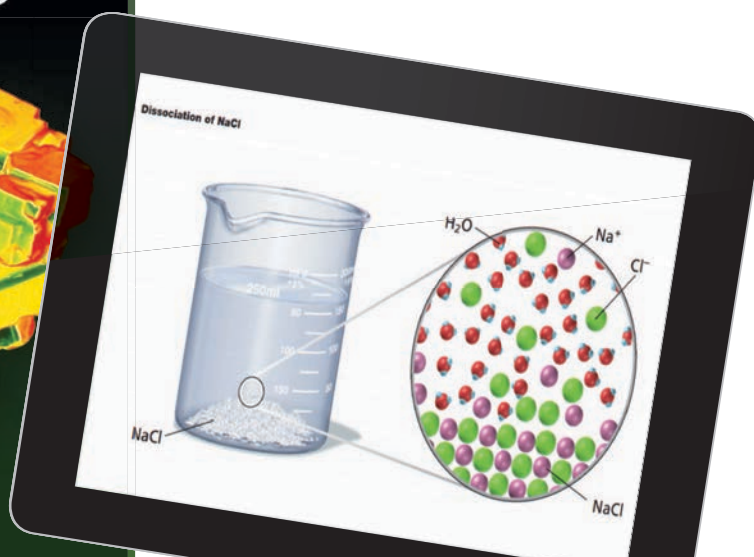
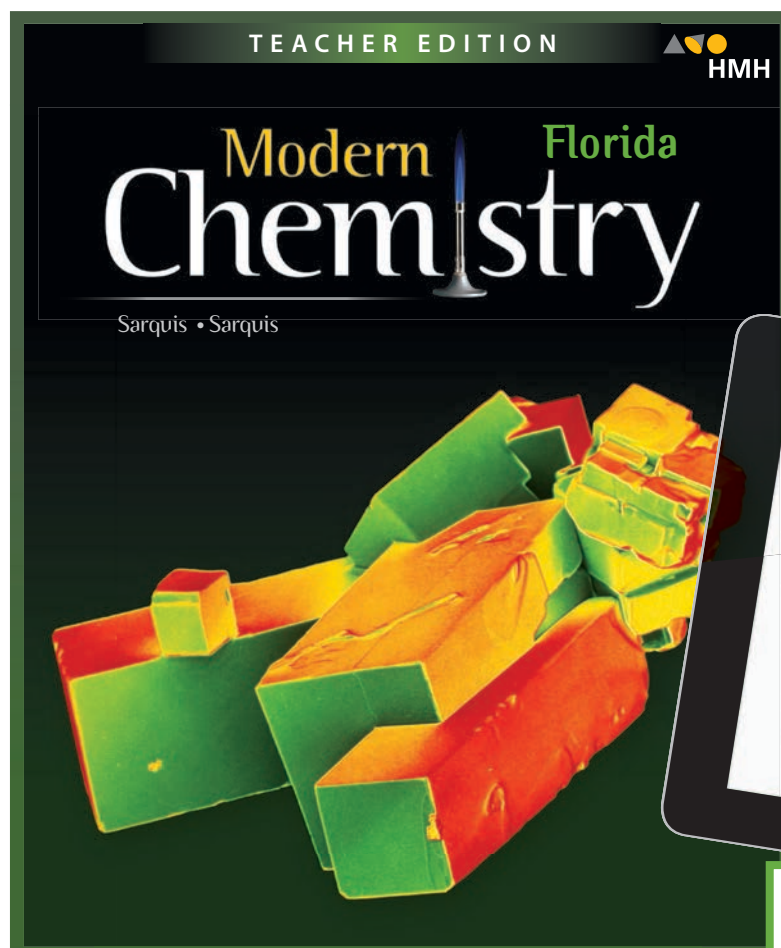


Modern Chemistry



Reviewer's Guide



Featuring **THING**
EXPLAINER &



Google Expeditions

Tired of hauling your books back and forth from school to home?

Houghton Mifflin Harcourt® **Modern Chemistry**® Less paper, more **Convenience**

Everything you need—now in one convenient online location!

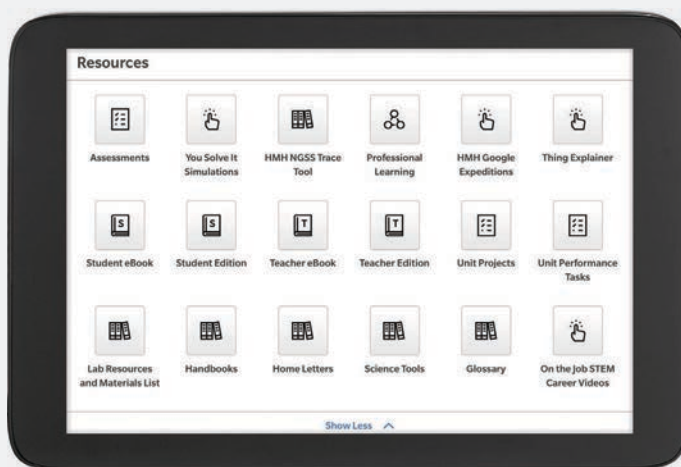
The **Interactive Online Edition** gives you and your students 24/7 point-of-use access to all program components.

Why It Matters

Each chapter opens with a dynamic video that relates the content to everyday life.

Virtual Labs

Students can conduct meaningful experiments in a simulated lab or field setting without the expense, time, or risk of traditional lab settings.



Solve It! Cards

Portable reference cards offer quick access to strategies for solving almost any chemistry problem.

Learn It! Videos

Tutorial videos walk students through challenging problems and offer tips for success.

Animated Chemistry

Animations and simulations help students visualize and comprehend complex concepts.



Dashboard

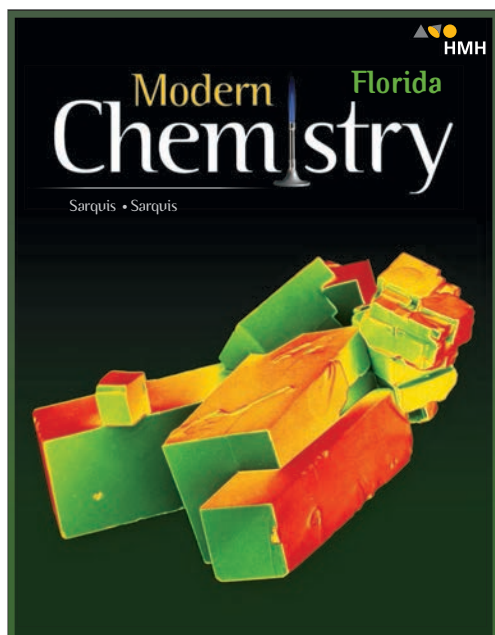
Classrooms using **Florida Modern Chemistry** © 2019 will now have the benefit of the **improved** online interface provided by the HMH Dashboard. This also includes *mySmartPlanner*, enabling you to combine calendar functionality with curriculum mapping and program resources.



For Online Access please contact
your local Account Executive
hmhco.force.com/relocator

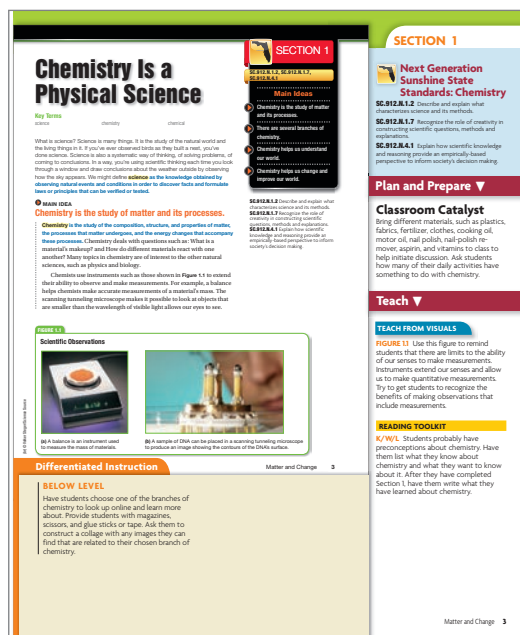
Print Components **Designed** and **Aligned** for Easy Access

HMH Florida *Modern Chemistry* enables you to reach all learners by providing time-saving, easy-to-use resources to help students of all abilities achieve understanding and success.



