

Intro Part Two

Name _____ Period _____

This material will be tested on this date: _____

Intro Part 2 "Ch1 Sect1 Science, The Environment, & The 4 Revolutions"



What Is Environmental Science?

- Important to the foundation of environmental science is ecology.
- _____ is the study of interactions of living organisms with one another and with their environment.
- _____ is also the study of the air, water, and land surrounding an organism or a community, which ranges from a small area to Earth's entire biosphere.

- _____ includes the study of the impact of _____

What is the Goal of Environmental Science?

- A major goal of environmental science is to _____.
- To accomplish this goal, environmental scientists study two main types of interactions between humans and their environment:
 - 1) _____.
 - 2) _____.

Many Fields of Study

- Environmental science is an interdisciplinary science, which means that it involves many fields of study.
- _____ is the study of living things.
- _____ is the study of chemicals and their interactions.
- _____ is the study of matter and energy.



Scientists as Citizens, Citizens as Scientists

- _____ recognize that studying our environment is vital to maintaining a healthy and productive society.
- Thus, environmental scientists are often asked to _____.
- However, the _____ are the first steps toward addressing an environmental problem.

Our Environment through Time

- Wherever humans have hunted, grown food, or settled, they have _____.
- For example, the environmental change that occurred on Manhattan Island over the last 300 years was immense, yet that period was just a “blink” in human history.

First Impact: Hunter-Gatherers

- _____ are people who obtain food by collecting plants and by hunting wild animals or scavenging their remains.
- Hunter-gatherers affect their environment in many ways:
 - 1) Native American tribes _____.
 - 2) The tribes also set _____ . This left the prairie as an open grassland ideal for hunting bison.

First Impact: Hunter-Gatherers-cont.

- In North America, a combination of rapid climate changes and overhunting by hunter-gatherers may have led to the disappearance of some large mammal species, including:

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____



The Agricultural Revolution

- _____ is the raising of crops and livestock for food or for other products that are useful to humans.
- The practice of agriculture started in many different parts of the world over _____ ago.
- The change had such a dramatic impact on human societies and their environment that it is often called the _____.

The Agricultural Revolution-cont.

- The Agricultural Revolution allowed human populations to grow at an unprecedented rate.
- As populations grew, they began to _____ on the local environments.

The Agricultural Revolution-cont.

- The agricultural revolution changed the food we eat.
- The plants we grow and eat today are descended from _____.
- However, during harvest season farmers collected seeds from plants that exhibited the qualities they desired, such as _____.

- These seeds were then planted and harvested again. Overtime, the domesticated plants became _____ from their wild ancestors.



The Agricultural Revolution- cont.

- Many habitats were destroyed as grasslands, forests, and wetlands were replaced with farmland.
- Replacing forest with farmland on a large scale can cause _____.

The Agricultural Revolution-cont.

- The _____ technique was one of the earliest ways that land was converted to farmland.
- Much of this converted land was poorly farmed and is _____.

The Industrial Revolution

- The Industrial Revolution involved a shift from energy sources such as _____.
- This increased use of fossil fuels changed society and greatly increased the efficiency of _____.
- For example, motorized vehicles allowed food to be transported cheaply across greater distances.

The Industrial Revolution-cont.

- In factories, the large-scale production of goods became _____ the local production of _____ goods.
- On the farm, machinery reduced the amount of land and human labor needed to produce food.
- With fewer people producing their own food, the populations in urban areas steadily grew.
- _____

The Green Revolution -Early conservation efforts

- _____: First conservation efforts (Congressman Marsh from Vermont first realizes _____)
- Early 20th century two main ideas
 - _____: Fully protect wilderness (Muir Geologist- wanted _____ on public land, Began Sierra Club)
 - _____: Managed public lands should be _____ (T. Roosevelt, established _____ National wildlife refuges while President)

Green Revolution -cont.

- _____ of preservation/conservation (Leopold- wildlife manager and writer- Most Quoted Voice in the history of Conservation)

Mid-20th century 1950's

- _____
- _____ by Rachel Carson brought awareness to the _____
_____ of the dangers of pollutants and led to regulation of harmful chemicals like _____

The Green Revolution the 1970's

- The American public _____ in response to environmental problems.
 - First _____ (April 22, 1970)
 - _____ (1970)
 - Most U.S. environmental laws passed
 - Establishment of environmental groups, college courses on environmental issues
 - _____ is written in 1971, introduces a generation of children to the green revolution



The Green Revolution 1980's and after

- _____ against environmental laws/ regulations
- _____ seek to _____ environmental laws
- – “ _____ ” campaigns
- Call for United States to _____ on environmental issues.

