Acids and Bases

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	19.1 Acids and Bases: An Introduction
1	19.2 Strengths of Acids and Bases
1	19.3 What is pH?
1.5	19.4 Neutralization
0.5	Review and Assessment

Pacing Guide
1/2 period
Lesson and Discovery Lab

Acids and Bases: An Introduction *pages 595–601*

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

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

Georgia QCC: 1, 2.1, 3.1, 8, 9.1, 11, 11.1, 11.2, 11.3

Objectives

- **Identify** the physical and chemical properties of acids and bases.
- **Classify** solutions as acidic, basic, or neutrga.
- **Compare** the Arrhenius and Brønsted-Lowry models of acids and bases.

Lesson Resources

_______ Section Focus Transparency 71 and Master
_______ Teaching Transparency 55 and Master
_______ *Study Guide for Content Mastery*, p. 109 *TCR*

Optional Resources

_______ *Solving Problems: A Chemistry Handbook*, Section 19.1 *TCR*
_______ *Spanish Resources* 19.1 *TCR*

Multimedia Resources

_______ **Chemistry Interactive CD-ROM,** Section 19.1 Video and Demonstration
_______ **MindJogger Videoquizzes,** Ch. 19
_______ **Guided Reading Audio Program,** Section 19.1
_______ **Cosmic Chemistry Videodisc,** Disc 3, Side 5; Disc 3, Side 6; Disc 4, Side 8
_______ *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. • Distribute the corrected Chapter 18 tests.	Section Focus Transparency 71 and Master	5 minutes
Core Lesson • Introduce Chapter 19 with the Discovery Lab. • Teach the main concepts of Section 19.1.	*SE*, p. 595 *TWE*, pp. 595–601	30 minutes
In-Class Check • Reinforce Section 19.1 concepts using the Reinforcement feature. • Complete the Check for Understanding and Reteach strategies.	*TWE*, p. 597 *TWE*, p. 600	5 minutes
Homework • Have students complete Section 19.1 Assessment. • Have students complete the Chemistry Journal. • Assign relevant questions from Chapter 19 Assessment.	*SE*, p. 601 *TWE*, p. 596 *SE*, pp. 630–633	5 minutes

[total = 45 minutes]

Pacing Guide
1 period
Lesson

Strengths of Acids and Bases *pages 602–607*

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

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

Georgia QCC: 1, 1.2, 3.1, 8, 9.1, 10, 11, 11.1, 11.2, 16.3

Objectives

- **Relate** the strength of an acid or base to its degree of ionization.
- **Compare** the strength of a weak acid with the strength of its conjugate base and the strength of a weak base with the strength of its conjugate acid.
- **Explain** the relationship between the strengths of acids and bases and the values of their ionization constants.

Lesson Resources

_______ Section Focus Transparency 72 and Master
_______ Math Skills Transparency 30 and Master
_______ Teaching Transparency 56 and Master
_______ *ChemLab and MiniLab Worksheets*, p. 73 *TCR*
_______ *Study Guide for Content Mastery*, p. 110 *TCR*

Multimedia Resources

_______ **Chemistry Interactive CD-ROM,** Section 19.2 Demonstration
_______ **MindJogger Videoquizzes,** Ch. 19
_______ **Guided Reading Audio Program,** Section 19.2
_______ **Cosmic Chemistry Videodisc,** Disc 3, Side 5
_______ *Using the Internet in the Science Classroom*, *TCR*
_______ Chemistry Web site: **ga.science.glencoe.com**

Optional Resources

_______ *Challenge Problems*, p. 19 *TCR*
_______ *Solving Problems: A Chemistry Handbook*, Section 19.2 *TCR*
_______ *Spanish Resources* 19.2 *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 72 and Master *TWE*, pp. 596, 601, 630–633	5 minutes
Discussion • Answer any questions about homework.	*TWE*, pp. 596, 601, 630–633	5 minutes
Core Lesson • Teach the main concepts of Section 19.2.	*TWE*, pp. 602–607	20 minutes
In-Class Check • Ask students to answer the Knowledge Assessment question. • Complete the Check for Understanding and Reteach strategies.	*TWE*, p. 605 *TWE*, p. 607	10 minutes
Homework • Have students complete Section 19.2 Assessment. • Have students complete the Skill Assessment. • Assign relevant questions from Chapter 19 Assessment.	*SE*, p. 607 *TWE*, p. 607 *SE*, pp. 630–633	5 minutes

[total = 45 minutes]

Pacing Guide
1 period
Lesson

What is pH? *pages 608–616*

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

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

Georgia QCC: 10, 11.1, 11.3

Objectives

- **Explain** the meaning of pH and pOH.
- **Relate** pH and pOH to the ion product constant for water.
- **Calculate** the pH and pOH of aqueous solutions.