Florida Student Edition

Offers features that make chemistry concepts more accessible, such as **highlighted vocabulary**, **problem-solving support**, and references to online student support tools.



Florida Teacher Edition

Packed with a wide variety of **strategies** to help all students master chemistry concepts, plus **extended learning** opportunities for advanced students. Correlated to the **Florida Next Generation Sunshine State Standards** for Chemistry.

Interactive Reader (Student and Teacher Editions)

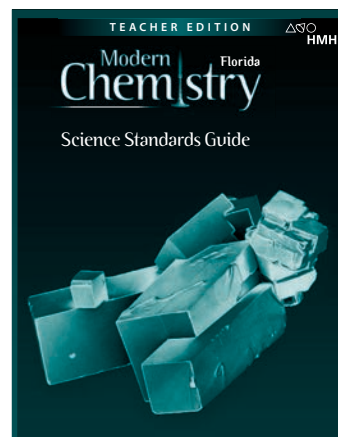
A **write-in worktext** that provides all of the essential content and vocabulary of the Student Edition at a reading level one to two grades below the text. A great resource for students of all ability levels, the Interactive Reader is both a core instructional tool for **struggling students** and a useful **study guide** for all students. The Answer Key provides teacher notes and answers for every section of the Interactive Reader.

Engineering Design Guide (Student and Teacher Editions)

This Engineering Design Guide provides an overview of the **engineering design process** along with activities and checklists that can help foster students' **critical-thinking** and **problem-solving skills**.

Florida Science Standards Guide (Student and Teacher Editions)

A two-page Challenge Activity for **every Chemistry standard**, the **Florida Science Standards Guide** includes teacher notes and evaluation guidelines for each challenge as students perform a lab, an investigation, a research project, or another activity.



How do you put your students in the moment?

Digital Tools That **Motivate** and **Engage**

HMH Modern Chemistry offers the latest multimedia resources that speak directly to your students in a visual language they understand—ensuring that they will stay engaged.

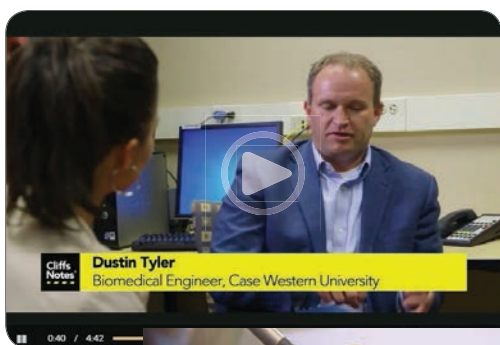


As a Google® content partner, HMH® has developed K–12 field trips for Google Expeditions. Using a virtual reality viewer—like Google Cardboard™—and a smartphone, students are swept away into immersive virtual worlds where learning and engagement are maximized. These virtual field trips are 3D, 360-degree panoramas from fascinating locations, directly tied to science content! An **HMH Teacher Guide** provides ideas for incorporating the Expeditions into your lessons, as well as tips on how to guide and customize the experience.



Interactive Review Games

Three different styles of vocabulary and concept review games help reinforce the material learned in each chapter in a fun and engaging format.



On the Job
Graphic Designer



On the Job STEM Videos

Are your students gamers who dream of creating the next big hit? Or music lovers who want to work with the biggest artists? Or thrill seekers with designs in mind for race cars or roller coasters?

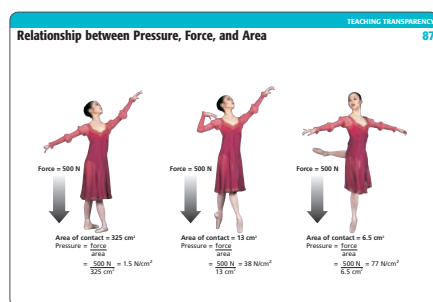
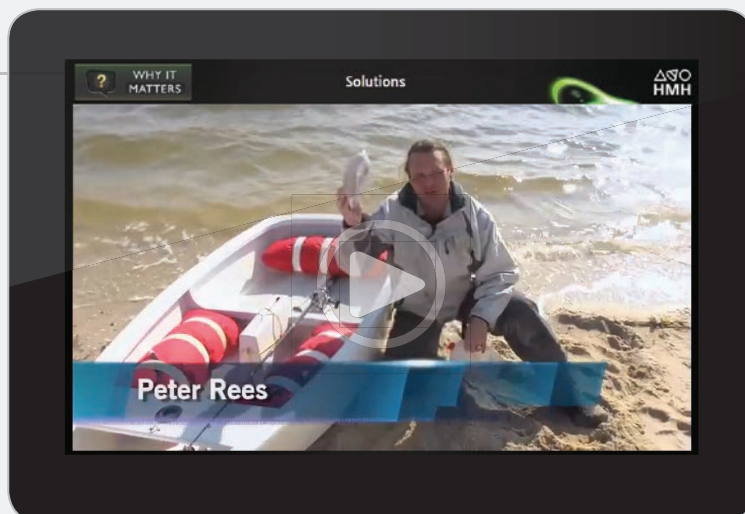
As part of our Premium, Hybrid, and Digital Enhanced offerings, HMH now includes 29 *On the Job* STEM videos that **profile STEM careers** in today's fastest-growing industries. Our energetic hosts shadow passionate professionals in a day "on the job." These short segments are inspirational and entertaining with the hosts actually performing parts of the job! These videos will **motivate students** to enter emerging STEM fields.



Scan here to view
On the Job STEM videos.

Why It Matters Videos

Seventeen chapter-introductory videos are an effective way to **begin a new topic** of chemistry study. Each video is designed to take the content of the chapter and **relate it to everyday objects or situations** that are familiar to students.



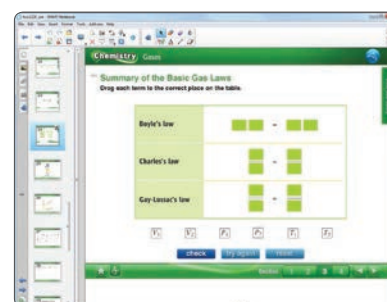
Teaching Visuals

Digital versions of key illustrations and diagrams are ideal for **whole-class instruction**.



PhET Simulations

Interactive online simulations produced under Creative Commons licensing by the University of Colorado at Boulder. They provide fun, interactive, **research-based simulations** of real-life phenomena.



Interactive Whiteboard Resources

IWB resources include interactive **teaching visuals** and **content-reinforcement lessons** for each chapter of the textbook in SMART Notebook™ and ActivInspire® Flipchart formats.