	Hunter-Gatherers	The Agricultural Rev.	The Industrial Rev.	The Green Rev.
Characteristics				
Effects on the Environment				

Our Environment Through Time Continued: Improving the Quality of Life



- The _____ introduced many positive changes such as the light bulb.
- Agricultural productivity _____, and sanitation, nutrition, and medical care vastly _____.

Improving the Quality of Life-cont.

- However, the Industrial Revolution also introduced many new environmental problems such as _____
- In the 1900s, modern societies began to use _____ in place of raw animals and plant products.
- As a result, we now have materials such as _____.

Improving the Quality of Life -cont.

- Many of these products make life easier, but we are now beginning to understand some of the _____.
- In fact, much of environmental science is concerned with the problems associated with the _____.

Spaceship Earth



- Earth can be compared to a spaceship traveling through space as it _____.
- Earth is essentially a _____.
- This means that the only thing that enters the Earth's atmosphere in large amounts is _____, and the only thing that leaves in large amounts is _____.

Spaceship Earth-cont.

- This type of closed system has some _____.
- Some _____ and as the population grows, the resources will be used more rapidly.
- There is also the possibility that we will _____.

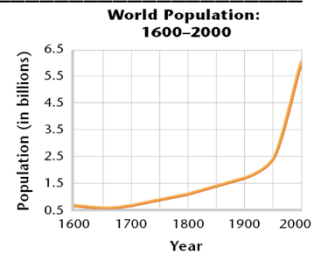
Spaceship Earth-cont.

- Environmental problems can occur on different scales: _____.
 - A local example would be your community discussing where to build a _____.
 - A regional example would be a polluted river _____.

- A global example would be the _____.

Population Growth

- The Industrial Revolution, modern medicine, and sanitation all allowed the human population to _____ than it ever had before.



Population Growth -cont.

- In the past 50 years, nations have used vast amounts of _____ to meet the world's _____.
- Producing enough food for large populations has environmental consequences such as _____.

Population Growth-cont

- Most scientists think that the human population will almost _____ in the 21st century before it begins to stabilize.
- Because of these predictions, we can expect the pressure on the environment will continue to increase, and the human population and _____.

What are our Main Environmental Problems?

- Environmental problems can generally be grouped into three categories:
 - _____
 - _____
 - _____



Resource Depletion

- _____ are any natural materials that are used by humans, such as, water, petroleum, minerals, forests, and animals.
- Natural resources are classified as either a _____.

Resource Depletion -cont

- _____ can be replaced relatively quickly by natural process.
- _____ form at a much slower rate than they are consumed.

Renewable and Nonrenewable Resources	
Renewable	Nonrenewable
energy from the sun	metals such as iron, aluminum, and copper
water	nonmetallic materials such as salt, sand, and clay
wood	fossil fuels
soil	
air	

Resource Depletion- cont.

- Resources are said to be _____ when a large fraction of the resource has been used up.
- Once the supply of a nonrenewable resource has been used up, it may take _____ of years to replenish it.
- Renewable resources, such as trees, may also be depleted causing _____ in some areas.

Pollution

- _____ is an undesirable change in the natural environment that is caused by the introduction of substances that are _____ to living organisms or by _____.
- Much of the pollution that troubles us today is produced by _____.

Pollution-cont.

- There are two main types of pollutants:
 - _____, which can be broken down by natural processes and include materials such as newspaper.
 - _____, which cannot be broken down by natural processes and include materials such as mercury.

Pollution-cont.

- Degradable pollutants are a problem only when they _____ than they can be broken down.
- However, because nondegradable pollutants do not break down easily, they can build up to _____ in the environment.

Loss of Biodiversity

- _____ is the 1.) variety of organisms in a given area, 2.) the genetic variation within a population, 3.) the variety of species in a community, or 4.) the variety of communities in an ecosystem.
 - The _____ that share the world with us can be considered _____.
 - We depend on them for _____, the _____ we breathe, and for many _____.
 - Loss of Biodiversity
 - Yet, _____ of all the species that once roamed the Earth are alive today and _____.
 - Scientists think that if the _____ continue, it may cause problems for the human population.
 - Many people also argue that _____

_____.
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Student Notes

-A class work (35%) Grade ...BOTH sets of signatures are required.

Handwritten signatures preferred (10 Bonus Points)

If you can't figure it out, use cursive font (No extrapoints)

1. I have fully completed my notes.
2. I have viewed the videos requested and added in any of the essential facts.
3. Then I re-read through the ENTIRE document to increase my understanding

(Student Name Printed)

(Student Signature)

1. I have verified that ALL blanks are filled in
2. I ensured my student has re-read the document & watched the teaching video.
3. I then discussed the lesson with my student if necessary to help clarify any difficult points.

(Parent Name Printed)

(Parent Signature)