

## Substituted Hydrocarbons and Their Reactions



### 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	23.1 Functional Groups
1	23.2 Alcohols, Ethers, and Amines
1	23.3 Carbonyl Compounds
1	23.4 Other Reactions of Organic Compounds
1	23.5 Polymers
0.5	Review and Assessment

# Functional Groups

 pages 737–742**Key:** SE = Student Edition,  
TWE = Teacher Wraparound Edition,  
TCR = Teacher Classroom Resources**National Science Content Standards:** UCP.1, UCP.2, UCP.5; A.1;  
B.2, B.3; E.2; F.4, F.6**Georgia QCC:** 1, 2.1, 3.1, 4, 8, 8.3, 8.4, 9.6, 17, 17.1

## Objectives

- **Describe** a functional group and give examples.
- **Name** and **draw** alkyl and aryl halide structures.
- **Discuss** the chemical and physical properties of organic halides.
- **Describe** how substitution reactions form alkyl and aryl halides.

## Lesson Resources

- \_\_\_\_\_ Section Focus Transparency 86 and Master
- \_\_\_\_\_ Math Skills Transparency 37 and Master
- \_\_\_\_\_ Teaching Transparency 68 and Master
- \_\_\_\_\_ *Study Guide for Content Mastery*, p. 133 TCR

## Optional Resources

- \_\_\_\_\_ *Solving Problems: A Chemistry Handbook*,  
Section 23.1 TCR
- \_\_\_\_\_ *Spanish Resources* 23.1 TCR

## Multimedia Resources

- \_\_\_\_\_ **Chemistry Interactive CD-ROM**, Section 23.1  
Experiment
- \_\_\_\_\_ **MindJogger Videoquizzes**, Ch. 23
- \_\_\_\_\_ **Guided Reading Audio Program**, Section 23.1
- \_\_\_\_\_ **Cosmic Chemistry Videodisc**, Disc 1, Side 2
- \_\_\_\_\_ *Using the Internet in the Science Classroom*, TCR
- \_\_\_\_\_ Chemistry Web site: [ga.science.glencoe.com](http://ga.science.glencoe.com)

## Lesson Plan

Activity	Resources	Suggested Time
<b>Classroom Management</b> <ul style="list-style-type: none"> <li>• Display the Section Focus Transparency and have students answer the questions.</li> <li>• Distribute the corrected Chapter 22 tests.</li> </ul>	Section Focus Transparency 86 and Master	5 minutes
<b>Core Lesson</b> <ul style="list-style-type: none"> <li>• Introduce Chapter 23 with the Discovery Lab.</li> <li>• Teach the main concepts of Section 23.1.</li> </ul>	SE, p. 737 TWE, pp. 737–742	30 minutes
<b>In-Class Check</b> <ul style="list-style-type: none"> <li>• Complete the Check for Understanding and Reteach strategies.</li> </ul>	TWE, p. 742	5 minutes
<b>Homework</b> <ul style="list-style-type: none"> <li>• Have students complete Section 23.1 Assessment.</li> <li>• Have students complete the Chemistry Journal assignment.</li> <li>• Assign relevant questions from Chapter 23 Assessment.</li> </ul>	SE, p. 742 TWE, p. 740 SE, pp. 770–773	5 minutes

[total = 45 minutes]

# Alcohols, Ethers, and Amines pages 743–746

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

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

**Georgia QCC:** 4, 8, 8.3, 8.4, 17

## Objectives

- **Identify** the functional groups that characterize alcohols, ethers, and amines.
- **Draw** the structures of alcohols, ethers, and amines.
- **Discuss** the properties and uses of alcohols, ethers, and amines.