Lesson Resources

_______ Section Focus Transparency 73 and Master
_______ Math Skills Transparency 31 and Master
_______ Teaching Transparency 57 and Master
_______ *Study Guide for Content Mastery*, pp. 111–112 *TCR*

Multimedia Resources

_______ **MindJogger Videoquizzes,** Ch. 19
_______ **Guided Reading Audio Program,** Section 19.3
_______ **Cosmic Chemistry Videodisc,** Disc 3, Side 5; Disc 3, Side 6; Disc 4, Side 8
_______ *Using the Internet in the Science Classroom*, *TCR*
_______ Chemistry Web site: **ga.science.glencoe.com**

Optional Resources

_______ *Forensics Laboratory Manual*, pp. 13–28 *TCR*
_______ *Small-Scale Laboratory Manual*, pp. 65–68 *TCR*
_______ *Solving Problems: A Chemistry Handbook*, Section 19.3 TCR
_______ *Spanish Resources* 19.3 *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 73 and Master *TWE*, pp. 607, 630–633	5 minutes
Discussion • Answer any questions about homework.	*TWE*, pp. 607, 630–633	5 minutes
Core Lesson • Introduce Section 19.3 with the Quick Demo. • Teach the main concepts of Section 19.3. • Ask students the questions from the Knowledge Assessment.	*TWE*, p. 613 *TWE*, pp. 608–616 *TWE*, p. 612	40 minutes
In-Class Check • Reinforce Section 19.3 concepts using the Teaching Transparency. • Discuss the Knowledge Assessment with students. • Complete the Check for Understanding and Reteach strategies.	Teaching Transparency 55 and Master *TWE*, p. 616 *TWE*, p. 615	35 minutes
Homework • Have students complete Section 19.3 Assessment. • Assign relevant questions from Chapter 19 Assessment.	*SE*, p. 616 *SE*, pp. 630–633	5 minutes

[total = 90 minutes]

Pacing Guide
1 1/2 periods
Lesson and ChemLab

Neutralization *pages 617–625*

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

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

Georgia QCC: 1, 1.2, 2, 2.1, 3.1, 8, 8.3, 9.1, 9.6, 10, 11, 11.1, 11.2, 11.3, 11.4, 11.5, 16.3

Objectives

- **Write** chemical equations for neutralization reactions.
- **Explain** how neutralization reactions are used in acid-base titrations.
- **Compare** the properties of buffered and unbuffered solutions.

Lesson Resources

_______ Section Focus Transparency 74 and Master
_______ Teaching Transparency 58 and Master
_______ *ChemLab and MiniLab Worksheets*, pp. 74–76 *TCR*
_______ *Study Guide for Content Mastery*, pp. 113–114 *TCR*

Multimedia Resources

_______ **Chemistry Interactive CD-ROM,** Section 19.4 Demonstration, Animation, Video, and Experiment
_______ **MindJogger Videoquizzes,** Ch. 19
_______ **Guided Reading Audio Program,** Section 19.4
_______ *Using the Internet in the Science Classroom*, *TCR*
_______ Chemistry Web site: **ga.science.glencoe.com**

Optional Resources

_______ *CBL Laboratory Manual*, pp. 33–36 *TCR*
_______ *Laboratory Manual*, pp. 145–152 *TCR*
_______ *Small-Scale Laboratory Manual*, pp. 69–72 *TCR*
_______ *Solving Problems: A Chemistry Handbook*, Section 19.4 *TCR*
_______ *Spanish Resources* 19.4 *TCR*
_______ *Supplemental Problems*, p. 29 *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 74 and Master *TWE*, pp. 616, 630–633	5 minutes
Discussion • Answer any questions about homework.	*TWE*, pp. 616, 630–633	5 minutes
Core Lesson • Teach the main concepts of Section 19.4. • Have students read the ChemLab and begin the procedure. (Note: this lab will take 135 minutes to complete. Time adjustments may be necessary in subsequent lessons.)	*TWE*, pp. 617–625 *SE*, pp. 626–627	90 minutes
In-Class Check • Reinforce Section 19.4 concepts using the Reinforcement features. • Complete the Check for Understanding and Reteach strategies. • Answer questions on Chapter 19 in preparation for the test.	*TWE*, pp. 621, 623 *TWE*, p. 625 *TWE*, pp. 594–633	30 minutes
Homework • Have students complete Section 19.4 Assessment. • Assign relevant questions from Chapter 19 Assessment. • Assign supplemental problems to prepare students for the test.	*SE*, p. 625 *SE*, pp. 630–633 *Supplemental Problems*, p. 29 *TCR*	5 minutes

[total = 135 minutes]

Pacing Guide
1/2 period
Review/Assessment

Acids and Bases

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Assessment Resources

_______ *Chapter Assessment*, Ch. 19 *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. 19
_______ **TestCheck Software,** Ch. 19
_______ **Chemistry Interactive CD-ROM,** Ch. 19 quiz
_______ **Vocabulary PuzzleMaker Software,** Ch. 19

Activity	Resources	Suggested Time
Classroom Management • Have students check homework answers.	*TWE*, pp. 625, 630–633 *Supplemental Problems*, p. 29 *TCR*	5 minutes
Reviewing the Chapter • Answer any questions about homework. • Answer any final questions about Chapter 19.	*Supplemental Problems*, p. 29 *TCR* *TWE*, pp. 594–633	5 minutes
Assessment • Distribute the test and allow students to work quietly.	*Chapter Assessment*, pp. 109–114 *TCR*	30–35 minutes
Closing • As students complete the test, have them read the Chapter 20 Opener. • If students have time, let them explore the Chemistry Online for Chapter 20.	*SE*, p. 634 **ga.science.glencoe.com**	0–5 minutes

[total = 45 minutes]