Covalent Bonding

Chapter Pacing Guide

Please note that this pace is based on completing selected sections of the text in 90 classes, approximately 90 minutes each. Refer to the Course Planning Guide on page xvii of this booklet for a complete list of time allotments assigned to each section. Less time can be allocated for each chapter if you plan to teach all 26 chapters.

Period	Content
0.5	9.1 The Covalent Bond
0.5	9.2 Naming Molecules
1	9.3 Molecular Structures
1	9.4 Molecular Shape
0.5	9.5 Electronegativity and Polarity
0.5	Review and Assessment

BLOCK SCHEDULE LESSON PLAN 9.1

Pacing Guide
1/2 period
Lesson and Discovery Lab

The Covalent Bond *pages 241–247*

Key: *SE* = Student Edition, *TWE* = Teacher Wraparound Edition, *TCR* = Teacher Classroom Resources

National Science Content Standards: UCP.2, UCP.3, UCP.5; A.1; B.1, B.2, B.3, B.4, B.6

Georgia QCC: 1, 1.2, 2.1, 3.1, 6.3, 8.1, 8.2

Objectives

- **Apply** the octet rule to atoms that bind covalently.
- **Describe** the formation of single, double, and triple covalent bonds.
- **Compare** and **contrast** sigma and pi bonds.
- **Relate** the strength of covalent bonds to bond length and bond dissociation energy.

Lesson Resources

_____ Section Focus Transparency 30 and Master
_____ *Study Guide for Content Mastery*, p. 49 *TCR*

Multimedia Resources

_____ **Chemistry Interactive CD-ROM,** Section 9.1 Animation
_____ **MindJogger Videoquizzes,** Ch. 9
_____ **Guided Reading Audio Program,** Section 9.1
_____ **Cosmic Chemistry Videodisc,** Disc 3, Side 6; Disc 4, Side 8; Disc 2, Side 3; Disc 3, Side 5
_____ *Using the Internet in the Science Classroom*, *TCR*
_____ Chemistry Web site: **ga.science.glencoe.com**

Optional Resources

_____ *Small-Scale Laboratory Manual*, pp. 21–24 *TCR*
_____ *Solving Problems: A Chemistry Handbook*, Section 9.1 *TCR*
_____ *Spanish Resources* 9.1 *TCR*

Lesson Plan

Activity	Resources	Suggested Time
Classroom Management • Display the Section Focus Transparency and have students answer the questions. • Distribute the corrected Chapter 8 tests.	Section Focus Transparency 30 and Master	5 minutes
Core Lesson • Introduce Chapter 9 with the Discovery Lab. • Teach the main concepts of Section 9.1. • Do the Quick Demo.	*SE*, p. 241 *TWE*, pp. 241–247 *TWE*, p. 242	25–30 minutes
In-Class Check • Complete the Check for Understanding and Reteach strategies.	*TWE*, p. 247	5–10 minutes
Homework • Have students complete Section 9.1 Assessment. • Assign the Chemistry Journal. • Assign relevant questions from Chapter 9 Assessment.	*SE*, p. 247 *TWE*, p. 243 *SE*, pp. 272–275	5 minutes

[total = 45 minutes]

BLOCK SCHEDULE LESSON PLAN 9.2

Pacing Guide
1/2 period
Lesson

Naming Molecules *pages 248–251*

Key: *SE* = Student Edition, *TWE* = Teacher Wraparound Edition, *TCR* = Teacher Classroom Resources

National Science Content Standards: UCP.2, UCP.3, UCP.5; B.2; G.2

Georgia QCC: 8

Objectives

- **Identify** the names of binary molecular compounds from their formulas.
- **Name** acidic solutions.

Lesson Resources

_____ Section Focus Transparency 31 and Master
_____ Math Skills Transparency 9 and Master
_____ *Study Guide for Content Mastery*, p. 50 *TCR*

Optional Resources

_____ *Solving Problems: A Chemistry Handbook*, Section 9.2 *TCR*
_____ *Spanish Resources* 9.2 *TCR*

Multimedia Resources

_____ **Chemistry Interactive CD-ROM,** Section 9.2 Video and Demonstration
_____ **MindJogger Videoquizzes,** Ch. 9
_____ **Guided Reading Audio Program,** Section 9.2
_____ *Using the Internet in the Science Classroom*, *TCR*
_____ Chemistry Web site: **ga.science.glencoe.com**

Lesson Plan

Activity	Resources	Suggested Time
Classroom Management • Display the Section Focus Transparency and have students answer the questions. • Have students check homework answers.	Section Focus Transparency 31 and Master *TWE*, pp. 243, 247, 272–275	5 minutes
Discussion • Answer any questions about homework.	*TWE*, pp. 243, 247, 272–275	0–5 minutes
Core Lesson • Introduce Section 9.2 with the Demonstration. • Teach the main concepts of Section 9.2.	*TWE*, pp. 248–249 *TWE*, pp. 248–251	25 minutes
In-Class Check • Complete the Check for Understanding strategy, and give students the information for the Reteach assignment.	*TWE*, p. 251	5–10 minutes
Homework • Have students finish the Reteach assignment. • Have students complete Section 9.2 Assessment. • Assign relevant questions from Chapter 9 Assessment.	*TWE*, p. 251 *SE*, p. 251 *SE*, pp. 272–275	5 minutes