## Lesson Resources

- \_\_\_\_\_ Section Focus Transparency 87 and Master Teaching Transparency 69 and Master
- \_\_\_\_\_ *ChemLab and MiniLab Worksheets*, pp. 90–92 TCR
- \_\_\_\_\_ *Study Guide for Content Mastery*, pp. 134–135 TCR

## Optional Resources

- \_\_\_\_\_ *Solving Problems: A Chemistry Handbook*, Section 23.2 TCR
- \_\_\_\_\_ *Spanish Resources 23.2 TCR*

## Multimedia Resources

- \_\_\_\_\_ **MindJogger Videoquizzes**, Ch. 23
- \_\_\_\_\_ **Guided Reading Audio Program**, Section 23.2
- \_\_\_\_\_ *Using the Internet in the Science Classroom*, TCR
- \_\_\_\_\_ Chemistry Web site: [ga.science.glencoe.com](http://ga.science.glencoe.com)

## Lesson Plan

Activity	Resources	Suggested Time
<b>Classroom Management</b> <ul style="list-style-type: none"> <li>• Display the Section Focus Transparency and have students answer the questions.</li> <li>• Have students check homework answers.</li> </ul>	Section Focus Transparency 87 and Master TWE, pp. 740, 742, 770–773	5 minutes
<b>Discussion</b> <ul style="list-style-type: none"> <li>• Answer any questions about homework.</li> </ul>	TWE, pp. 740, 742, 770–773	5 minutes
<b>Core Lesson</b> <ul style="list-style-type: none"> <li>• Teach the main concepts of Section 23.2.</li> <li>• Have students read the ChemLab and follow the procedure.</li> </ul>	TWE, pp. 743–746 SE, pp. 766–767	60 minutes
<b>In-Class Check</b> <ul style="list-style-type: none"> <li>• Reinforce Section 23.2 concepts using the Portfolio Assessment.</li> <li>• Complete the Check for Understanding and Reteach strategies.</li> </ul>	TWE, p. 745 TWE, p. 746	15 minutes
<b>Homework</b> <ul style="list-style-type: none"> <li>• Have students complete Section 23.2 Assessment.</li> <li>• Have students complete the Extension strategy.</li> <li>• Assign relevant questions from Chapter 23 Assessment.</li> </ul>	SE, p. 746 TWE, p. 746 SE, pp. 770–773	5 minutes

[total = 90 minutes]

**Carbonyl Compounds** pages 747–753**Key:** SE = Student Edition,  
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TCR = Teacher Classroom Resources**National Science Content Standards:** UCP.1, UCP.2, UCP.5; A.1;  
B.2, B.3; E.2**Georgia QCC:** 1, 3.1, 4, 8, 8.1, 8.4, 9.1, 9.6, 11, 17, 17.1**Objectives**

- **Draw and identify** the structures of carbonyl compounds including aldehydes, ketones, carboxylic acids, esters, and amides.
- **Discuss** the properties and uses of compounds containing the carbonyl group.

**Lesson Resources**

- \_\_\_\_\_ Section Focus Transparency 88 and Master
- \_\_\_\_\_ Teaching Transparency 70 and Master
- \_\_\_\_\_ *Study Guide for Content Mastery*, p. 136 TCR

**Optional Resources**

- \_\_\_\_\_ *Challenge Problems*, p. 23 TCR
- \_\_\_\_\_ *Solving Problems: A Chemistry Handbook*, Section 23.3 TCR
- \_\_\_\_\_ *Spanish Resources 23.3 TCR*

**Multimedia Resources**

- \_\_\_\_\_ **MindJogger Videoquizzes**, Ch. 23
- \_\_\_\_\_ **Guided Reading Audio Program**, Section 23.3
- \_\_\_\_\_ **Cosmic Chemistry Videodisc**, Disc 3, Side 6;  
Disc 4, Side 8
- \_\_\_\_\_ *Using the Internet in the Science Classroom*, TCR
- \_\_\_\_\_ Chemistry Web site: [ga.science.glencoe.com](http://ga.science.glencoe.com)

