

Reaction Rates



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	17.1 A Model for Reaction Rates
0.5	17.2 Factors Affecting Reaction Rates
1.5	17.3 Reaction Rate Laws
1	17.4 Instantaneous Reaction Rates and Reaction Mechanisms
0.5	Review and Assessment

A Model for Reaction Rates

 pages 529–535**Key:** SE = Student Edition,
TWE = Teacher Wraparound Edition,
TCR = Teacher Classroom Resources**National Science Content Standards:** UCP.2, UCP.3; A.1; B.3, B.4, B.5, B.6; E.2; F.1**Georgia QCC:** 1, 2.1, 3.1, 9.6, 12, 12.1, 12.3

Objectives

- **Calculate** average rates of chemical reactions from experimental data.
- **Relate** rates of chemical reactions to collisions between reacting particles.

Lesson Resources

- _____ Section Focus Transparency 64 and Master
- _____ Study Guide for Content Mastery, pp. 97–98 TCR

Optional Resources

- _____ Challenge Problems, p. 17 TCR
- _____ Solving Problems: A Chemistry Handbook, Section 17.1 TCR
- _____ Spanish Resources 17.1 TCR

Multimedia Resources

- _____ Chemistry Interactive CD-ROM, Section 17.1 Experiment and Animation
- _____ MindJogger Videoquizzes, Ch. 17
- _____ Guided Reading Audio Program, Section 17.1
- _____ Cosmic Chemistry Videodisc, Disc 1, Side 2; Disc 2, Side 3
- _____ Using the Internet in the Science Classroom, TCR
- _____ Chemistry Web site: ga.science.glencoe.com

Lesson Plan

Activity	Resources	Suggested Time
Classroom Management <ul style="list-style-type: none"> • Display the Section Focus Transparency and have students answer the questions. • Distribute the corrected Chapter 16 tests. 	Section Focus Transparency 64 and Master	5 minutes
Core Lesson <ul style="list-style-type: none"> • Introduce Section 17.1 with the Quick Demo. • Teach the main concepts of Section 17.1. 	TWE, p. 530 TWE, pp. 529–535	25 minutes
In-Class Check <ul style="list-style-type: none"> • Complete the Check for Understanding and Reteach strategies. 	TWE, p. 535	10 minutes
Homework <ul style="list-style-type: none"> • Have students complete Section 17.1 Assessment. • Have students complete the Problem-Solving Lab. • Assign relevant questions from Chapter 17 Assessment. 	SE, p. 535 SE, p. 533 SE, pp. 554–557	5 minutes

[total = 45 minutes]

Factors Affecting Reaction Rates

pages 536–541

Key: SE = Student Edition,
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National Science Content Standards: UCP2, UCP3; A.1; B.2, B.3, B.4, B.6; F.1, F.4, F.6

Georgia QCC: 1, 2.1, 3.1, 12, 12.2, 12.3

Objectives

- **Identify** factors that affect the rates of chemical reactions.
- **Explain** the role of a catalyst.

Lesson Resources

- _____ Section Focus Transparency 65 and Master Teaching Transparency 50 and Master
- _____ *ChemLab and MiniLab Worksheets*, pp. 65–68 TCR
- _____ *Study Guide for Content Mastery*, p. 99 TCR

- _____ **Guided Reading Audio Program**, Section 17.2
- _____ **Cosmic Chemistry Videodisc**, Disc 2, Side 3
- _____ *Using the Internet in the Science Classroom*, TCR
- _____ Chemistry Web site: ga.science.glencoe.com

Multimedia Resources

- _____ **Chemistry Interactive CD-ROM**, Section 17.2 Demonstration
- _____ **MindJogger Videoquizzes**, Ch. 17

Optional Resources

- _____ *Laboratory Manual*, pp. 129–132 TCR
- _____ *Solving Problems: A Chemistry Handbook*, Section 17.2 TCR
- _____ *Spanish Resources 17.2 TCR*

