UNIT 14 ACTIVITIES

Step 1. Read Chapter 15 in your textbook (Principles of Environmental Science by Cunningham and Cunningham) and answer the questions in these worksheets. For hints, or to double-check your answers, go to the Biology 105 website.

Step 2. For 12 assignment points, do the “Land Use Planning Activity.” This is a web-based activity that can be completed at home. The instructions for the activity are on the Biology 105 website. The instructions for the activity are on the Biology 105 website. You can submit your answers online or turn in a hardcopy. Your instructor will grade your assignment and return it to you in a few days to a week.

Step 3. Prepare for the Unit 14 Exam. Study your completed worksheets, and take the online multiple-choice self test (on the Biology 105 website).

Step 4. Come in to the Biology Learning Center to take your Unit 14 Exam. The exam will consist of 40 multiple-choice questions.

STEP 1: TEXTBOOK WORKSHEETS

Read Chapter 15 in your textbook, and answer the following questions. For hints, or to double-check your answers, go to the Biology 105 website. [NOTE: Read the textbook to learn and understand the subject, but be sure to focus on the UNIT 14 LEARNING OBJECTIVES.]

1. Read the case study “Vauban: A car-free suburb.” Describe differences between Vauban and Tucson that make Vauban more environmentally friendly.

2. As the average income increases in developing countries, several things typically happen to the environment:
   a. Air pollution increases because they can afford to burn more fuel for transportation and heating.
   b. Waste generation increases.
   c. Carbon dioxide emissions increase.
   d. Large dams and hydroelectric projects are built, often displacing local residents and destroying ecosystems.
   e. Huge farms and grazing projects are created, destroying ecosystems.
Cities are Places of Crisis and Opportunity
3. Name three regions of the world that are highly urbanized, based on year 2000 data.
   Name the two regions that are below 45 percent urbanized. (Table 15.1)

4. What are urban agglomerations? What are megacities?

5. What challenges will the world face as more and more people crowd into cities?

Cities are Places of Crisis and Opportunity: Large cities are expanding rapidly
6. Briefly describe the demographic shift in China over the past 25 years or so. Why is this significant?

Cities are Places of Crisis and Opportunity: Immigration is driven by push and pull factors
7. Describe some of the factors that push people out of rural areas and pull people into cities.
CITIES ARE PLACES OF CRISIS AND OPPORTUNITY: CONGESTION, POLLUTION, AND WATER SHORTAGES PLAGUE MANY CITIES
8. Describe urban problems in developing countries.

CITIES ARE PLACES OF CRISIS AND OPPORTUNITY: MANY CITIES LACK SUFFICIENT HOUSING
9. What are some of the risks associated with living in slums and shantytowns?

URBAN PLANNING: TRANSPORTATION IS CRUCIAL IN CITY DEVELOPMENT
10. Describe the problems with urban sprawl in developed countries.

URBAN PLANNING: WE CAN MAKE OUR CITIES MORE LIVABLE & NEW URBANISM INCORPORATES SMART GROWTH
11. Define smart growth. Describe urban planning principles for sustainability.

12. Why is the strong association between urban design and mental and physical health important?

14. The possibility of sustainable development depends partly on how you define resources, your theories about resource use, and your views on the possibility of extending the use of the resources we have. It also depends on wealth—wealthy, developed countries are much more likely to embrace sustainable development than are countries whose citizens struggle to meet their basic needs. Improving the chance for sustainable development in developing countries must start by meeting basic needs: provide housing, clean water, sanitation, food, education, health care, and basic transportation.

15. Compare how resources are viewed in classical economics vs. neoclassical economics.

16. Describe four types of capital, as determined by economists and social theorists.

17. Describe what is necessary for continued prosperity, according to neoclassical economics. Describe how natural resources fit into this view.
18. Define gross national product (GNP).

19. Define ecological economics. Describe how ecological economics is different than other ideas of economics (such as natural resource economics).