**Lesson Plan**

Activity	Resources	Suggested Time
<b>Classroom Management</b> <ul style="list-style-type: none"> <li>• Display the Section Focus Transparency and have students answer the questions.</li> <li>• Have students check homework answers.</li> </ul>	Section Focus Transparency 88 and Master TWE, pp. 746, 770–773	5 minutes
<b>Discussion</b> <ul style="list-style-type: none"> <li>• Answer any questions about homework.</li> </ul>	TWE, pp. 746, 770–773	5 minutes
<b>Core Lesson</b> <ul style="list-style-type: none"> <li>• Introduce Section 23.3 with the Reinforcement feature.</li> <li>• Teach the main concepts of Section 23.3.</li> <li>• Have students read the MiniLab and follow the procedure.</li> </ul>	TWE, p. 747 TWE, pp. 747–753 SE, p. 751	60 minutes
<b>In-Class Check</b> <ul style="list-style-type: none"> <li>• Reinforce Section 23.3 concepts using the Reinforcement feature.</li> <li>• Complete the Check for Understanding and Reteach strategies.</li> </ul>	TWE, p. 748 TWE, p. 753	15 minutes
<b>Homework</b> <ul style="list-style-type: none"> <li>• Have students complete Section 23.3 Assessment.</li> <li>• Have students complete the Knowledge Assessment.</li> <li>• Assign relevant questions from Chapter 23 Assessment.</li> </ul>	SE, p. 753 TWE, p. 749 SE, pp. 770–773	5 minutes

[total = 90 minutes]

# Other Reactions of Organic Compounds

pages 754–760

**Key:** SE = Student Edition,  
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**National Science Content Standards:** UCP.1, UCP.2, UCP.5; B.2, B.3; E.2

**Georgia QCC:** 4, 8.1, 9.1, 17.1

## Objectives

- **Classify** an organic reaction into one of five categories: substitution, addition, elimination, oxidation-reduction, or condensation.
- Use structural formulas to write equations for reactions of organic compounds.
- **Predict** the products of common types of organic reactions.

## Lesson Resources

- \_\_\_\_\_ Section Focus Transparency 89 and Master
- \_\_\_\_\_ Teaching Transparency 71 and Master
- \_\_\_\_\_ *ChemLab and MiniLab Worksheets*, p. 89 TCR
- \_\_\_\_\_ *Study Guide for Content Mastery*, p. 137 TCR

## Optional Resources

- \_\_\_\_\_ *Laboratory Manual*, pp. 177–180 TCR
- \_\_\_\_\_ *Solving Problems: A Chemistry Handbook*, Section 23.4 TCR
- \_\_\_\_\_ *Spanish Resources 23.4 TCR*

## Multimedia Resources

- \_\_\_\_\_ **MindJogger Videoquizzes**, Ch. 23
- \_\_\_\_\_ **Guided Reading Audio Program**, Section 23.4
- \_\_\_\_\_ *Using the Internet in the Science Classroom*, TCR
- \_\_\_\_\_ Chemistry Web site: [ga.science.glencoe.com](http://ga.science.glencoe.com)

## Lesson Plan

Activity	Resources	Suggested Time
<b>Classroom Management</b> <ul style="list-style-type: none"> <li>• Display the Section Focus Transparency and have students answer the questions.</li> <li>• Have students check homework answers.</li> </ul>	Section Focus Transparency 89 and Master TWE, pp. 749, 753, 770–773	5 minutes
<b>Discussion</b> <ul style="list-style-type: none"> <li>• Answer any questions about homework.</li> </ul>	TWE, pp. 749, 753, 770–773	5 minutes
<b>Core Lesson</b> <ul style="list-style-type: none"> <li>• Introduce Section 23.4 with the Quick Demo.</li> <li>• Teach the main concepts of Section 23.4.</li> </ul>	TWE, p. 755 TWE, pp. 754–760	25 minutes
<b>In-Class Check</b> <ul style="list-style-type: none"> <li>• Have students complete the Problem-Solving Lab.</li> <li>• Complete the Check for Understanding and Reteach strategies.</li> </ul>	SE, p. 757 TWE, pp. 759–760	50 minutes
<b>Homework</b> <ul style="list-style-type: none"> <li>• Have students complete Section 23.4 Assessment.</li> <li>• Assign relevant questions from Chapter 23 Assessment.</li> </ul>	SE, p. 760 SE, pp. 770–773	5 minutes

[total = 90 minutes]

**Polymers** *pages 761–765*

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TCR = Teacher Classroom Resources

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

**Georgia QCC:** 1, 1.2, 2, 2.1, 3.1, 4, 8, 8.1, 8.4, 12.1, 14.1, 17, 17.1

**Objectives**

- **Describe** the relationship between a polymer and the monomers from which it forms.
- **Classify** polymerization reactions as addition or condensation.
- **Predict** polymer properties based on their molecular structures and the presence of functional groups.