[total = 45 minutes]

BLOCK SCHEDULE LESSON PLAN 9.3

Pacing Guide
1 period
Lesson

Molecular Structures *pages 252–258*

Key: *SE* = Student Edition, *TWE* = Teacher Wraparound Edition, *TCR* = Teacher Classroom Resources

National Science Content Standards: UCP.2, UCP.3, UCP.5; B.2
Georgia QCC: 6.3, 8

Objectives

- **List** five basic steps used in drawing Lewis structures.
- **Explain** why resonance occurs, and **identify** resonance structures.
- **Explain** three exceptions to the octet rule, and **identify** molecules in which these exceptions occur.

Lesson Resources

_____ Section Focus Transparency 32 and Master
_____ Teaching Transparency 29 and Master
_____ *Study Guide for Content Mastery*, p. 51 *TCR*

Multimedia Resources

_____ **Chemistry Interactive CD-ROM,** Section 9.3 Video
_____ **MindJogger Videoquizzes,** Ch. 9
_____ **Guided Reading Audio Program,** Section 9.3
_____ *Using the Internet in the Science Classroom*, *TCR*
_____ Chemistry Web site: **ga.science.glencoe.com**

Optional Resources

_____ *Challenge Problems*, p. 9 *TCR*
_____ *Solving Problems: A Chemistry Handbook*, Section 9.3 *TCR*
_____ *Spanish Resources* 9.3 *TCR*

Lesson Plan

Activity	Resources	Suggested Time
Classroom Management • Display the Section Focus Transparency and have students answer the questions. • Have students check homework answers.	Section Focus Transparency 32 and Master *TWE*, pp. 251, 272–275	5 minutes
Discussion • Answer any questions about homework.	*TWE*, pp. 251, 272–275	5 minutes
Core Lesson • Introduce Section 9.3 with the Quick Demo. • Teach the main concepts of Section 9.3. • Have volunteers work through the Example Problems on the board.	*TWE*, p. 252 *TWE*, pp. 252–258 *SE*, pp. 253–255, 257–258	45–50 minutes
In-Class Check • Complete the Reteach strategy. • Have students do the Practice Problems in small groups, then review their answers.	*TWE*, p. 257 *SE*, pp. 255–256, 258	25–30 minutes
Homework • Have students complete Section 9.3 Assessment. • Assign relevant questions from Chapter 9 Assessment.	*SE*, p. 258 *SE*, pp. 272–275	5 minutes

[total = 90 minutes]

BLOCK SCHEDULE LESSON PLAN 9.4

Pacing Guide
1 period
Lesson and MiniLab

Molecular Shape *pages 259–262*

Key: *SE* = Student Edition, *TWE* = Teacher Wraparound Edition, *TCR* = Teacher Classroom Resources

National Science Content Standards: UCP.2, UCP.3, UCP.5; A.1; B.2, B.4

Georgia QCC: 1, 1.2, 3.1, 6.3, 8.2

Objectives

- **Discuss** the VSEPR bonding theory.
- **Predict** the shape of and the bond angles in a molecule.
- **Define** hybridization.

Lesson Resources

_____ Section Focus Transparency 33 and Master
_____ Teaching Transparency 30 and Master
_____ *ChemLab and MiniLab Worksheets*, p. 33 *TCR*
_____ *Study Guide for Content Mastery*, p. 52 *TCR*

Optional Resources

_____ *CBL Laboratory Manual*, pp. 5–8 *TCR*
_____ *Laboratory Manual*, pp. 65–68 *TCR*
_____ *Solving Problems: A Chemistry Handbook*, Section 9.4 *TCR*
_____ *Spanish Resources* 9.4 *TCR*

Multimedia Resources

_____ **Chemistry Interactive CD-ROM,** Section 9.4 Experiment
_____ **MindJogger Videoquizzes,** Ch. 9
_____ **Guided Reading Audio Program,** Section 9.4
_____ *Using the Internet in the Science Classroom*, *TCR*
_____ Chemistry Web site: **ga.science.glencoe.com**

Lesson Plan

Activity	Resources	Suggested Time
Classroom Management • Display the Section Focus Transparency and have students answer the questions. • Have students check homework answers.	Section Focus Transparency 33 and Master *TWE*, pp. 258, 272–275	5 minutes
Discussion • Answer any questions about homework.	*TWE*, pp. 258, 272–275	0–5 minutes
Core Lesson • Introduce Section 9.4 with the Quick Demo. • Teach the main concepts of Section 9.4. • Have students do the MiniLab in pairs, then discuss their results.	*TWE*, p. 259 *TWE*, pp. 259–262 *SE*, p. 261	70 minutes
In-Class Check • Complete the Check for Understanding strategy.	*TWE*, p. 262	5–10 minutes
Homework • Have students complete Section 9.4 Assessment. • Assign the Extension project. • Assign relevant questions from Chapter 9 Assessment.	*SE*, p. 262 *TWE*, p. 260 *SE*, pp. 272–275	5 minutes

