

APPENDIX A: Teacher Pages

Are These Resources Renewable?

Additional Resource Support for Teachers

- *Three Spheres of Sustainability*
- *Ecosystem Considerations, Measure, and Influences*
- *Management Policies for Sustainability*

ACTIVITY I: *Are These Resources Renewable?*

TEACHER PAGE

Are These Resources Renewable Answer Key is on the following page. Also see the *Key Words* section in *Module 2*.

1. To determine prior knowledge about renewable and nonrenewable natural resources, complete, *Are These Resources Renewable*, Student Page. (See next page).
2. Upon completion, review your work in a class discussion.
3. Answer the following questions:
 - a. What does the term sustainable mean?
 - b. How does sustainability apply to both renewable and nonrenewable resources?
 - c. How are the resources that are listed used by humans?

ACTIVITY I: *Are These Resources Renewable?*

TEACHER PAGE

A renewable resource is a resource that can be harvested or used without completely depleting, damaging, or destroying it. If managed responsibly, it can be renewed at the same rate it is being used. In the space provided, please indicate whether the resource listed is renewable or nonrenewable.

	Renewable	Non-Renewable
Bobwhite Quail	<u> X </u>	<u> </u>
Oak Tree	<u> X </u>	<u> </u>
Rockfish	<u> X </u>	<u> </u>
Coal	<u> </u>	<u> X </u>
Soil	<u> X </u>	<u> </u>
Uranium	<u> </u>	<u> X </u>
Blue Crab	<u> X </u>	<u> </u>
Water	<u> X </u>	<u> </u>
Natural Gas	<u> </u>	<u> X </u>
Gasoline	<u> </u>	<u> X </u>
Canada Goose	<u> X </u>	<u> </u>
Menhaden	<u> X </u>	<u> </u>
Water	<u> X </u>	<u> </u>
Wind & Solar Energy	<u> X </u>	<u> </u>
Eastern Oyster	<u> X </u>	<u> </u>
Copper	<u> </u>	<u> X </u>

Additional Resource Support for Teachers

- ***The Three Spheres of Sustainability***

Source: Baltimore Ecosystem Study

http://besurbanlexicon.blogspot.com/2012_06_01_archive.html

How do social systems and ecological systems overlap? Refer back to the *IEEIA Environmental Issue Value Descriptors* in APPENDIX C. Have students create what environmental values they think overlap in systems (e.g., political, environmental,

- ***Adaptive Management: Ecosystems Considerations, Measures, and Influences***

Source: <http://image.slidesharecdn.com/sci14bioeptx0502-140917092101-phpapp01/95/preap-bio-52-3-638.jpg%3Fcb%3D1410945714>

How do management tools and ecosystem indicators provide feedback for adaptive management?

- ***Management Policies for Sustainability***

Figure 32: The structure of choice and constraint relationships in Newfoundland fisheries (Based on Lamson and Hanson, 1984)

Source: <http://www.fao.org/docrep/003/t0019e/t0019e03.htm>

Look at the stakeholders represented in this diagram. Did your students consider these groups as key players in fisheries related issues? During the Fish Banks simulation, the primary stakeholders were individual fishermen only. Consider the effects of natural resource sustainability on other individuals and groups. How can they work together to sustain fisheries for the broader community?