

## Guided Reading Questions for Material Covered on Exam 1

*You do not have to know all of the material in every chapter listed on the syllabus. To help you pick and choose what to focus on, I have selected the following questions as being most relevant to the material we will cover in class. As you study, try to answer these questions without looking at your book or your notes.*

### Chapter 1

#### Sec. 1.1

- What is the relationship between atoms, molecules, organelles, cells, tissues, organs, organ systems, organisms, populations, communities, ecosystems, and the biosphere?
- Mastering Concepts: #3, 4

#### Sec. 1.2

- Mastering Concepts: #1

#### Sec. 1.3

- What are the elements of an experiment?
- What is the difference between a theory and a hypothesis?
- Mastering Concepts: #5

Multiple Choice #3, 4, 5, 7, 8, 9, 10

Testing Knowledge #1, 2, 6, 9, 11, 13

Thinking as a Scientist #2, 3, 4, 5

### Chapter 2

#### Sec. 2.1

- Mastering Concepts: #1, 2, 3, 5

#### Sec. 2.2

- What is the relationship between atoms and molecules?
- Mastering Concepts: #3, 4, 5

#### Sec. 2.3

- List some reasons that water is essential to life.
- Mastering Concepts: #1, 2, 4, 5, 6

#### Sec. 2.4

- What do the values of 0, 7, and 14 relate to one another on the pH scale?
- Mastering Concepts #1, 2, 3

#### Sec. 2.5

- What is the relationship between dehydration synthesis and hydrolysis?

- What are the four main categories of organic molecules?
- Mastering Concepts #1, 2, 3, 4, 5, 6

Multiple Choice #1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Testing Knowledge #1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13

Thinking as a Scientist #1, 2, 4, 5, 6, 7, 8, 9, 10

**Make a concept map** using the following terms: atom, proton, neutron, nucleus, electron, ion, isotope, molecule, valence shell, covalent bond, polar, nonpolar, ionic bond, hydrogen bond, water, hydrophilic, hydrophobic, monosaccharide, polysaccharide, hydrolysis, dehydration synthesis, amino acid, protein, nucleotide, nucleic acid, lipid

### Chapter 3

Sec. 3.1

- Mastering Concepts: #5, 6

Sec. 3.2

- What is the relationship between a phospholipid and a fat?
- Where in the cell do phospholipid bilayers occur?
- Mastering Concepts: #1, 2, 3

Sec. 3.3

- Mastering Concepts: #1, 2, 3

Sec. 3.4

- Mastering Concepts #1, 2, 4, 5, 6

Multiple Choice #2, 3, 4, 8, 9

Testing Knowledge #1, 2, 3, 5, 6, 7

Thinking as a Scientist #2, 3, 4, 5, 6, 8

**Make a concept map** using the following terms: cell, ribosome, phospholipid bilayer, protein, fluid mosaic, cytoplasm, membrane, nucleus, prokaryote, eukaryote, chloroplast, mitochondrion, cell wall

### Chapter 4

Sec. 4.2

- Mastering Concepts: #1, 2

Sec. 4.3

- What is the relationship between ATP and a nucleotide?
- Mastering Concepts: #2

Sec. 4.4

- What type of organic molecule is an enzyme?
- What do enzymes do in cells?
- Mastering Concepts #4

Sec. 4.5

- What is diffusion?

Multiple Choice #2, 4, 5

Testing Knowledge #7, 10, 11

Thinking as a Scientist #4, 7, 10

**Make a concept map** using the following terms: metabolism, ATP, endergonic, exergonic, chemical reactions, enzyme, protein, nucleotide, energy, cell

## Chapter 5

Sec. 5.1

- What is the difference between a heterotroph and an autotroph?
- Mastering Concepts #1, #2, #3, #4

Multiple Choice #1, 2, 3

Testing Knowledge #6

Thinking as a Scientist #1, 3, 5, 6

## Chapter 6

Sec. 6.1

- Mastering Concepts #1, 2, 3, 4

Multiple Choice #6, 10

Testing Knowledge #1

Thinking as a Scientist #4, 7, 8

**Make a concept map** using the following terms from chapters 5 and 6: metabolism, ATP, respiration, photosynthesis, mitochondrion, chloroplast, light, water, O<sub>2</sub>, glucose, autotroph, heterotroph