[total = 90 minutes]

BLOCK SCHEDULE LESSON PLAN 9.5

Pacing Guide
1/2 period
Lesson and ChemLab

Electronegativity and Polarity *pages 263–267*

Key: *SE* = Student Edition, *TWE* = Teacher Wraparound Edition, *TCR* = Teacher Classroom Resources

National Science Content Standards: UCP.2, UCP.3, UCP.5; A.1, A.2; B.1, B.2, B.4, B.6, E.2; G.3

Georgia QCC: 1, 1.2, 2, 2.1, 3.1, 6.3, 8, 8.1, 8.2, 8.3

Objectives

- **Describe** how electronegativity is used to determine bond type.
- **Compare** and **contrast** polar and nonpolar covalent bonds and polar and nonpolar molecules.
- **Describe** the characteristics of compounds that are covalently bonded.

Lesson Resources

_____ Section Focus Transparency 34 and Master
_____ Math Skills Transparency 10 and Master
_____ Teaching Transparency 31 and Master
_____ *ChemLab and MiniLab Worksheets*, pp. 34–36 *TCR*
_____ *Study Guide for Content Mastery*, pp. 53–54 *TCR*

Multimedia Resources

_____ **MindJogger Videoquizzes,** Ch. 9
_____ **Guided Reading Audio Program,** Section 9.5
_____ **Cosmic Chemistry Videodisc,** Disc 1, Side 2
_____ *Using the Internet in the Science Classroom*, *TCR*
_____ Chemistry Web site: **ga.science.glencoe.com**

Optional Resources

_____ *Laboratory Manual*, pp. 69–72 *TCR*
_____ *Solving Problems: A Chemistry Handbook*, Section 9.5 *TCR*
_____ *Spanish Resources* 9.5 *TCR*

Lesson Plan

Activity	Resources	Suggested Time
Classroom Management • Display the Section Focus Transparency and have students answer the questions. • Have students check homework answers.	Section Focus Transparency 34 and Master *TWE*, pp. 262, 272–275	5 minutes
Discussion • Answer any questions about homework.	*TWE*, pp. 262, 272–275	0–5 minutes
Core Lesson • Teach the main concepts of Section 9.5. • Have students read the ChemLab and do the Pre-Lab steps. (Note: this lab will take 45 minutes to complete. Time adjustments may be necessary in subsequent lessons.)	*TWE*, pp. 263–267 *SE*, pp. 268–269	25–30 minutes
In-Class Check • Complete the Check for Understanding strategy. • Answer questions on Chapter 9 in preparation for the test.	*TWE*, p. 266 *TWE*, pp. 240–275	5 minutes
Homework • Have students complete Section 9.5 Assessment. • Assign the Problem-Solving Lab. • Assign relevant questions from Chapter 9 Assessment.	*SE*, p. 267 *SE*, p. 267 *SE*, pp. 272–275	5 minutes

[total = 45 minutes]

BLOCK SCHEDULE LESSON PLAN
Review and Assessment

Pacing Guide
1/2 period
Review/Assessment

Covalent Bonding

Key: *SE* = Student Edition, *TWE* = Teacher Wraparound Edition, *TCR* = Teacher Classroom Resources

Assessment Resources

_____ *Chapter Assessment*, Ch. 9 *TCR*
_____ *Performance Assessment in the Science Classroom*, *TCR*
_____ *Alternate Assessment in the Science Classroom*, *TCR*
_____ *Reviewing Chemistry: Mastering the Georgia QCC, TCR*

Multimedia Resources

_____ **MindJogger Videoquizzes,** Ch. 9
_____ **TestCheck Software,** Ch. 9
_____ **Chemistry Interactive CD-ROM,** Ch. 9 quiz
_____ **Vocabulary PuzzleMaker Software,** Ch. 9

Activity	Resources	Suggested Time
Classroom Management • Have students check homework answers.	*TWE*, pp. 267, 272–275	5 minutes
Reviewing the Chapter • Answer any questions about homework. • Answer any final questions about Chapter 9.	*TWE*, pp. 267, 272–275 *TWE*, pp. 240–275	5 minutes
Assessment • Distribute the test and allow students to work quietly.	*Chapter Assessment*, pp. 49–54 *TCR*	30–35 minutes
Closing • As students complete the test, have them read the Chapter 10 Opener. • If students have time, let them explore the Chemistry Online for Chapter 10.	*SE*, p. 276 **ga.science.glencoe.com**	0–5 minutes

[total = 45 minutes]