Animated Chemistry

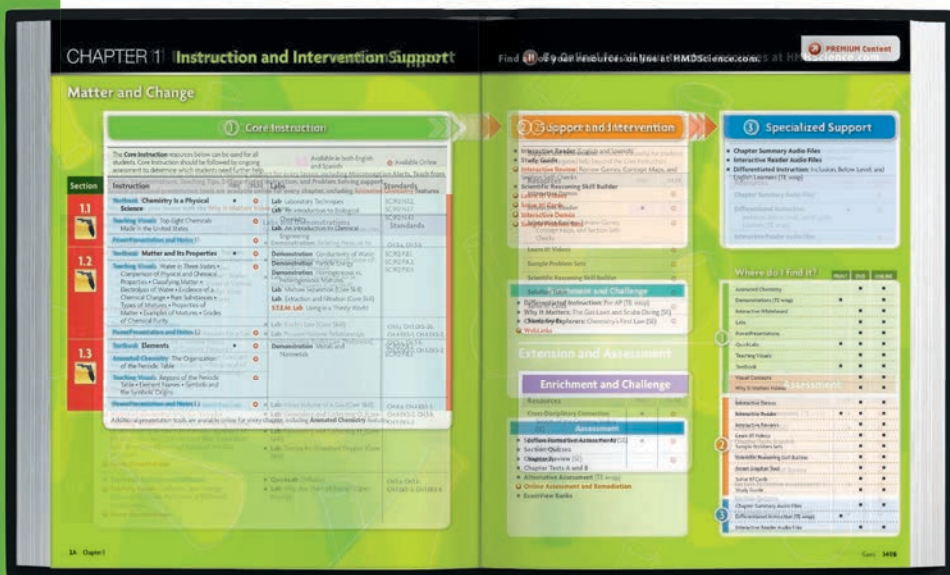
Each **Animated Chemistry** simulation includes three parts—an overview of the concept, an interactive simulation, and an assessment.

Unparalleled Resources for Differentiated Instruction

Students approach chemistry with a wide variety of skills and levels of preparation. **HMH Modern Chemistry** provides you with the tools you need to help all students succeed.

Florida Teacher Edition

The **Instruction and Intervention** feature located in each chapter of the Teacher Edition provides **strategies for every lesson** to assist you in helping students with a wide range of needs. To simplify lesson planning, these support pages at the beginning of each chapter provide a full listing of the activities and classroom resources available for each section.



The side margin of the Teacher Edition includes a **Differentiated Instruction** feature with a wide variety of strategies to help all students master chemistry concepts. Material categories include Below Level, English Learners, Pre-AP®, and Inclusion.

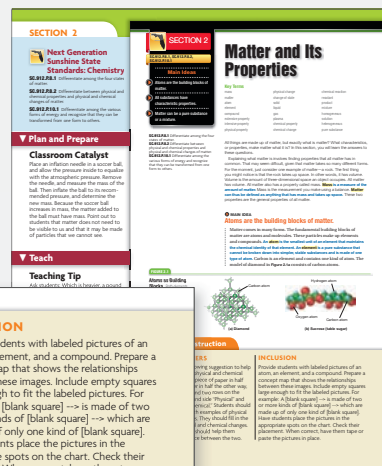
Differentiated Instruction

ENGLISH LEARNERS

Offer students the following suggestion to help guide their reading on physical and chemical properties. Fold a large piece of paper in half vertically. Fold the paper in half the other way to form two columns and two rows on the paper. Label the left-hand side "Physical" and the right-hand side "Chemical." Students should fill in the upper row with examples of physical and chemical properties. They should fill in the lower row with physical and chemical changes. A few classic examples should help them remember the difference between the two.

INCLUSION

Provide students with labeled pictures of an atom, an element, and a compound. Prepare a concept map that shows the relationships between these images. Include empty squares large enough to fit the labeled pictures. For example, a [blank square] → is made of two or more kinds of [blank square] → which are made up of only one kind of [blank square]. Have students place the pictures in the appropriate spots on the chart. Check their placement. When correct, have them tape or paste the pictures in place.



Chapter and Section Study Guide

The student worksheets in this guide cover the content in each section of the textbook using a **variety of questioning strategies**.

Editable!

Name: _____ Class: _____ Date: _____

CHAPTER 11 REVIEW

Gases

MIXED REVIEW

SHORT ANSWER Answer the following questions in the space provided.

- Consider the following data table:

Approximate pressure (kPa)	Altitude above sea level (km)
101	0.0 (sea level)
80	0.5 (top of Mt. Everest)
60	1.0 (top of Mt. Everest)

 - Explain briefly why the pressure decreases as the altitude increases.
 - A few places on Earth are below sea level (the Dead Sea). What would be true about the average atmospheric pressure there?
- Explain how the ideal gas law can be simplified to give a constant. $P \propto 1/V$, when the pressure and temperature are constant.

PROBLEMS Write the answer on the line to the left. Show all work in the space provided.

- Convert a pressure of 0.400 atm to the following units:
 - torr
 - Pi

Name: _____ Class: _____ Date: _____

CHAPTER 11 REVIEW

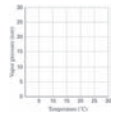
Gases

SECTION 1

SHORT ANSWER Answer the following questions in the space provided.

- Pressure is $\frac{\text{force}}{\text{area}}$. For a constant force, when the surface area is tripled the pressure is
 - tripled.
 - a third as much.
 - tripled.
 - unchanged.
- Rank the following pressures in increasing order:
 - 50 kPa
 - 2 atm
 - 75 torr
 - 100 N/m²
- Explain how to calculate the partial pressure of a dry gas that is collected over water when the total pressure is atmospheric pressure.

PROBLEMS Write the answer on the line to the left. Show all your work in the space provided.

- Use five to six data points from Appendix Table A.8 in the text to sketch the curve for water vapor's partial pressure versus temperature on the graph provided below.

 - Do the data points lie on a straight line?
 - Based on your sketch, predict the approximate partial pressure for water at 11°C.

Interactive Reader Audio Files

The entire Interactive Reader has been professionally read and is available to students to help **bolster learning comprehension**.

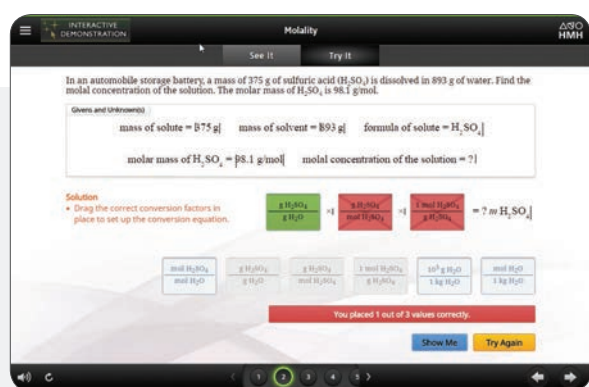


and Problem Solving

HMH *Modern Chemistry* provides a variety of sample problems that challenge and strengthen students' problem-solving skills.

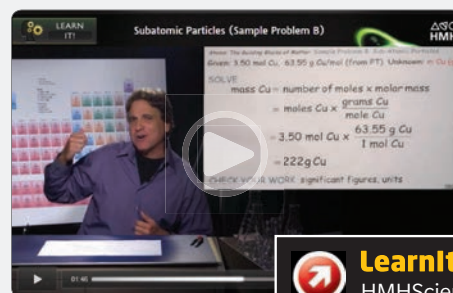
Solution Tutor

Guides students step-by-step through selected problems, recognizes their error patterns, and then provides hints and targeted remediation to improve their problem-solving skills.



Interactive Demonstrations

Each sample problem in the textbook has an accompanying **Interactive Demonstration** that walks through the steps of solving that type of chemistry problem. The **Try It Yourself** feature helps students apply what they have learned. Each includes a full audio narrative.