Lesson Plan

Activity	Resources	Suggested Time
Classroom Management <ul style="list-style-type: none"> • Display the Section Focus Transparency and have students answer the questions. • Have students check homework answers. 	Section Focus Transparency 65 and Master TWE, pp. 533, 535, 554–557	5 minutes
Discussion <ul style="list-style-type: none"> • Answer any questions about homework. 	TWE, pp. 533, 535, 554–557	0–5 minutes
Core Lesson <ul style="list-style-type: none"> • Introduce Section 17.2 with the Quick Demo. • Teach the main concepts of Section 17.2. • Have students read the ChemLab and begin preparations. (Note: the lesson plan for Section 17.3 allots time for completing the lab. Time adjustments may be necessary in subsequent lessons.) 	TWE, p. 537 TWE, pp. 536–541 SE, pp. 550–551	25–30 minutes
In-Class Check <ul style="list-style-type: none"> • Complete the Check for Understanding and Reteach strategies. 	TWE, p. 541	5 minutes
Homework <ul style="list-style-type: none"> • Have students complete Section 17.2 Assessment. • Assign the Portfolio Assessment. • Assign relevant questions from Chapter 17 Assessment. 	SE, p. 541 TWE, p. 541 SE, pp. 554–557	5 minutes

[total = 45 minutes]

Reaction Rate Laws pages 542–545

Key: SE = Student Edition,
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National Science Content Standards: UCP.2, UCP.3; A.1; B.3
Georgia QCC: 8.1

Objectives

- **Express** the relationship between reaction rate and concentration.
- **Determine** reaction orders using the method of initial rates.

Lesson Resources

- _____ Section Focus Transparency 66 and Master
- _____ Math Skills Transparency 27 and Master
- _____ Teaching Transparency 51 and Master
- _____ *ChemLab and MiniLab Worksheets*, pp. 66–68
TCR
- _____ *Study Guide for Content Mastery*, p. 100 TCR

- _____ *Using the Internet in the Science Classroom*, TCR
- _____ Chemistry Web site: ga.science.glencoe.com

Optional Resources

- _____ *Small-Scale Laboratory Manual*, pp. 53–56 TCR
- _____ *Solving Problems: A Chemistry Handbook*,
Section 17.3 TCR
- _____ *Spanish Resources 17.3* TCR

Multimedia Resources

- _____ *MindJogger Videoquizzes*, Ch. 17
- _____ *Guided Reading Audio Program*, Section 17.3

Lesson Plan

Activity	Resources	Suggested Time
Classroom Management <ul style="list-style-type: none"> • Display the Section Focus Transparency and have students answer the questions. • Have students check homework answers. 	Section Focus Transparency 66 and Master TWE, pp. 541, 554–557	5 minutes
Discussion <ul style="list-style-type: none"> • Answer any questions about homework. 	TWE, pp. 541, 554–557	5 minutes
Core Lesson <ul style="list-style-type: none"> • Have students complete the ChemLab. Discuss their answers and results. • Introduce Section 17.3 with the Quick Demo. • Teach the main concepts of Section 17.3. 	SE, pp. 550–551 TWE, p. 543 TWE, pp. 542–545	80 minutes
In-Class Check <ul style="list-style-type: none"> • Reinforce Section 17.3 concepts using the <i>Study Guide for Content Mastery</i>. • Have students work in pairs to complete the Chemistry Journal. • Complete the Check for Understanding and Reteach strategies. • Complete the Knowledge Assessment. 	<i>Study Guide for Content Mastery</i> , p. 100 TCR TWE, p. 544 TWE, p. 545 TWE, p. 545	40 minutes
Homework <ul style="list-style-type: none"> • Have students complete Section 17.3 Assessment. • Assign relevant questions from Chapter 17 Assessment. 	SE, p. 545 SE, pp. 554–557	5 minutes

[total = 135 minutes]