20. Define ecological services.

21. Describe four ways of extending nonrenewable resources.
ECONOMICS AND SUSTAINABLE GROWTH: SCARCITY CAN LEAD TO INNOVATION
22. Describe the factors that might lead to catastrophic social and environmental collapse, as outlined in the 1972 book *Limits to Growth*.

23. Describe the possible mitigating factors to catastrophic social and environmental collapse, as outlined in the 1992 book *Beyond the Limits*.

ECONOMICS AND SUSTAINABLE GROWTH: COMMUNAL PROPERTY RESOURCES ARE A CLASSIC PROBLEM IN ECONOMICS
24. What is the Tragedy of the Commons? What are some examples of natural amenities that are managed communally?

25. Describe the eight features of successful communal resource management systems.
**NATURAL RESOURCE ACCOUNTING**


27. Describe the problem with using GNP as a measure of wealth.

**NATURAL RESOURCE ACCOUNTING: INTERNALIZING EXTERNAL COSTS**

28. Distinguish between externalizing costs and internalizing costs. (text and glossary)

**NATURAL RESOURCE ACCOUNTING: NEW APPROACHES MEASURE REAL PROGRESS**

29. Briefly describe other measures of wealth (other than GNP).

30. The **discount rate** is the reduced future value of a resource. We have no idea what the value of resources will be in the future, because undiscovered technology will determine our need for those resources. (The idea of discount rates is that a commodity is always worth more today than in the future.)
TRADE, DEVELOPMENT, AND JOBS
31. Expanding trade relations between countries has been promoted as a way to distribute wealth, stimulate economics around the world, and at the same time satisfy the desires of consumers in wealthy countries. However, international trade often has big environmental problems. It externalizes costs on a grand scale. Many of the costs are internalized when products are made in the United States. However, when those products are made in developing countries, we pay very low prices, and the environmental costs are externalized. This leads to serious pollution problems and resource depletion.

32. Describe the biggest economic problem with international trade.

TRADE, DEVELOPMENT, AND JOBS: MICROLENDING HELPS THE POOREST OF THE POOR
33. Describe the past history of the World Bank in funding environmentally damaging projects.

34. Describe the benefits that have resulted from microlending (giving small loans) compared to giving big loans to individuals in developing countries.
GREEN BUSINESS AND GREEN DESIGN
35. Describe the goal of green businesses.

GREEN BUSINESS AND GREEN DESIGN: GREEN DESIGN IS GOOD FOR BUSINESS AND THE ENVIRONMENT
36. Describe the goals of environmentally friendly design and architecture.

GREEN BUSINESS AND GREEN DESIGN: ENVIRONMENTAL PROTECTION CREATES JOBS
37. Describe how environmental laws and regulations affect employment lay-offs.

38. You need to be able to locate and identify the following regions and countries (all of which are discussed in Chapter 15) on a map of the world for your Unit 14 test: Indonesia, Poland, Haiti, and Botswana

You also need to be able to identify all of the regions and countries assigned in previous units: Galápagos Islands (part of Ecuador), Sonoran Desert (S. Arizona & N. Mexico), Lake Victoria (in Africa), Greenland, North America, Western Europe, Japan, China, India, sub-Saharan Africa, California, Amazon, Atlantic Ocean, the Gulf of Mexico, Thailand, Mexico, Russia, Bangladesh, Yellowstone National Park (Wyoming), Canada, New Zealand, Madagascar, Brazil, Argentina, the Philippines, United Kingdom (Britain, Wales, N. Ireland), Nigeria, Great Lakes, Egypt, Antarctica, Hawaii, Australia, Amazon River, Congo River, Yangtze River, Mississippi River, Pacific Ocean, Alaska, Columbia, Italy, Denmark, Sweden, Venezuela, and Portugal

There are two foldout maps at the back of your textbook to help you.

End of Step 1.