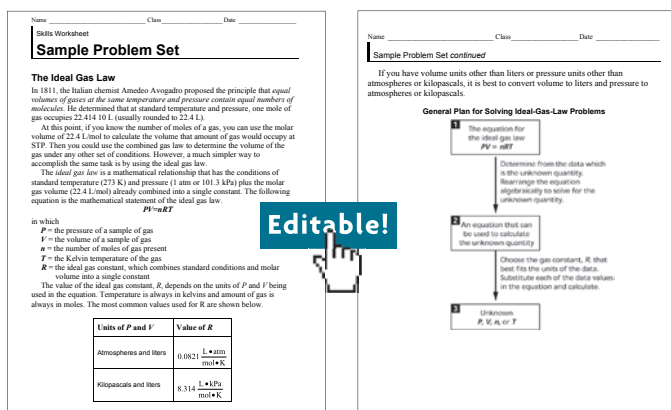


Learn It! Videos

Forty professional tutorial videos walk students through challenging chemistry problems, with tips and strategies for success.

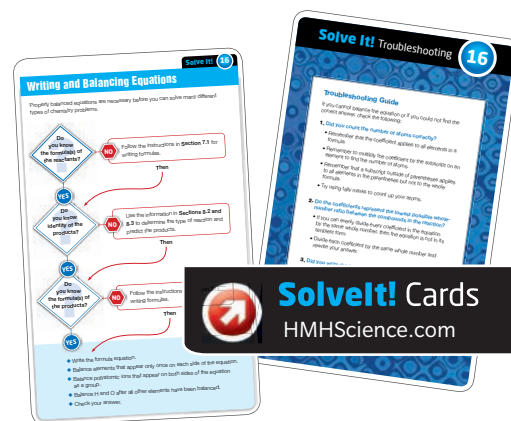
Sample Problem Sets

These skill worksheets provide **problem-solving strategies** and an extensive bank of student **practice problems** for every type of chemistry problem in the textbook.



Solve It! Cards

These printable and **portable reference cards** provide students with quick access to effective problem-solving strategies and guidelines.



Wide-Ranging Support for Reading and Vocabulary

Your students will get the most out of their reading with numerous print and multimedia point-of-use resources that enable them to build understanding and retain more information on key concepts.



Student Edition

Big Ideas in every Chapter Opener & Summary help students concentrate on key concepts.

Main Idea

Chapter content has been organized around main ideas.

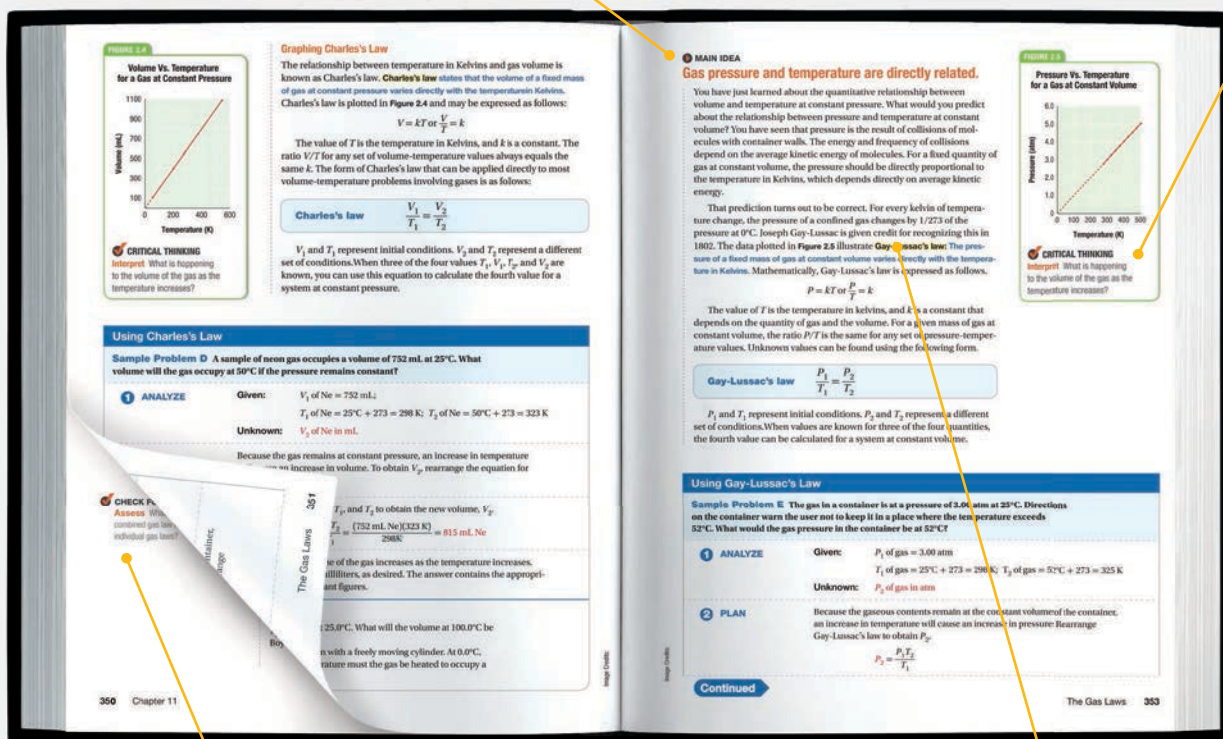
Critical Thinking

Critical-Thinking questions prompt your students to think deeply.



CRITICAL THINKING

Interpret What is happening to the volume of the gas as the temperature increases?



CHECK FOR UNDERSTANDING

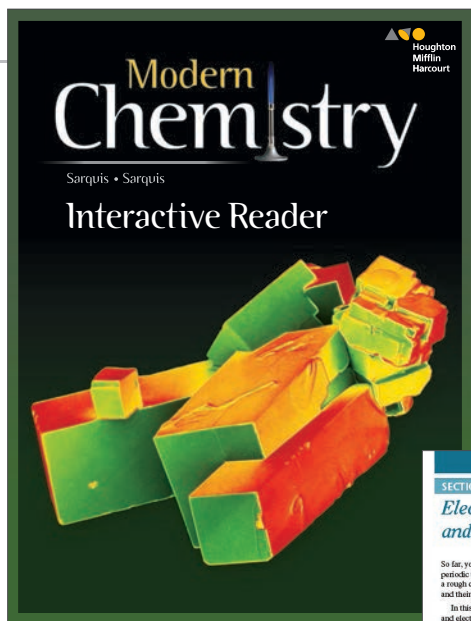
Assess What advantage does the combined gas law have over the three individual gas laws?

Check for Understanding

These reading-comprehension questions help reinforce the important points of the section.

In-text definitions

As students study, they'll find key vocabulary has been highlighted in context.



Interactive Reader

This write-in worktext presents all the vocabulary and essential content from the textbook in a lower-level, **easy-to-read** text, with instructional visuals and frequent comprehension checks. This unique component is a great tool for all students—the core content for struggling students and a useful **study guide** for others.

SECTION 5.3
Electron Configuration and Periodic Properties

So far, you have learned that elements are arranged in the periodic table according to their atomic number. There is also a rough correlation between the arrangement of the elements and their electron configurations.

In this section, the relationship between the periodic law and electron configuration will be further explored. This relationship allows several properties of an element to be predicted simply from its position relative to other elements on the periodic table.

Atomic radii are related to electron configuration.

Identify the size of an atom as defined by the edge of its outermost orbital. However, the location of this boundary is difficult to determine, and can vary under different conditions. Therefore, to estimate the size of an atom, the conditions to which it is subjected must be described.

One way to define the atomic radius is as one-half the distance between the nuclei of identical atoms that are bonded together. For example, a molecule of chlorine gas contains two atoms of chlorine bonded together. The distance between the two chlorine nuclei is 196 pm. Therefore, the atomic radius of a chlorine atom is 99 pm.

