Section Review Questions

**Chapter L, Introduction**

**Section L.1**

1. What is your strongest learning style?

Answers will vary, but students should examine their own behavior patterns and preferences.

2. What are the five techniques of the SQ3R method for studying?

These methods are listed in table L3. They include Survey (the information in the chapter), Qeuestion (yourself about main issues in the readings), Read (in small segments), Recite (ideas you have just read), and Review (main ideas after reading).

**Section L.2**

1. Describe seven attitudes needed for critical thinking.

In the section “What do I need to think critically?” is a list of attitudes and dispositions needed for well-reasoned analysis. These include skepticism and independence, open-mindedness and flexibility, accuracy and orderliness, persistence and relevance, contextual sensitivity and empathy, decisiveness and courage, and humility.

2. List six steps in critical thinking.

Identify and evaluate premises; acknowledge and clarify uncertainties; distinguish between facts and values; recognize and assess assumptions; distinguish the reliability ofa source; recognize and understand conceptual frameworks.

**Chapter 1**

**Section 1.1**

1. Why is population an important question in environmental science? In what ways is population less of a problem than in earlier years?

Both the total population and the rate of consumption per person are of concern in environmental science. More people (and especially more wealthy people) consume more resources, destroy more habitat, and create more pollution. Nevertheless, there are signs that population growth is stabilizing nearly everywhere. If we all convert to more sustainable lifestyles, we could minimize our impacts.

2. In what ways is pollution still a problem? Has it improved? Why?

Although air and water quality have improved dramatically in most developed countries, we still emit more pollution than can be cleaned up by ecological systems. These improvements are due to better public understanding of environmental issues and demands for protective legislation. We’re now particularly about long-lived, highly toxic materials, such as mercury and lead, that have deleterious effects at extremely low levels that may not be manifest for years or decades and act in subtle ways to disrupt endocrine regulation or other fundamental controls on growth and development.

3. What is an “ecological footprint”?

An ecological footprint is a measure of our environmental impacts. It’s generally calculated using a few standard measurements that can be converted (somewhat controversially) into global hectares (of productive land) that would be needed to support each activity we undertake.

**Section 1.2**

1. Differentiate “conservation” and “preservation.” Identify one person associated with each.

Conservation usually means wise use of resources to make them last as long as possible, but still use, nonetheless. Gifford Pinchot was an important proponent of conservation. Preservationemphasizes the protection of organisms and resources for their own sake regardless of their utility to us. John Muir pioneered many of our ideas about preservation.

2. What was Rachel Carson’s *Silent Spring* about? Why?

Silent Spring was concerned with the dangers of chemical pollution and especially its effects on human health. Rachel Carson’s interest in this topic began after the Second World War, when there was a great explosion of synthetic chemical use (most of which hadn’t been sufficiently tested) in every walk of life.

3. In what ways is environmental quality tied to social progress?

Increasingly, environmental activists are linking environmental quality and social progress on a global scale. One of the core concepts of modern environmental thought is sustainable development, the idea that economic improvement for the world’s poorest populations is possible without devastating the environment. A core belief is that as we become wealthier and more technologically advanced, we become more interested in environmental quality, we have the resources and technology to improve our environment.

**Section 1.3**

1. List any three quality of life indicators (table 1.1). How do they differ between wealthy and poor countries?

GDP I at least 35 times higher, the poverty index is about 60% lower, and life expectancy is about 23% higher in most developed countries compared to the least-developed countries.

2. Why is affluence a liability? Give an example.

Affluence makes it possible for us to follow our worst impulses to the detriment of our own health and well-being as well as the quality of our environment.

3. Why are many ecologists skeptical about the idea of sustainable development?

Development generally means more resource consumption. Many ecologists doubt we can do that sustainably.

**Section 1.4**

1. Think of five ecosystem services on which you rely.

Photosynthesis, carbon capture, nutrient recycling, water purification, and temperature regulation (as well as food and fuel supply).

2. What is the “tragedy of the commons”? List any two of the factors that can help communities manage a commons.

The “tragedy of the commons” is an idea proposed by Garrett Hardin in 1968 claiming that population growth leads inevitably to overuse and then destruction of common resources—such as shared pastures, unregulated fisheries, fresh water, land, and clean air because each of us acts only in our own self-interest motivated primarily by fear and greed. However, there are many cases of successful long-term management of common-property resources, such as sustainable fisheries, common forests, and grazing lands, in communities around the world. Among the requirements for communal resource management are (1) effective and inexpensive monitoring of resource use; (2) an ability to exclude outsiders, who don’t understand rules of use; and (3) frequent face-to-face communications and strong social networks among users.

3. List several concerns of the Millennium Development Goals.

The Millennium Development Goals include ending poverty and hunger, universal education, gender equity, child health, maternal health, combating HIV/AIDS, environmental sustainability, and global cooperation in development efforts. Many of these goals emphasize health and rights for women and children, who traditionally have little access to resources, education, health care, or political rights in many developing areas.

**Section 1.5**

1. Explain the idea of moral extensionism, and give an example.

Moral extensionism expands our concepts of inherent value—that someone or something has value for its own sake-from ourselves to our community, to other groups, and other organisms or even the whole universe. Aldo Leopold’s essay “Thinking like a Mountain” or Christopher *Stone’s Should Trees have Standing?* Have both transformed our understanding of this idea.

2. How does *inherent value* differ from *instrumental value*?

Inherent valueimplies moral standing and intrinsic rights while instrumental value is based on usefulness to someone else. You have intrinsic rights, but your hammer has only instrumental value.

3. Why is stewardship important in many faiths?

Many faiths believe that God (or Gods) created the earth and entrusted it to our stewardship.

4. What is environmental justice?

Environmental justicecombines civil rights with environmental protection to demand a safe, healthy, life-giving environment for everyone.