Instantaneous Reaction Rates and Reaction Mechanisms

pages 546–549

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TWE = Teacher Wraparound Edition,
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National Science Content Standards: UCP.2, UCP.3; A.1; B.2, B.3, B.4, B.6; E.2; F.4, F.5, F.6

Georgia QCC: 1, 2, 2.1, 3.1, 9.1, 9.6, 12, 12.1, 12.2, 12.3, 16.1, 16.3

Objectives

- **Calculate** instantaneous rates of chemical reactions.
- **Understand** that many chemical reactions occur in steps.
- **Relate** the instantaneous rate of a complex reaction to its reaction mechanism.

Lesson Resources

- _____ Section Focus Transparency 67 and Master
- _____ Teaching Transparency 52 and Master
- _____ *Study Guide for Content Mastery*, pp. 101–102
TCR

Optional Resources

- _____ *Laboratory Manual*, pp. 133–136 TCR
- _____ *Solving Problems: A Chemistry Handbook*,
Section 17.4 TCR
- _____ *Spanish Resources 17.4 TCR*
- _____ *Supplemental Problems*, pp. 25–26 TCR

Multimedia Resources

- _____ **MindJogger Videoquizzes**, Ch. 17
- _____ **Guided Reading Audio Program**, Section 17.4
- _____ *Using the Internet in the Science Classroom*, TCR
- _____ Chemistry Web site: ga.science.glencoe.com

Lesson Plan

Activity	Resources	Suggested Time
Classroom Management <ul style="list-style-type: none"> • Display the Section Focus Transparency and have students answer the questions. • Have students check homework answers. 	Section Focus Transparency 67 and Master TWE, pp. 545, 554–557	5 minutes
Discussion <ul style="list-style-type: none"> • Answer any questions about homework. 	TWE, pp. 545, 554–557	5 minutes
Core Lesson <ul style="list-style-type: none"> • Teach the main concepts of Section 17.4. 	TWE, pp. 546–549	30 minutes
In-Class Check <ul style="list-style-type: none"> • Reinforce Section 17.4 concepts with the Performance Assessment. • Complete the Check for Understanding and Reteach strategies. • Answer questions on Chapter 17 in preparation for the test. 	TWE, p. 549 TWE, p. 549 TWE, pp. 528–557	30 minutes
Homework <ul style="list-style-type: none"> • Have students complete Section 17.4 Assessment. • Assign relevant questions from Chapter 17 Assessment. • Assign supplemental problems to prepare students for the test. 	SE, p. 549 SE, pp. 554–557 <i>Supplemental Problems</i> , pp. 25–26 TCR	20 minutes

[total = 90 minutes]

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Assessment Resources

- _____ *Chapter Assessment*, Ch. 17 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. 17
- _____ **TestCheck Software**, Ch. 17
- _____ **Chemistry Interactive CD-ROM**, Ch. 17
- _____ **Vocabulary PuzzleMaker Software**, Ch. 17 quiz

Activity	Resources	Suggested Time
Classroom Management <ul style="list-style-type: none"> • Have students check homework answers. 	<i>TWE</i> , pp. 549, 554–557 <i>Supplemental Problems</i> , pp. 25–26 TCR	5 minutes
Reviewing the Chapter <ul style="list-style-type: none"> • Answer any questions about homework. • Answer any final questions about Chapter 17. 	<i>Supplemental Problems</i> , pp. 25–26 TCR <i>TWE</i> , pp. 528–557	5 minutes
Assessment <ul style="list-style-type: none"> • Distribute the test and allow students to work quietly. 	<i>Chapter Assessment</i> , pp. 97–102 TCR	30–35 minutes
Closing <ul style="list-style-type: none"> • As students complete the test, have them read the Chapter 18 Opener. • If students have time, let them explore the Chemistry Online for Chapter 18. 	<i>SE</i> , p. 558 ga.science.glencoe.com	0–5 minutes

[total = 45 minutes]