Critical Thinking

1. Apply In a gold block, individual atoms of gold are bonded together through metallic bonding. How would you use the gold block to determine the atomic radius of an atom of gold?

KEY TERMS

- atomic radius
- electron configuration
- periodic law
- periodic table
- periodic properties
- periodic law
- periodic table
- periodic properties

Diagram: A diagram showing two chlorine atoms bonded together. The distance between the two chlorine nuclei is labeled as 196 pm. The atomic radius of a chlorine atom is labeled as 99 pm.

SECCIÓN 5.3
La configuración electrónica y las propiedades periódicas

Hasta ahora, has aprendido que los elementos están distribuidos en la tabla periódica en función de su número atómico. También hay una correlación aproximada entre la distribución de los elementos y su configuración electrónica.

En esta sección, analizaremos la relación entre la ley periódica y la configuración electrónica. Esta relación permite predecir fácilmente varias propiedades de un elemento a partir de su ubicación en relación con otros elementos de la tabla periódica.

El radio atómico se relaciona con la configuración electrónica.

Identifiquemos el tamaño de un átomo está dado por el borde de su orbital más externo. Sin embargo, la ubicación de ese borde es difícil de determinar y puede variar en diferentes condiciones. Por lo tanto, para estimar el tamaño de un átomo, se deben describir las condiciones a las que está sometido.

Una manera de definir el radio atómico es como la mitad de la distancia entre el núcleo de dos átomos idénticos que están unidos. Por ejemplo, una molécula de gas cloro contiene dos átomos de cloro unidos. La distancia entre los dos núcleos de cloro es 196 pm. Por lo tanto, el radio atómico de un átomo de cloro es 99 pm.

Pensamiento crítico

1. Aplicar En un bloque de oro, los átomos idénticos de oro están unidos mediante un enlace metálico. ¿Cómo usarías el bloque de oro para determinar el radio atómico de un átomo de oro?

TERMINOS CLAVE

- radio atómico
- configuración electrónica
- ley periódica
- tabla periódica
- propiedades periódicas
- ley periódica
- tabla periódica
- propiedades periódicas

Diagrama: Un diagrama que muestra dos átomos de cloro unidos. La distancia entre los dos núcleos de cloro se etiqueta como 196 pm. El radio atómico de un átomo de cloro se etiqueta como 99 pm.

Reaction Rates

Terms

- collision theory
- indicates that for
- energy
- collision must
- energy
- to occur
- particles
- must have enough
- reactants
- and collide with a favorable
- orientation
- product

You placed 5 out of 7 terms correctly. Try Again

Editable!

Interactive Concept Maps

Each chapter includes an interactive, advanced **graphic organizer** that shows the relationships among concepts covered and helps students develop logical thinking and study skills.

Chapter 6: Chemical Bonding

Section 6.1: Ionic Bonding

Section 6.2: Covalent Bonding

Section 6.3: Molecular Bonding

Section 6.4: Interatomic Forces

Section 6.5: Crystal Structures

Section 6.6: Properties of Solids

Section 6.7: Properties of Liquids

Section 6.8: Properties of Gases

Section 6.9: Properties of Solutions

Section 6.10: Properties of Acids and Bases

Section 6.11: Properties of Salts

Section 6.12: Properties of Polymers

Section 6.13: Properties of Nanomaterials

Section 6.14: Properties of Biomaterials

Section 6.15: Properties of Composites

Section 6.16: Properties of Smart Materials

Section 6.17: Properties of Nanoscale Devices

Section 6.18: Properties of Nanoscale Systems

Section 6.19: Properties of Nanoscale Structures

Section 6.20: Properties of Nanoscale Processes

Section 6.21: Properties of Nanoscale Phenomena

Section 6.22: Properties of Nanoscale Interactions

Section 6.23: Properties of Nanoscale Dynamics

Section 6.24: Properties of Nanoscale Thermodynamics

Section 6.25: Properties of Nanoscale Kinetics

Section 6.26: Properties of Nanoscale Equilibrium

Section 6.27: Properties of Nanoscale Transport

Section 6.28: Properties of Nanoscale Optics

Section 6.29: Properties of Nanoscale Acoustics

Section 6.30: Properties of Nanoscale Magnetism

Section 6.31: Properties of Nanoscale Electricity

Section 6.32: Properties of Nanoscale Heat

Section 6.33: Properties of Nanoscale Mass

Section 6.34: Properties of Nanoscale Time

Section 6.35: Properties of Nanoscale Space

Section 6.36: Properties of Nanoscale Energy

Section 6.37: Properties of Nanoscale Information

Section 6.38: Properties of Nanoscale Communication

Section 6.39: Properties of Nanoscale Control

Section 6.40: Properties of Nanoscale Observation

Section 6.41: Properties of Nanoscale Manipulation

Section 6.42: Properties of Nanoscale Fabrication

Section 6.43: Properties of Nanoscale Assembly

Section 6.44: Properties of Nanoscale Disassembly

Section 6.45: Properties of Nanoscale Transformation

Section 6.46: Properties of Nanoscale Conversion

Section 6.47: Properties of Nanoscale Interconversion

Section 6.48: Properties of Nanoscale Interchange

Section 6.49: Properties of Nanoscale Interaction

Section 6.50: Properties of Nanoscale Interference

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Section 6.99: Properties of Nanoscale Interference

Section 6.100: Properties of Nanoscale Interference

eBook

This **online version** of the print Student Edition features a wealth of **built-in tools** to help students access the content, including the chunking of content around Main Ideas, with frequent comprehension checks, superior support for problem solving, high-quality instructional visuals, point-of-use references to online animations, Problem-Solving tutorials, and virtual labs that make abstract concepts more concrete. Features include data persistence, on-page media links, bookmarking, search, notes, and highlighting functionality.

Convenient Access to Labs, Data Analysis, and STEM

How do students really *understand* science without *doing* science? HMH Florida **Modern Chemistry** includes the most comprehensive lab resources with its wide variety of print and digital lab options for every classroom, along with the most robust data-analysis strand to help students develop these critical skills.

Laboratory Experiments

Over 200
Editable Labs!

Wide variety of labs located at point of use on **HMHSience.com**:

- Editable lab sheets
- Teacher notes and answer keys
- Referenced on Instruction and Intervention pages in Teacher Edition

Quick Labs

Designed for reinforcement of key concepts using easy-to-obtain materials

Standard Labs

Focus on experimental skills and application of chapter concepts through the use of scientific methods

Core Skill Labs

Provide practice of inquiry skills and scientific methods

STEM Labs

Science, Technology, Engineering, and Mathematics problem-based labs that emphasize inquiry and the engineering design process

Open Inquiry Labs

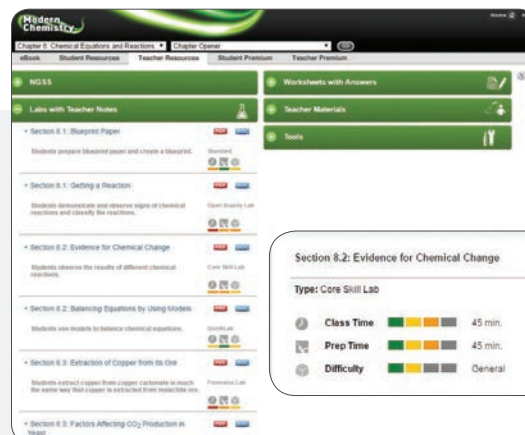
Specifically designed to be short project-based labs that encourage students to collaborate, strategize, construct, and evaluate a lab challenge of their own creation

