

## **CHAPTER 1 SUMMARY**

### **1.1 What are some key factors of sustainability?**

- Environmental science includes three goals. The first is to learn how life on Earth has survived and thrived. The second is to understand how humans interact with the environment. The third is to find ways to deal with environmental problems and live more sustainably.
- There are six factors of sustainability. Three are based on the natural sciences and three are based on social sciences. Sustainability is comprised of a combination of factors: solar energy, biodiversity, nutrient cycling, economics, political science, and ethics.
- Natural capital is comprised of natural resources (inexhaustible, renewable, and nonrenewable) and ecosystem services. Whether or not sustainability is achieved depends on how humans use natural capital.

### **1.2 How are our ecological footprints affecting Earth?**

- Humans are living unsustainably by causing natural capital degradation. The tragedy of the commons helps explain why people may degrade natural resources.
- Every person or group of people produces an ecological footprint, which may or may not be harmful. An ecological footprint is equivalent to the land and water needed to produce the natural resources consumed by a person or population and to absorb their wastes.

### **1.3 What causes environmental problems and why do they persist?**

- Major causes of environmental problems are population growth, wasteful and unsustainable resource use, poverty, avoidance of full-cost pricing, increasing isolation from nature, and conflicting environmental worldviews.
- People have different environmental worldviews, which reflect how they think the world works and what their role in the world should be.

### **1.4 What is an environmentally sustainable society?**

- Many individuals have had a major impact on environmental awareness and sustainability. The first Earth Day is credited with increasing awareness about environmental issues in the United States in the 1970s.
- Living sustainably means living off Earth's natural income without depleting or degrading the natural capital that supplies it.

## **CHAPTER 1 ASSESSMENT**

Select the term that best fits the definition. Not all key terms will be used.

Earth-centered worldview Ecological footprint ecology ecosystem ecosystem service environment environmental degradation environmental ethics environmental science	environmental worldview environmentalism environmentally sustainable society exponential growth human-centered worldview inexhaustible resource life-centered worldview	natural capital natural income natural resource nonpoint source nonrenewable resource point source pollution renewable resource sustainability
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1. Materials and energy sources in nature that are essential or useful to humans
2. The natural services that support life and human economies at no monetary cost, such as pollination and the purification of air and water

3. A social movement dedicated to sustaining Earth's systems that support life
  4. Something that cannot be used up or depleted
  5. Asserts that humans are part of, and dependent on, nature and that Earth's life-support system exists for all species, not just for humans
  6. Harmful contamination of the environment by a chemical or agent entering it over a diffuse area
  7. The study of varying beliefs about what is right and wrong with how people treat the environment; provides useful tools for examining worldviews
  8. The natural resources and ecosystem services that keep humans and other species alive and that support human economies
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9. Distinguish among environmentalism, ecology, and environmental science.
  10. What are the six factors of sustainability?
  11. Describe the sun's role in the sustainability of Earth's environment.
  12. What role does biodiversity play in the sustainability of Earth's environment?
  13. What is nutrient cycling, and why is it considered both a scientific factor of sustainability and an ecosystem service?
  14. Compare and contrast inexhaustible, renewable, and nonrenewable resources. Give two examples of each type of resource.
  15. What are some things that people can do to reduce degradation of natural capital?
  16. According to Juan Martinez, what are some life skills that can be practiced by connecting with nature?
  17. What are some factors that would need to be considered in full-cost pricing of gasoline that is used to power vehicles?
  18. Some ethicists argue it is our responsibility to leave Earth in as good condition as it is in now, or in better condition. Do you agree? Explain why or why not.
  19. What do you think are the two most unsustainable components of your lifestyle? What are two sustainable components? List two ways in which you could make your lifestyle more sustainable.
  20. Explain why you agree or disagree with the following statements:
    - a. Stabilizing population is not desirable because, without more consumers of products, economic growth would stop.
    - b. We will never run out of resources. Technology will lead to substitutes and waste reduction.
    - c. We can shrink our ecological footprints and improve the environment at the same time.
  21. How does the statistic that the United States makes up 15% of the world's ecological footprint make you feel? How could you and others fix this problem?
  22. Explain why you agree or disagree with each of the following statements:
    - a. Humans are in charge of Earth.
    - b. The value of other forms of life depends only on whether they are useful to humans.
    - c. All forms of life have an inherent right to exist.

