging systems and displays. Each subject area is opened by a tutorial introduction, written by the editor and giving a rich list of references. The following chapters provide a concise yet in-depth description in a given topic. Primarily aimed at graduate students of physics, electrical engineering and information technology as well as material science, this book is equally of interest to professionals looking for a broader overview. Experts might appreciate the book for having quick access to principles as well as a source for getting insight into related fields.

The book covers the huge variety of ways in which the ubiquitous element arsenic and its compounds have influenced the lives of people worldwide.

Heyman chronicles the journeys of young adults in an under-served urban community who are new to the English language into STEM fields from high school through college in an effort to change the equation of who should be considered a legitimate contender for success in STEM fields.

This text is an unbound, binder-ready edition. Now in a new edition, this book continues its tradition of excellence in teaching and preparing students for success in the organic classroom and beyond. A central theme of the authors' approach to organic chemistry is to emphasize the relationship between structure and reactivity. To accomplish this, the text is organized in a way that combines the most useful features of a functional group approach with one largely based on reaction mechanisms. Emphasizing mechanisms and their common aspects as often as possible, this book shows students what organic chemistry is, how it works, and what it does in living systems and the physical world around us.

Introduction : matter and measurement -- Atoms, molecules, and ions -- Chemical reactions and reaction stoichiometry -- Reactions in aqueous solution -- Thermochemistry -- Electronic structure of atoms -- Periodic properties of the elements -- Basic concepts of chemical bonding -- Molecular geometry and bonding theories -- Gases -- Liquids and intermolecular forces -- Solids and modern materials -- Properties of solutions -- Chemical kinetics -- Chemical equilibrium -- Acid-base equilibria -- Additional aspects of aqueous equilibria -- Chemistry of the environment -- Chemical thermodynamics -- Electrochemistry -- Nuclear chemistry -- Chemistry of the nonmetals -- Transition metals and coordination chemistry -- The chemistry of life : organic and biological chemistry

"This book combines a number of excellent authors thinking about curriculum. It's a nice blend of known authors and newer writers in the field." — Robert C. Morris, University of West Georgia

"The range of topics—reading, science, art—makes this a complete and comprehensive reader for both novices and experienced educational teachers and leaders." —Jeffrey S. Kaplan, University of Central Florida Contemporary Readings in Curriculum provides beginning teachers and educational leaders with a series of articles that can help them build their curriculum knowledge base Key Features and Benefits Provides a historical context of the curriculum field, giving educators a solid foundation for curriculum knowledge Describes the political nature of curriculum and how we must be attentive to the increasingly diverse populations found in our schools Connects the readings to traditional course goals, providing practical applications of curriculum topics Covers cocurricular issues, which have become a major contemporary topic within school systems Enhances the articles with a strong pedagogical framework, including detailed Internet references, questions for each article, topic guides tying each article to course topics, and article abstracts for the instructor Includes Articles From the Following Journals American School Board Journal Community College Review Curriculum & Teaching Dialogue Education & Urban Society Educational Leadership Educational Policy Harvard International Journal of Press/Politics Journal of Cases in Educational Leadership Journal of Chemical Education, Journal of Curriculum & Supervision Journal of Curriculum Studies NASSP Bulletin Phi Delta Kappan Rethinking Schools Teachers College Record The American Behavioral Scientist The Educational Forum The Journal of Social Issues Theory and Research in Education Urban Education Youth Violence and Juvenile Justice Intended Audience This book is intended as a supplement for graduate courses such as Curriculum Development, Curriculum Theory, and Curriculum Leadership.

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Carefully crafted to provide a comprehensive overview of the chemistry of water in the environment, Water Chemistry: Green Science and Technology of Nature's Most Renewable Resource examines water issues within the broad framework of sustainability, an issue of increasing importance as the demands of Earth's human population threaten to overwhelm the planet's carrying capacity. Renowned environmental author Stanley Manahan provides more than just basic coverage of the chemistry of water. He relates the science and technology of this amazing substance to areas essential to sustainability science, including environmental and green chemistry, industrial ecology, and green (sustainable) science and technology. The inclusion of a separate chapter that comprehensively covers energy, including renewable and emerging sources, sets this book apart. Manahan explains how the hydrosphere relates to the geosphere, atmosphere, biosphere, and anthrosphere. His approach views Planet Earth as consisting of these five mutually interacting spheres. He covers biogeochemical cycles and the essential role of water in these basic cycles of materials. He also defines environmental chemistry and green chemistry, emphasizing water's role in the practice of each. Manahan highlights the role of the