Probeware Labs

Labs that use Vernier® probeware and Pasco® probeware and SPARK® technology

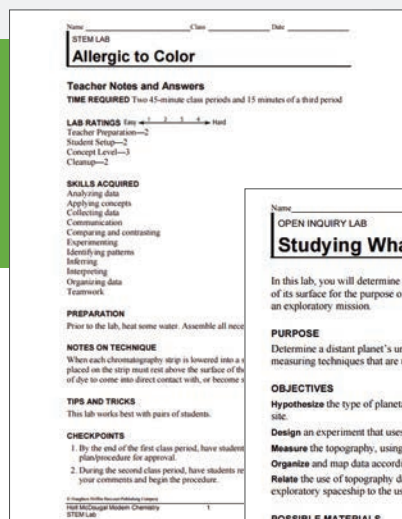
Forensic Labs

Application labs that have students demonstrating laboratory skills through the exploration of forensic and applied science scenarios

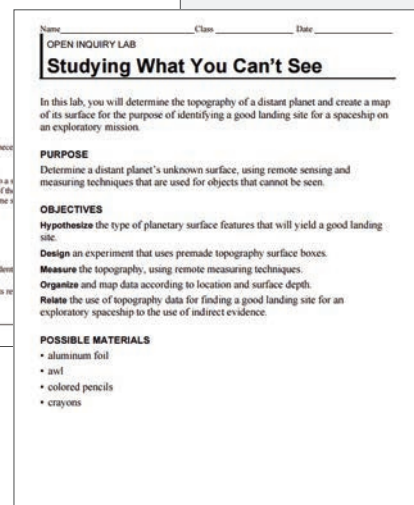


Labeled Labs

Lab activities are labeled online by **class time**, **prep time**, and **difficulty** to help teachers choose appropriate activities to fit their classroom needs.



STEM labs



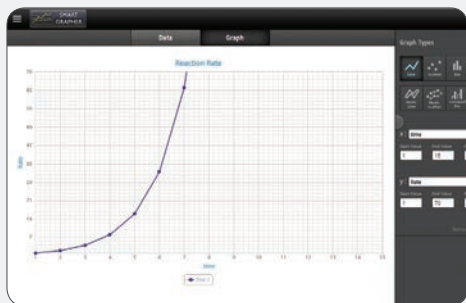
Inquiry labs

S.T.E.M. in the Student Edition

Select STEM features include an Engineering Design feature in the Student Edition. This feature encourages students to follow the **engineering design process** and think about problems in an innovative way.

Data Analysis Support for Students

To help students develop the data analysis skills necessary to collect, graph, and analyze data like scientists, **HMHSite.com** includes resources to support the data analysis lesson in every chapter.



Smart Grapher

A powerful, easy-to-use **online graphing tool** that encourages students to use their own data to create line graphs, circle graphs, and more.

Scientific Reasoning Skill Builder

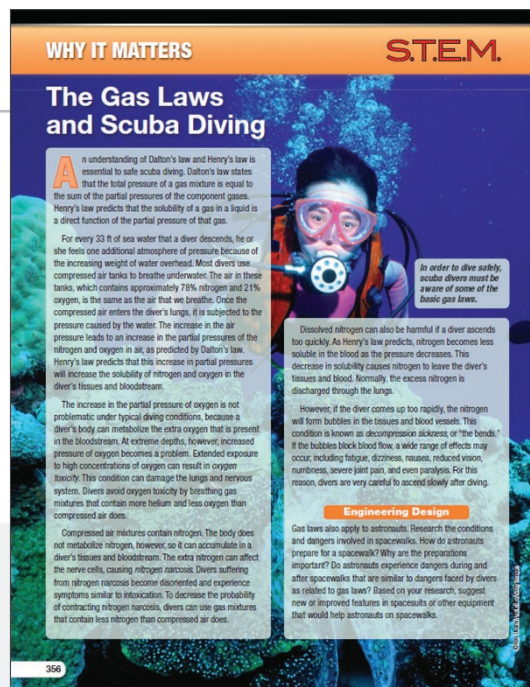
Over **100 exercises** that strengthen students' scientific-reasoning skills. Sample topics include classifying and categorizing; cause-and-effect relationships; hypotheses, generalizations, and analogies; and summarizing and reviewing.

Pre-Lab Procedures

This resource provides **Teacher Resource Pages** and worksheets to help students develop the skills necessary to complete chapter labs.

Graphing Calculator Activities

HMH has partnered with Texas Instruments® to present nine **graphing activities** for use with the TI-Nspire® graphing calculator.



Virtual Labs

Students can hone their lab skills in a virtual environment. Fun, safe, and highly interactive, these labs focus on experiments for which equipment and materials are often expensive or difficult to acquire.

Flexible Assessment Tools to Track Student Progress

The comprehensive assessment options located on [HMHSchoolScience.com](https://www.hmhschoolscience.com) bring together all HMH *Modern Chemistry* assessment tools into one convenient place, giving you many choices for the best way to assess your students' learning.



ExamView® Banks

A complete ExamView Assessment Suite includes all assessment questions for the program and more than **2,300 additional questions** in **Bonus Banks**.

Name _____ Class _____ Date _____

Assessment
Gases

Section Quiz: Gases and Pressure
In the space provided, write the letter of the term or phrase that best completes each sentence or best answers each question.

1. What causes a gas to exert pressure?
a. collisions
b. density
c. temperature
d. elevation
2. The SI unit for pressure is
a. newton
b. mm Hg
c. pascal
d. liter
3. The pressure exerted by a gas does not depend on
a. temperature
b. volume
c. number of moles present
d. the identity of the gas
4. At sea level, the average height of mercury in a barometer is
a. 760 mm
b. 101 325 atm
c. 1.01 325 Pa
d. All of the above
5. Standard temperature and pressure are
a. 32°F and 1.0 atm
b. 0°C and 1 atm
c. 10 K and 1 atm
d. 0°F and 1 atm

ENGLISH & SPANISH

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Name _____ Class _____ Date _____

Assessment
Chapter Test A

Chapter: Chemical Bonding
In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

1. The charge on an ion is
a. always positive
b. always negative
c. either positive or negative
d. zero
2. According to the octet rule, a calcium atom has a tendency to
a. lose one electron
b. lose two electrons
c. gain one electron
d. gain two e⁻
3. If a compound
a. A positive charged ion
b. The net ch
c. The comp
d. Several in
4. The only po

Name _____ Class _____ Date _____

Assessment
Chapter Test B

Chapter: Chemical Bonding
PART I On the line at the left of each statement, write the letter of the choice that best completes the statement or best answers the question.

1. An ionic bond results from electrical attraction between
a. cations and anions
b. atoms
c. dipoles
d. orbital
2. A nonpolar covalent bond is unlikely when two atoms of different elements join because the atoms are likely to differ in
a. density
b. state of matter
c. electronegativity
d. polarity
3. Bond length is the distance between two bonded atoms at
a. their minimum potential energy
b. their maximum kinetic energy
c. their maximum potential energy
d. one-half the diameter of the electron cloud
4. To draw a Lewis structure, it is not necessary to know
a. which atoms are in the molecule
b. bond energies

ENGLISH & SPANISH

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Section Quizzes

A 10-question multiple-choice and short-answer quiz for each section of the textbook. These are designed for student **formative assessment** to aid in remediation.

Chapter Tests A & B

Two **full-length** chapter tests include multiple-choice and short-answer questions. Test B is similar to but more challenging than Test A.

Review and Assessment in the Student Edition

The Student Edition contains **multiple levels of assessment** from Formative to Summative, along with helpful review questions that assess students' understanding of chapter and section material.

