

Intro: Mysterious Neuse River Fish Killer

What is Pfiesteria?

What forms does it take?

How does it cause damage to ecosystems?

What other factors play into Pfiesteria's activities?

I. What is **environmental science**?

A. What are **ecosystems**, and what are their basic components?

B. In what ways do human activities alter natural systems?

C. What are the effects of (human) population growth on natural systems?

II. Monitoring ecosystems for stress

A. What are some of the **goods and services** that healthy ecosystems provide?

Place a \$ next to those that have economic value.

B. **Environmental indicators** – (Examine table 1.1, page 5)

List the indicators that are “in play” right here in NE Ohio:

III. **Five key global indicators** – (Examine table 1.2)

Be able to list and discuss recent trends in these indicators.

What is **sustainability**?

How does an understanding of indicators enable us to move towards sustainability?

Give examples from your own experience:

A. **Biodiversity** – 3 basic levels of diversity...List, define, give examples:

- 1.
- 2.
- 3.

B. **Food Production** – (Examine Fig. 1.6, page 9)

1. What has driven increases?
2. Why has production leveled off?
3. What challenges do we face now?

C. **Average Global Surface Temperatures and Carbon Dioxide Concentrations**

1. What are the common greenhouse gases?
2. How does the greenhouse effect work?
3. What is meant by “anthropogenic CO₂”? What are the 2 main sources?
4. Describe the relationship between [CO₂] and global temperature.

D. **Human Population**

Current global population?

By 2050?

Increase per day?

Per week?

Per year?

E. **Resource Depletion**

1. What are finite resources? Give examples:
2. What are renewable resources? Give examples:
3. Differentiate between **Developed and Developing Countries**:

	Developed	Developing
Examples of nations		
% of global population		
% global wealth		
% resource consum.		

% energy consumption		
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IV. Sustainable Living

A. 3 Basic trends (list them)

- 1.
- 2.
- 3.

B. What can be done to address depletion/increase sustainability?

C. What are basic human needs?

What are our more complex needs?

What is “**Biophilia**” (E. O. Wilson), and why did he say it is important?

D. What are the key components of your/our **Ecological Footprint**?

E. How does the typical US resident’s Ecological Footprint differ from that of typical developing countries?

What are the consequences for the planet should everyone on Earth adopt the lifestyle of the average US citizen?

V. Science as a Process

A. The Process

B. The nature of Science

C. Special Problems/Challenges to Environmental Science...Give examples:

1. Lack of Baseline Data
2. Subjectivity
3. Interactions
4. Human Well-being

Working Toward Sustainability (p. 21-22)

Using Environmental Indicators to Make a Better City

San Francisco stands as a model for urban planners whose goals include designing a city that is **cleaner, greener, and operating sustainably**.

From the list of 10 environmental concerns, select any 3 and discuss what is being done, or should be done in...

- a) Beachwood
- b) Cleveland