Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_

**Scientific American: Environmental Science for a Changing World**

**Chapter 4 Wall to Wall, Cradle to Cradle**

1. Define the following terms

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Sustainable |  |
| Economics |  |
| Ecosystem services |  |
| Ecological footprint |  |
| Natural capital |  |
| Natural interest |  |
| IPAT model |  |
| Internal cost |  |
| External cost |  |
| Triple-bottom line |  |
| True cost |  |
| Closed-loop system |  |
| Cradle to cradle |  |
| Discount future value |  |
| Environmental/ecological economics |  |
| Sustainable development |  |
| Green business |  |
| Service economy |  |
| Ecolabling |  |

Multiple Choice: Circle the one best answer.

1. Water is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, while the water cycle would be an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. An ecological footprint; the IPAT model
3. An ecosystem good; an ecosystem service
4. Natural capital; natural interest
5. An external cost; an internal cost
6. The land needed to provide the resources for and assimilate the waste of a person is referred to as:
7. An ecological footprint
8. Natural interest
9. Sustainable development
10. True cost accounting
11. Which of the following statements about sustainability is FALSE?
12. We could make all our industrial processes sustainable if we could transform linear processes into circular ones.
13. The U.S rate of consumption is not sustainable; if the world population consumed as mum as the average U.S citizen, we would need over 6 earths.
14. In its current form, mainstream economics is the optimal model for building sustainability because external costs are built in.
15. Technology can be used to promote sustainability and decrease human environmental impact.
16. What does the term cradle-to-cradle mean when talking about product management?
17. a. What is the IPAT model?
18. How is the equation I = P x A x T similar and/or different from the equation I = (P x A)/T?
19. a. What are the differences between internal and external costs?
20. How do these types of costs relate to true cost accounting?
21. a What are the limitations of mainstream economics that make it an unsustainable model?
22. How are environmental economics and ecological economics possible responses to these limitations?
23. Using biomimicry, conducting a life-cycle analysis, restructuring as a service economy, and ecolabeling are all methods that can be used to make businesses more sustainable. Using the story of Interface, explain how employing these methods help us to achieve sustainability in the way we manufacture and use products.