Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DUE: \_\_\_\_\_\_\_\_\_ **ES Unit 9: Sustainability & Natural Resources**

**Essential Standards:**

2.2.1 Explain the consequences of human activities on the lithosphere.

2.2.2 Compare the various methods humans use to acquire traditional energy resources.

2.6.4 Attribute changes to Earth’s systems to global climate change.

2.8.1 Evaluate alternative energy technologies for use in North Carolina.

2.8.2 Critique conventional and sustainable agriculture and aquaculture practices.

2.8.3 Explain the effects of uncontrolled population growth on Earth’s resources.

2.8.4 Evaluate the concept of ‘Reduce, Reuse, Recycle’ in terms of impact on natural resources.

**Unit Reading Material:**

* + - * Hardcopy Textbook: Ch. 4
      * Digital Textbook: Ch. 5.26-5.30, 8.9-8.31
      * Class notes and handouts
      * The Habitable Planet **(**<http://www.learner.org/courses/envsci/unit/index.php>)

**Students Will Be Able To:**

* Explain the need for and consequences of various types of land use; urbanization, deforestation and agriculture
* Explain ways to mitigate detrimental human impacts on the lithosphere and maximize sustainability
* Compare methods of fossil fuel harvesting, mining, drilling and the effect of the activities on the environment
* Analyze how changes in global temperature effect the biosphere; agriculture
* Critique the benefits, costs and environmental impact of various alternative sources of energy
* Evaluate which sources of alternative energy may work best in different parts of the state and why
* Examine alternative resources regionally, nationally and globally
* Critique the advantages and disadvantages of traditional agriculture and aquaculture techniques
* Judge potential impact of sustainable techniques on environmental quality
* Summarize the impacts of a growing population on the natural resources of North Carolina
* Evaluate availability of natural resources and environmental footprints on various scales

**Vocabulary—Define, know, and be able to apply the following terms:**

1. Deforestation\*
2. Overgrazing\*
3. Overharvesting\*
4. Urbanization\*
5. Sustainability\*
6. Nuclear Fusion
7. Petroleum
8. Geothermal\*
9. Uranium
10. Plutonium
11. Fossil fuel\*
12. Biofuel
13. Ecological Footprint\*
14. Conservation\*
15. Mitigation
16. Restoration
17. Preservation\*
18. Aquaculture\*

**Academic students complete vocabulary with asterisks (\*) only. Honors students complete all 18 words.**

**Study Guide—Answer, know, and understand the following concepts:**

1. Identify the **benefits** and **consequences** of living in cities as well as ways to increase **sustainability**.
2. Identify the **benefits** and **consequences** of deforestation as well as ways to increase **sustainability**.
3. Identify the **benefits** and **consequences** of aquaculture as well as ways to increase **sustainability**.
4. Identify the **benefits** and **consequences** of agriculture as well as ways to increase **sustainability**.
5. Explain how changes is global temperature can affect agriculture.
6. Identify **benefits** and **consequences** of the continued use of fossil fuels.
7. Identify **benefits** and **consequences** for EACH alternative energy source (biofuels, geothermal, tidal, hydroelectric, wind, solar, nuclear).
8. Identify at least 3 alternative energy sources that may be useful in North Carolina, AND explain why you chose each one.
9. Explain how a growing human population impacts natural resources including loss of habitat, pollution, and overharvesting.

**Supplemental--Do practice the following activities as you work through the unit:**

1. Create a chart to organize your information on all of the different energy generation methods
2. Calculate / reflect on your personal ecological footprint.