

Zumdahl/Zumdahl's Chemistry 8th Edition, © 2010 Transition Guide

We added Problem Solving Strategy boxes to focus the student's attention on the very important process of problem solving. One of the main goals of general chemistry is to help the students become creative problem solvers.

We added concept boxes to help the students organize their thinking about the crucial chemical concepts that they encounter.

Chapter 1

1.1

Chemical Impact (CC): The Chemistry of Art – delete to web

1.7

New Example 1.10 – Unit Conversion VI

CC: Faux Snow – delete to web

Chapter 2

2.1

CC: There's Gold in Them There Plants! – delete to web

2.5

CC: Reading the History of Bogs – delete to web

2.7

CC: Trace Element: Small but Crucial – new (from WOC, Intro)

Chapter 3

Added a new section: “3.5 Learning to Solve Problems,” which emphasizes the importance of conceptual problem solving.

We added a new section: 3.5 learning to Solve Problems which emphasizes the importance of conceptual problem solving. This helps the students understand that thinking their way through a problem produces more long term meaningful learning than simply memorizing steps which are soon forgotten.

In addition, the in-chapter Examples for Chapters 3-6 now include a series of questions to engage students in the process of problem solving. This more active approach helps students learn the questions that they need to ask to proceed to the solution of the problem. In general after Chapters 3-6, the questions aren't included within the Examples. By this time we hope that the students will be able to supply the pertinent questions on their own. Our purpose is to wean the students so they are not dependent on the text providing the questions to solve the problem.

3.2

CC: Buckyballs Teach Some History – delete to web

3.3

CC: Elemental Analysis Catches Elephant Poachers – delete to web

Insert: pg 3-11 (pg86, 7e) (paragraph on Methane)

3.4

CC: Measuring the Masses of Large Molecules, or Making Elephants Fly – delete to web

New paragraph on formula units.

3.5

Inserted material: Learning to Solve Problems pg 3-14 (pg 88, 7e)

3.6

E 3.9, Calculating Mass Percent I – replaced

E 3.10, Calculating Mass Percent II – delete to web

3.7

Insert – Problem-solving strategy box, Empirical Formula Determination

E 3.11, Determining Empirical and Molecular Formulas I – replaced

Insert – Problem-solving strategy box, Determining molecular formula from mass percent and molar mass

E 3.12, Determining Empirical and Molecular Formulas II – replaced

Insert – Problem-solving strategy box, Determining molecular formula from empirical formula

E 3.13 Determining a molecular formula – replaced

3.8

E 3.16 Chemical stoichiometry I – replaced

E 3.17 Chemical stoichiometry II – replaced

3.11

Insert: sec 3.11 – new material

E 3.18 Stoichiometry: Limited reactant – replaced

E 3.19 Calculating Percent Yield – replaced

Chapter 4

4.2

New material on the ionization of acid.

4.3

E 4.1 Calculation of molarity I – replaced

E 4.2 Calculation of molarity II – replaced

E 4.3 Concentrations of ions – replaced
E 4.4 Concentraions of ions II – replaced
E 4.5 Concentration and volume – replaced
E .46 Solutions of known contrentation – replaced
E 4.7 Concentration and volume – replaced

4.7

E 4.10 Determining the mass of product formed – replaced
E 4.11 Determining the mass of product formed – replaced

4.8

E 4.12 Neutralization reactions – replaced
E 4.13 Neutralization reactions II – replaced
E 4.14 Neutralization titration – replaced
E 4.15 Neutralization analysis – replaced

4.9

CC: Pearly Whites – delete to web
CC: Aging: Does it Involve Oxidation? – delete to web
E 4.17 Oxidation-reduction reactions I – replaced

4.10

Section 4.10 – We moved the half reaction method for balancing oxidation-reduction reactions to Chapter 18 because it is less intuitive than the oxidation states method. We felt it was better to put off the more complicated equations until later. The oxidations states method emphasizes the concepts of oxidation states and works well for simple reactions.

Chapter 5

E 5.2 Boyle’s Law I – replaced
E 5.4 Charles’s Law – replaced
E 5.5 Avogadro’s Law – replaced

5.3

E 5.6 Ideal Gas Law – replaced
E 5.7 Ideal Gas Law II – replaced
E 5.8 Ideal Gas Law III – replaced
E 5.9 Ideal Gas Law IV – replaced
E 5.10 Ideal Gas Law V – replaced

5.4

E 5.12 Gas Stoichiometry II – replaced
E 5.13 Gas Stoichiometry III – replaced

5.5

E 5.15 Dalton's Law I – replaced

E 5.16 Dalton's Law II – replaced

E 5.18 Gas Collection over water – replaced

5.6

E 5.19 Root mean square velocity – replaced

5.10

CC Title Change: Acid Rain: An Expensive Problem

Chapter 6

6.1

E 6.3 Internal energy, heat, and work – replaced

6.2

E 6.4, Enthalpy – replaced

E 6.5 Constant-pressure calorimetry – replaced

E 6.6 Constant-Volume calorimetry – modified

6.3

E 6.7 Hess's Law I – modified

6.4

E 6.10 Enthalpies from standard enthalpies of formation II – replaced

E 6.11 Enthalpies from standard enthalpies of formation III – replaced

Chapter 7

7.1

CC: Flies That Dye – delete to web

7.10

CC: The Growing Periodic Table – delete to web

Chapter 8

Chapter 9

Chapter 10

10.4

CC: Seething Surfaces - delete to web

Chapter 11

11.1

CC: Electronic Ink – delete to web

11.3

CC: Ionic liquids – delete to web

Chapter 12

12.5 Rate Laws: A summary – deleted as a section; material turned into a model summary box

12.5 Reaction Mechanisms (previously 12.6)

12.6 A Model for Chemical Kinetics (previously 12.7)

12.7 Catalysis (previously 12.8)

Chapter 13

Many of the questions in Examples include active problem solving questions instead of statements to engage the students in the problem solving process.

Chapter 14

14.5

CC: Household Chemistry – deleted to web

Chapter 15

Broken out into two chapters:

The former chapter 15 was long and dealt with very difficult material. The new organization provides a chapter to cover titrations and buffers and a new chapter 16 which explores applications of equilibria for solubility and complex ions.

Chapter 16 new chapter

Intro – new material in the chapter opener.

Chapter 17 (previously ch 16)

Chapter 18 (previously ch 17)

18.1

Section insert: Balancing Oxidation-Reduction Equations – new (from Ch 4)

18.6

CC: Printed Batteries – deleted to web

CC: Thermophotovoltaics: Electricity from Heat – deleted to web

CC: Fuel Cells – deleted to web

18.7

CC: Paint that Stops Rust Completely – deleted to web

Chapter 19 (previously ch 18)

CC: Stellar Nucleosynthesis – moved to web

19.6

CC: Future Nuclear Power – new material

Chapter 20

“Chapter 19: The Representative Elements Groups 1A through 4A” and “Chapter 20: The Representative Elements Groups 5A through 8A,” were combined to provide a more focused and usable treatment of descriptive chemistry. (Please add to this explanation if necessary)

20.8

CC: An Explosive Discovery – deleted to web

20.14

CC: Automatic Sunglasses – deleted to web

Chapter 21

21.2

CC: Titanium Makes Great Bicycles – deleted to web

21.7

CC: The Danger of Mercury – deleted to web

Chapter 22

22.5

CC: Heal Thyself – deleted to web

CC: Plastic That Talks and Listens – deleted to web