STUDENT EDITION

26. An unknown element is shiny and is found to be a good conductor of electricity. What other properties would you predict for it?
a. softness
b. malleability
c. brittleness
d. ductility

27. Use the periodic table to identify the group number and period number of the following elements:
a. sodium, Na
b. chlorine, Cl
c. boron, B

Mixed Review

28. Explain each of the following in terms of a physical change or a chemical change. Explain your answer.
a. A piece of wood is burned to fuel a fire.
b. Milk turns sour.
c. A metal bar is stretched to form a wire.

29. Write a paragraph that shows that you understand the difference between a physical property and a chemical property. Give an example of each.

30. Pick an object you can see right now. List three of its physical properties that you can observe. Can you also observe a chemical property of the object? Explain your answer.

CRITICAL THINKING

31. **Interpreting Concepts** One way to make household items safer is by combining them with water. What is the chemical property that makes water a good choice for this purpose? Explain your answer.

32. **Interpreting Concepts** A piece of wood is burned to fuel a fire. What is the chemical property that makes wood a good choice for this purpose? Explain your answer.

Interpreting Concepts

33. In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.
a. The charge on an ion is
b. According to the octet rule, a calcium atom has a tendency to
c. If a compound
d. The only po

REASONING AND WRITING

34. Research the common uses of a physical property of a substance. Write a paragraph that explains how the property is used in each application. Give an example of each.

SCIENTIFIC REASONING

35. Design a 1.0-point test to see if you understand the difference between a physical property and a chemical property. Write a paragraph that explains how you would use the test to see if you understand the difference.

STANDARDS-BASED ASSESSMENT

MULTIPLE CHOICE

1. A student investigates how adding a solute to water affects the water's boiling point. The data are shown below.

Amount of solute	Boiling point
0 g	100.0°C
10 g	100.5°C
20 g	101.0°C
30 g	101.5°C

2. As solute is added, the boiling point decreases.
3. As solute is added, the boiling point increases.
4. The boiling point of the water solution is always 100.0°C.
5. Water is increased if 10 grams of solute are added.

GRIDDED RESPONSE

6. A student collects the following data about a substance:

Substance's Properties	Value
Boiling point	101.0°C

SECTION 2 FORMATIVE ASSESSMENT

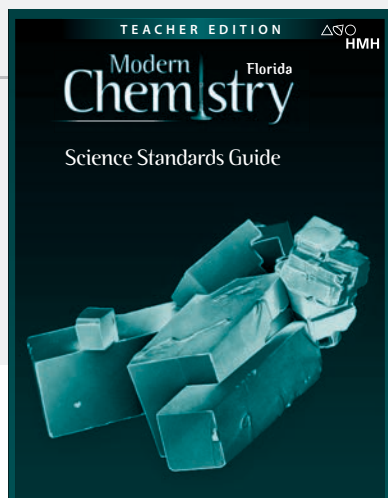
Reviewing Main Ideas

1. What is the main difference between physical properties and chemical properties?
2. Give an example of each.
3. Classify each of the following as either a physical change or a chemical change.
 - a. tearing a sheet of paper
 - b. melting a piece of wax
 - c. burning a log

3. How do you decide whether a sample of matter is a solid, a liquid, or a gas?
4. Contrast mixtures with pure substances.

Critical Thinking

5. **ANALYZING INFORMATION** Compare the composition of sucrose purified from sugar cane with the composition of sucrose purified from sugar beets. Explain your answer.



Florida Science Standards Guide (Student and Teacher Editions)

A two-page Challenge Activity for **every Chemistry standard**, the **Florida Science Standards Guide** includes teacher notes and evaluation guidelines for each challenge as students perform a lab, an investigation, a research project, or another activity.

PowerPresentations: Standardized Test Preparation

Multiple-Choice, Short-Answer, and Extended-Response questions that you can use for **whole-class review** of chapter materials.

Chapter 11 Standardized Test Preparation

Short Answer

9. The graph on the next slide shows a plot of volume versus pressure for a particular gas sample at constant pressure. Answer the following questions by referring to the graph. No calculation is necessary.

- What is the volume of this gas sample at standard pressure?
- What is the volume of this gas sample at 4.0 atm pressure?
- At what pressure would this gas sample occupy a volume of 5.0 L?

Chapter 11 Standardized Test Preparation

Short Answer

9. *continued*

Answer:

- 2.0 L
- 0.5 L
- 0.4 atm

Chapter 11 Standardized Test Preparation

Preview

- [Multiple Choice](#)
- [Short Answer](#)
- [Extended Response](#)

Online Assessment and Remediation

An advanced, automated assessment and remediation engine enables teachers to assign section quizzes to students. The assessments are **automatically graded**, and remediation that uses materials from the program is prescribed. A post-test is offered to determine student mastery. Critical student **performance data** are recorded and made readily available to the teacher.

Individualized Remediation

1 Assess

Modern Chemistry

2. Which equation below violates the law of conservation of mass?

- $2H_2 + O_2 \rightarrow 2H_2O$
- $KCl + Br \rightarrow KBr + Cl_2$
- $2Fe_2O_3 + 3C \rightarrow 4Fe + 3CO_2$
- $Na_2CO_3 + 2HCl \rightarrow 2NaCl + H_2O + CO_2$

RESET SCORE MY TEST

2 Prescribe

Modern Chemistry

Choose one or more Tutorials, then click the Pop-Test tab:

- Tutorials:
 - Student Edition
 - Interactive Reader
 - Study Guide
 - Visual Concept 1
 - Visual Concept 2
 - Visual Concept 3
 - Visual Concept 4
 - Visual Concept 5
 - Visual Concept 6
 - Visual Concept 7
 - Lesson 11 Video 1
 - Lesson 11 Video 2

3 Re-assess

Modern Chemistry

5. Which set of coefficients will balance the equation below?

$$NaOH + Cu(NO_3)_2 \rightarrow Cu(OH)_2 + NaNO_3$$

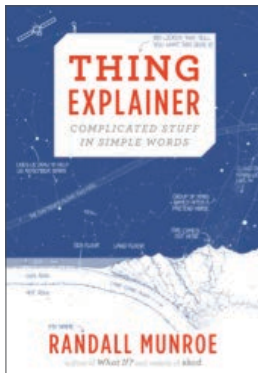
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- 1, 2, 2, 1
- 2, 1, 2, 1
- 2, 1, 1, 2

