

Textbook Evaluation

(To be completed when 5 or more tradebooks are recommended for use in classroom instruction.)

Modern Chemistry

TITLE

Holt, Rinehart, and Winston

PUBLISHER

Dan Hortert, NDHS

EVALUATOR

Trish Vickers, Curriculum Facilitator

EVALUATOR

EVALUATOR

Science

SUBJECT AREA

2006

COPYRIGHT DATE

Secondary Science Text Committee

SCHOOL OR COMMITTEE

2/23/06

DATE OF EVALUATION

*In accordance with policy number 370.1 and procedures number 370.31 of the Policy Manual of Dorchester County, the following questions should be considered when selecting new textbooks. **Please answer the following questions and give documentation for your answers.***

1. To what extent does the textbook relate to the curricular objectives of the county?

The *Modern Chemistry* text provides more than adequate rigor to meet the requirements of the Dorchester County curriculum for Chemistry I (course numbers 21120 and 21125). All of the indicators are covered for the Maryland Core Learning Goals (CLG's) for Goal 4: Concepts of Chemistry. Many of the indicators for Goal 1: Skills and Processes for Biology Assessment are also covered by this text.

2. Cite examples which indicate that the book is accurate and objective. (e.g. author's credibility and copyright)

The Holt *Modern Chemistry* has evolved over more than four decades with a distinguished list of contributing authors. The 2006 edition includes Raymond E. Davis, PhD, Regina Frey, PhD, Jerry L. Sarquis, PhD, and Mickey Sarquis, who are all professors of chemistry.

3. Cite examples which indicate that this book is authoritative, realistic, and factual.

The four decades of work on this text by scores of contributing authors ensures that the text is factual. The many years of improvements have produced an accurate and modern version of the study of chemistry. The newest edition is very similar to the previous edition, but, there are changes in the way that the text presents the gas laws and the molecular nature of gases. The text presents a wide variety of chemistry-related topics with historical aspects of chemistry, careers in chemistry, and connections to other disciplines. This text is specifically designed to meet the National Science Educational Standards. This correlation ensures that

the text is authoritative. The realistic nature of the text is supported by the fact that it covers all topics normally included in a high school chemistry course. Its realism is also seen in the many feature articles in the following categories: Chemistry in Action, Careers in Chemistry, Cross-Disciplinary Connections, and Historical Chemistry.

4. **What correlation can be made with visual materials?** The text includes a nice variety of visual materials. All of the visual materials correlate exactly with the student text. The visual materials include over 200 teaching transparencies which are also provided on CD-ROM, Power Point presentations, Chemfile Interactive Tutor discs, a Visual Concepts disc, a CD ROM Student Edition, a Premier Online Edition, and the [SciLinks](#) Web site.
5. **Does it contain bibliographies which include multi-media materials?** The Holt package provides a Video Resources component titled, "CNN Presents Science in the News: Chemistry Connections." In addition, the NSTA [SciLinks](#) component of the package provides a wide variety of options related to the use of multi-media materials.
6. **With what grade and level of students will it be used?** Dorchester County students in grades 10-12 who take Chemistry I will use the *Modern Chemistry* text materials.
 - A. **Give evidence of readability.** The readability is 11.8 using the Dale-Chall measurement scale. The score is higher due to the complex vocabulary in a Chemistry text. Since this is an advanced science course the readability is achievable by most students. The Walk-Through Guide for the text describes chemistry as "the first course for high school students that requires operational problem-solving skills." That fact led the authors to provide appropriate resources to assist the student in reading and utilizing the text. Some of those resources include a Math Tutor in every chapter. This helps the student to use a problem-solving skill encountered in the chapter, gives sample problems that show a consistent step-by-step procedure of how to solve the problem, section reviews to help students grasp basic concepts as well as use critical thinking, and a chapter review to provide practice that is tied to the content.
 - B. **Give evidence of conceptual load.** The nature of a rigorous high school chemistry course ensures that the conceptual load will be demanding. The text emphasizes new vocabulary and concepts by introducing them in bold print. Many of the difficult concepts are further emphasized in the margin notes of the text and they are included in the [SciLinks](#) Internet Resource Links.
 - C. **Give evidence of appropriate organization.** The text follows a very well organized sequence that begins with an emphasis on science skills and processes. This transitions into three chapters that emphasize modern atomic theory and the periodic table. It then

builds on those foundational chapters with chapters emphasizing all of the major sub-topics that are normally found in a typical high school chemistry text. The text concludes with some interdisciplinary chapters on nuclear, organic, and biological chemistry. The flow of the text is such that most students will have the ability to see how one chapter builds on the previous ones.

- D. **Give evidence of appropriate graphics.** The entire text is filled with colorful and appropriate graphics. A good percentage of the pages contain photographs, charts, diagrams, or drawings that help explain the rigorous content. An especially good example is found on page 283 where the combustion of hydrogen is shown in a photograph.
7. **Specify whether this book is arranged chronologically or systematically.** As mentioned earlier this text is arranged systematically. The earlier chapters are designed to build a foundation of skills and knowledge that can be used to understand the more difficult concepts that are presented in the later chapters. The text does a good job of accomplishing that goal.
8. **Cite examples that indicate the pluralistic character and culture of the American people.** One way that the text shows the pluralistic character of chemistry education is by the emphasis on the many scientists from various countries, various cultures, and various nationalities. An example is presented on pages 302 and 303 in the Historical Chemistry section about Antoine Laurent Lavoisier.
9. **Cite examples which indicate the book is free of sexual stereotyping.** The text does not present any bias regarding sexual stereotyping. On page 694, they depict a female lab technician and on page, 700-701, they present an extensive explanation of Lise Meitner's role in developing our understanding of nuclear fission. Male scientists are also depicted throughout the text. An example would be a Cross-disciplinary Connection section dealing with Dr. Ken Simmons on page 510.
10. **Cite examples which indicate that this book represents various ethnic groups.** Two examples would be the presentation of Lise Meitner's work on pages 700-701, and the presentation of Charles Drew's work on page 762. Lise Meitner was a physicist of Jewish descent who did extensive work in the field of nuclear chemistry and physics. Charles Drew was an African-American scientist who did pioneer work in the development of blood banks.
11. **How does this book represent the broad spectrum of viewpoints of given topics?** The nature of science is to accept all viewpoints as long as they stand up the scrutiny of experimental testing. The text presents the chemistry content in a variety of ways to support that philosophy. One of the best examples involves the presentation of the Cross-

Disciplinary Connections. The Liming Streams article, found on page 510, presents varying points of information on the topic of acid rain in streams without being judgmental.

12. **What are the weaknesses of this book?** There are few weaknesses in the text. However, more pictures of scientists and technicians in action could be included. The book contains ten inserts of Careers in Chemistry that are placed in highlighted sections along the margins of the text. Although the inserts do a nice job of explaining each of the careers, pictures of these professionals in action would add to the book.
13. **What are the major reasons for the recommendation of this book?** This textbook aligns with the Dorchester County curriculum for Chemistry I, the Maryland Core Learning Goals for Chemistry, and the National Education Standards. For the last four decades, this textbook series has done an exemplary job of preparing chemistry students for college and for advanced study. The authors and publishers have done an exceptional job of maintaining the integrity of the text in this latest edition and have continued to improve the book as well as the associated resources. The text has indeed remained "modern" while keeping the rigor and high standards that the series has always displayed.
14. **Does this book replace an existing textbook? If so, specify.** This text replaces an earlier edition of *Modern Chemistry*, 1999, that was previously used for Chemistry I.