**Lesson Resources**

- \_\_\_\_\_ Section Focus Transparency 90 and Master
- \_\_\_\_\_ Math Skills Transparency 38 and Master
- \_\_\_\_\_ Teaching Transparency 72 and Master
- \_\_\_\_\_ *Study Guide for Content Mastery*, p. 138 TCR

- \_\_\_\_\_ **Cosmic Chemistry Videodisc**, Disc 3, Side 6
- \_\_\_\_\_ *Using the Internet in the Science Classroom*, TCR
- \_\_\_\_\_ Chemistry Web site: [ga.science.glencoe.com](http://ga.science.glencoe.com)

**Multimedia Resources**

- \_\_\_\_\_ **Chemistry Interactive CD-ROM**, Section 23.5 Video
- \_\_\_\_\_ **MindJogger Videoquizzes**, Ch. 23
- \_\_\_\_\_ **Guided Reading Audio Program**, Section 23.5

**Optional Resources**

- \_\_\_\_\_ *Laboratory Manual*, pp. 181–184 TCR
- \_\_\_\_\_ *Solving Problems: A Chemistry Handbook*, Section 23.5 TCR
- \_\_\_\_\_ *Spanish Resources 23.5 TCR*

**Lesson Plan**

Activity	Resources	Suggested Time
<p><b>Classroom Management</b></p> <ul style="list-style-type: none"> <li>• Display the Section Focus Transparency and have students answer the questions.</li> <li>• Have students check homework answers.</li> </ul>	<p>Section Focus Transparency 90 and Master <i>TWE</i>, pp. 760, 770–773</p>	5 minutes
<p><b>Discussion</b></p> <ul style="list-style-type: none"> <li>• Answer any questions about homework.</li> </ul>	<p><i>TWE</i>, pp. 760, 770–773</p>	5 minutes
<p><b>Core Lesson</b></p> <ul style="list-style-type: none"> <li>• Introduce Section 23.5 with the Quick Demo.</li> <li>• Teach the main concepts of Section 23.5.</li> <li>• Go over the Applying Chemistry feature with students.</li> </ul>	<p><i>TWE</i>, p. 761 <i>TWE</i>, pp. 761–765 <i>TWE</i>, p. 764</p>	40 minutes
<p><b>In-Class Check</b></p> <ul style="list-style-type: none"> <li>• Reinforce Section 23.5 concepts using the Performance Assessments.</li> <li>• Complete the Check for Understanding and Reteach strategies.</li> <li>• Answer questions on Chapter 23 in preparation for the test.</li> </ul>	<p><i>TWE</i>, pp. 763, 765 <i>TWE</i>, p. 764 <i>TWE</i>, pp. 736–773</p>	35 minutes
<p><b>Homework</b></p> <ul style="list-style-type: none"> <li>• Have students complete Section 23.5 Assessment.</li> <li>• Assign relevant questions from Chapter 23 Assessment.</li> </ul>	<p><i>SE</i>, p. 765 <i>SE</i>, pp. 770–773</p>	5 minutes

[total = 90 minutes]

# Substituted Hydrocarbons and Their Reactions

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## Assessment Resources

- \_\_\_\_\_ *Chapter Assessment, Ch. 23 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. 23
- \_\_\_\_\_ **TestCheck Software**, Ch. 23
- \_\_\_\_\_ **Chemistry Interactive CD-ROM**, Ch. 23 quiz
- \_\_\_\_\_ **Vocabulary PuzzleMaker Software**, Ch. 23

Activity	Resources	Suggested Time
<b>Classroom Management</b> • Have students check homework answers.	TWE, pp. 765, 770–773	5 minutes
<b>Reviewing the Chapter</b> • Answer any questions about homework. • Answer any final questions about Chapter 23.	TWE, pp. 736–773	5 minutes
<b>Assessment</b> • Distribute the test and allow students to work quietly.	<i>Chapter Assessment</i> , pp. 133–138 TCR	30–35 minutes
<b>Closing</b> • As students complete the test, have them read the Chapter 24 Opener. • If students have time, let them explore the Chemistry Online for Chapter 23.	SE, p. 774 <a href="http://ga.science.glencoe.com">ga.science.glencoe.com</a>	0–5 minutes

[total = 45 minutes]