RESET SCORE MY TEST

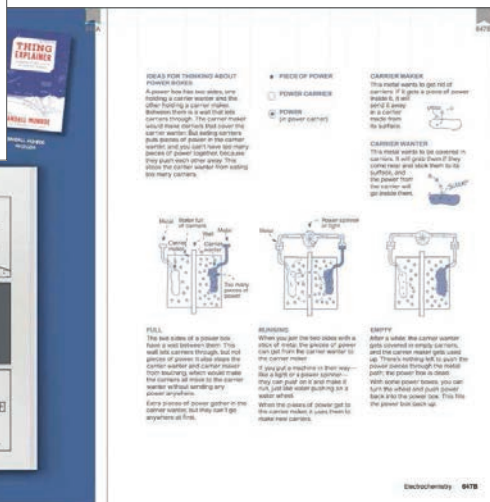
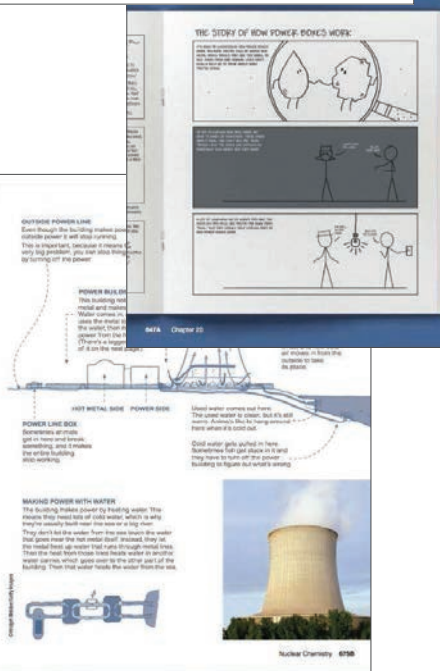
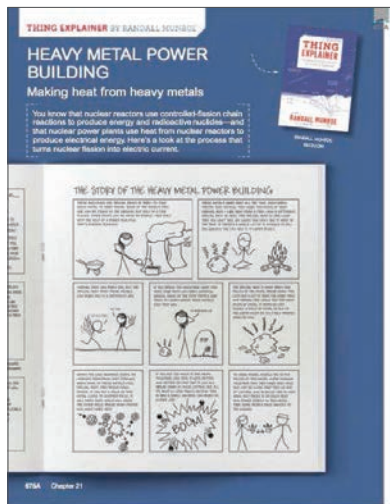
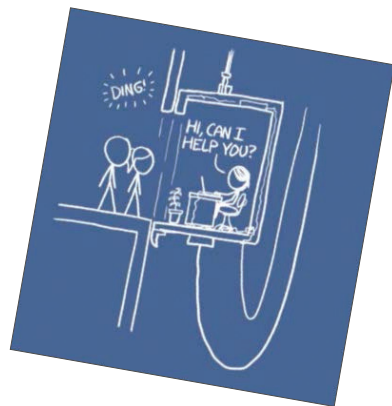
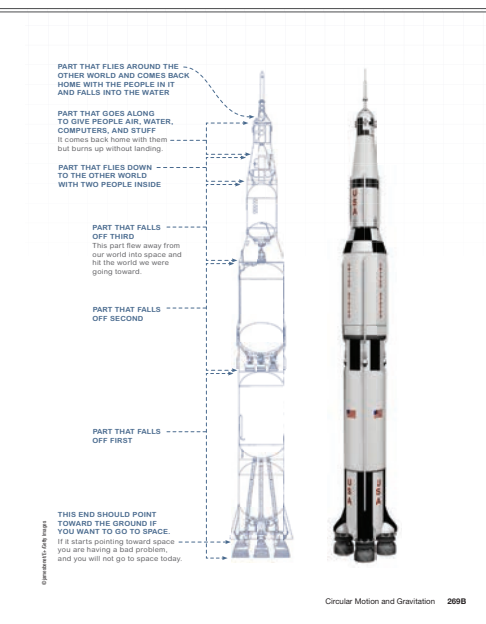
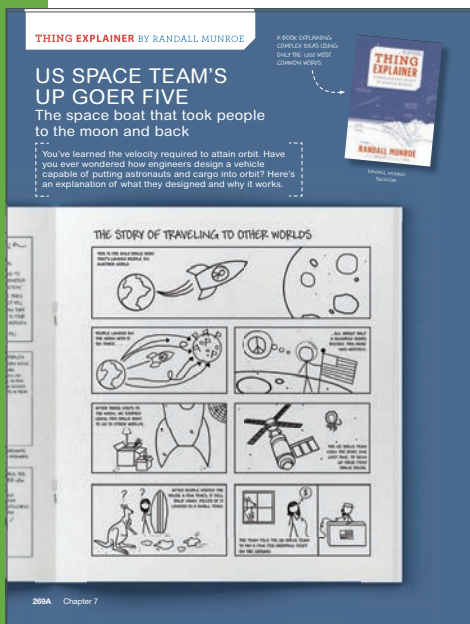
Thing Explainer

Enriches **HMH Modern Chemistry**

and Simplifies Concepts



Through an exclusive partnership with former NASA roboticist **Randall Munroe**, author of the popular webcomic **xkcd.com** and *The New York Times* best-selling author of *What If?*, HMM has included blueprints from Munroe's new book, ***Thing Explainer***, in the print and digital editions of ***Modern Chemistry***. Students will have access to Munroe's clear and engaging artwork and explanations as they delve into the mechanics of the scientific world. Aligned to the curriculum and integrated at point of use, Munroe's drawings humorously explain complex topics in easy-to-understand language.



Florida *Modern Chemistry* Components

Student Resources

Florida Student Edition

Student Edition eTextbook ePub

Downloadable Student Edition PDF

Interactive Online Student Edition

Modern Chemistry Interactive Reader

Modern Chemistry Engineering Design Guide Student Edition

Modern Chemistry Florida Science Standards Guide

Teacher Resources

Florida Teacher Edition

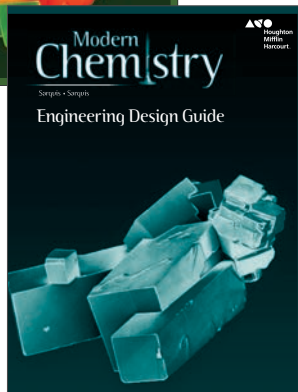
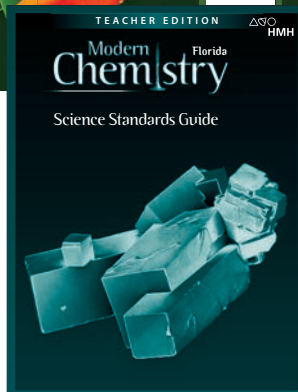
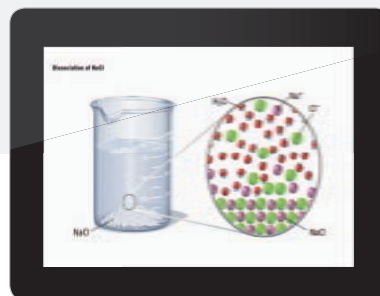
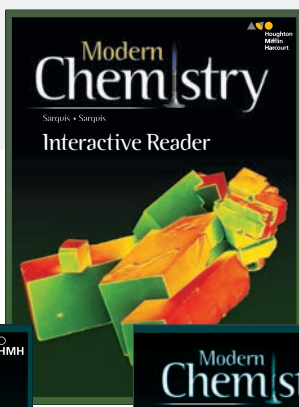
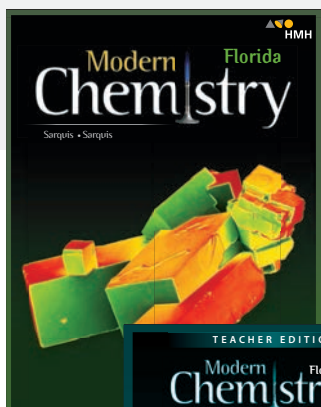
Modern Chemistry Interactive Reader Answer Key

Modern Chemistry Engineering Design Guide Teacher Edition

Modern Chemistry Florida Science Standards Guide Teacher Edition

Online Teacher Management Center

Downloadable Teacher Resource Tool



Why **HMH Modern Chemistry?**

Aligned to the Florida Next Generation Sunshine State Standards



Engaged Student Learning

- *On the Job* STEM Videos
- Virtual Labs
- *Why It Matters* Videos
- Teacher Guide for Google Expeditions
- Interactive Whiteboard Lessons
- Animated Chemistry
- STEM Labs
- Engineering Design Guide
- Florida Science Standards Guide

The Best Balance of Problem Solving and Conceptual Instruction

- Interactive Demonstrations
- Solution Tutor
- Learn It! Videos
- Solve It! Cards
- *Thing Explainer*
- Real-World Application Problems
- Graphic Organizers

Strongest Differentiated Instruction

- Interactive Reader
- Online Assessment with Remediation
- Leveled Chapter Assessments
- Strategies for English Learners, Inclusion, Pre-AP, and Below-level Students

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