**(AP) ENVIRONMENTAL SCIENCE 2022-23 November 23, 2022**

**Today’s Agenda (Day 59)**

1. Housekeeping Items

🡪 BRING: yeast, molasses, dried beans

1. Homework Check:

🡪 Ch 7 Reading Guide

🡪 Chapter 8 & 9 Vocabulary

1. Class Activity:

🡪 **ACTIVITY: Ecological Footprint Calculator Activity**

🡪 MONDAY: Chapter 8 PPT Review

1. Section 8.1 – History of energy consumption
2. Section 8.2 – How energy is used
3. Section 8.3 – Electrical Energy
4. Section 8.4 – The economics and politics of energy use
5. Section 8.5 – Energy consumption trends

HOMEWORK:

* READ: Chapter 8 – Energy and Civilization: Patterns of Consumption
* COMPLETE: Chapter 8 & 9 Vocabulary, Chapter 8 Reading Guide
* **STUDY**: Chapter 8 – 9 Vocabulary and Ch 8 Test

Chapter 8 & 9 Vocabulary

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Absorbed dose | Acid mine drainage | Alpha radiation | Anthracite | Beta radiation | Bituminous |
| Black lung disease | Coal | Crude oil | Dose equivalent | Fissionable | Fossil fuels |
| Gamma radiation | Hydraulic fracturing (fracking) | Industrial Revolution | Ionizing radiation | Lignite | Liquified natural gas |
| Mountaintop removal | Natural gas | Non-renewable energy sources | Nuclear chain reaction | Nuclear fission | Nuclear reactor |
| Oil shale | Open pit mining | Ore | Overburden | Peat | Petrochemicals |
| Petroleum (crude oil) | Plutonium-239 | Radiation | Radioactive | Radioactive half-life | Renewable energy sources |
| Reserves | Resource | Smelting | Spoils | Strip mining | Surface mining |
| Tar sands | Underground mining | Uranium-235 |  |  |  |

REMINDERS

* ~~Chapter 8 & 9 Vocabulary – Nov. 23~~
* Chapter 8 Reading Guide – Nov. 28
* **TEST: Ch 8 🡪 Dec. 1**
* **QUIZ: Ch 8 and 9 Vocabulary – Dec. 6**
* **MIDTERM EXAM: Ch 1 - 9**

**(AP) ENVIRONMENTAL SCIENCE 2022-23 READING GUIDEECOLOGICAL FOOTPRINT CALCULATOR ACTIVITY**

**Earth Day Network Footprint Calculator** <https://www.footprintcalculator.org/home/en>

**For more resources (“quiz yourself”)** <http://www.earthday.net/footprint/index.html>

**Prediction**: How many planets (Earth) does it take to support your lifestyle?

Answer: \_\_\_\_\_\_\_\_\_\_\_

**Directions**:

A) Make an “Avatar” of yourself.

B) Answer using DETAILED answers to each lifestyle question

**Questions**:

1. a) How often do you eat animal based products?
2. Why do you think this affects your footprint? Explain.
3. a) How much of your food is processed, packaged and not locally grown?
4. Why do you think this affects your footprint? Explain.
5. a) How much trash do you generate?
6. What affects does this have on your footprint? Why?
7. a) Which housing type best describes your home?
8. Why would this make a difference in your impact?
9. a) Do you have electricity in your home?
10. What are the environmental impacts of electricity? Explain.
11. How many people are in your home?
12. a) What is your house made of?
13. Which building material is the most energy efficient? Explain.
14. Does anyone of your home’s electricity come from renewable sources? (SDGE= no)
15. a) How far do you travel by car each week?
16. Do you carpool or do anything to reduce your impact?
17. Do you ride a motorcycle?
18. What is the gas mileage in your car/motorbike?
19. How often do you drive with someone else?
20. How far do you travel by bus/train each week?
21. How many hours do you fly each year?

C) Fill in the following things below:

|  |  |
| --- | --- |
| **How many planets (Earth) are needed to provide enough resources to support people if everyone lived like you? Draw the Earths.** | **Draw your ecological footprint breakdown: (Color coordinate your graph).** |
|  |  |
| **How many global acres would take to support your lifestyle? Draw the diagram below.** | **Go back and edit your footprint, and explore scenarios to reduce your footprint.** |
|  |  |

D) EDIT your Footprint by making CHANGES to your lifestyle. List the changes you have made to your lifestyle below and the impact it had on your ecological footprint. Show your new results.

Changes Made:

1)

2)

3)

4)

5)

E) Impact on my Ecological Footprint:

1. Draw out NEW results based on changes made.

2. REFLECT on what you learned by doing this activity.

**(AP) ENVIRONMENTAL SCIENCE 2022-23 READING GUIDECHAPTER 8**

REVIEW QUESTIONS

1. How did the domestication of animals change energy use in early cultures?

2. In addition to food, what energy requirements does a civilization have?

3. How was the availability of coal important in determining if a country participated in the Industrial Revolution?

4. What factors caused a shift from wood to coal as a source of energy?

5. What major factor caused a shift to the use of oil as a source of energy?

6. Describe two factors that have led to the dominance of automobiles as a form of transportation in the United States.

7. Describe two actions governments take that cause changes in how citizens use energy.

8. What advantages does electrical energy have over other kinds of energy?

9. State two reasons the cost of electricity differs from one country to another.

10. List the three primary categories of energy use in industrialized societies.

11. Why is OPEC important in the world’s economy?

12. Give examples of how political and economic events affect energy prices and usage.

13. Based on current trends, what is likely to happen to the availability and price of energy in the next ten years?

CRITICAL THINKING QUESTIONS [for APES students only]

1. Imagine you are a historian writing about the Industrial Revolution. Imagine that you also have your new knowledge of environmental science and its perspective. What kind of a story would you tell about the development of industry in Europe and the United States? Would it be a story of triumph or tragedy, or some other story? Why?

2. What might be some of the effects of raising gasoline taxes in the United States to the rate that most Europeans pay for gasoline? Why? What do you think about this possibility?

3. Some argue that the price of gasoline in the United States is artificially low because it does not take into account all of the costs of producing and using gasoline. If you were to figure out the “true” cost of gasoline, what kinds of factors would you want to consider?

4. How has the ubiquitous nature of automobiles changed the United States? Do you feel these changes are, on balance, positive or negative? What should the future look like regarding automobile use in the United States? How can this be accomplished?

5. The Organization of Petroleum Exporting Countries (OPEC) controls over 70 percent of the known oil reserves. What political and economic effects do you think this has? Does this have any effect on energy use?

6. How do you think projected energy consumption will affect world politics and economics, given current concerns about global warming?