

Warm Up

- 1. Prepare Next Clean sheet for Cornell notes
- 2. Title Today's Lesson Environmental issues in Europe: SS6G9.
- 3. Write EQ: What environmental concerns do countries in Europe face?

Student will be able to:

- Explain the impact of acid rain, air pollution and the Chernobyl Nuclear Disaster on the economies and population of Europe.
- Lesson Divided into 2-3 section: Acid Rain, Air Pollution, and Nuclear Disaster.

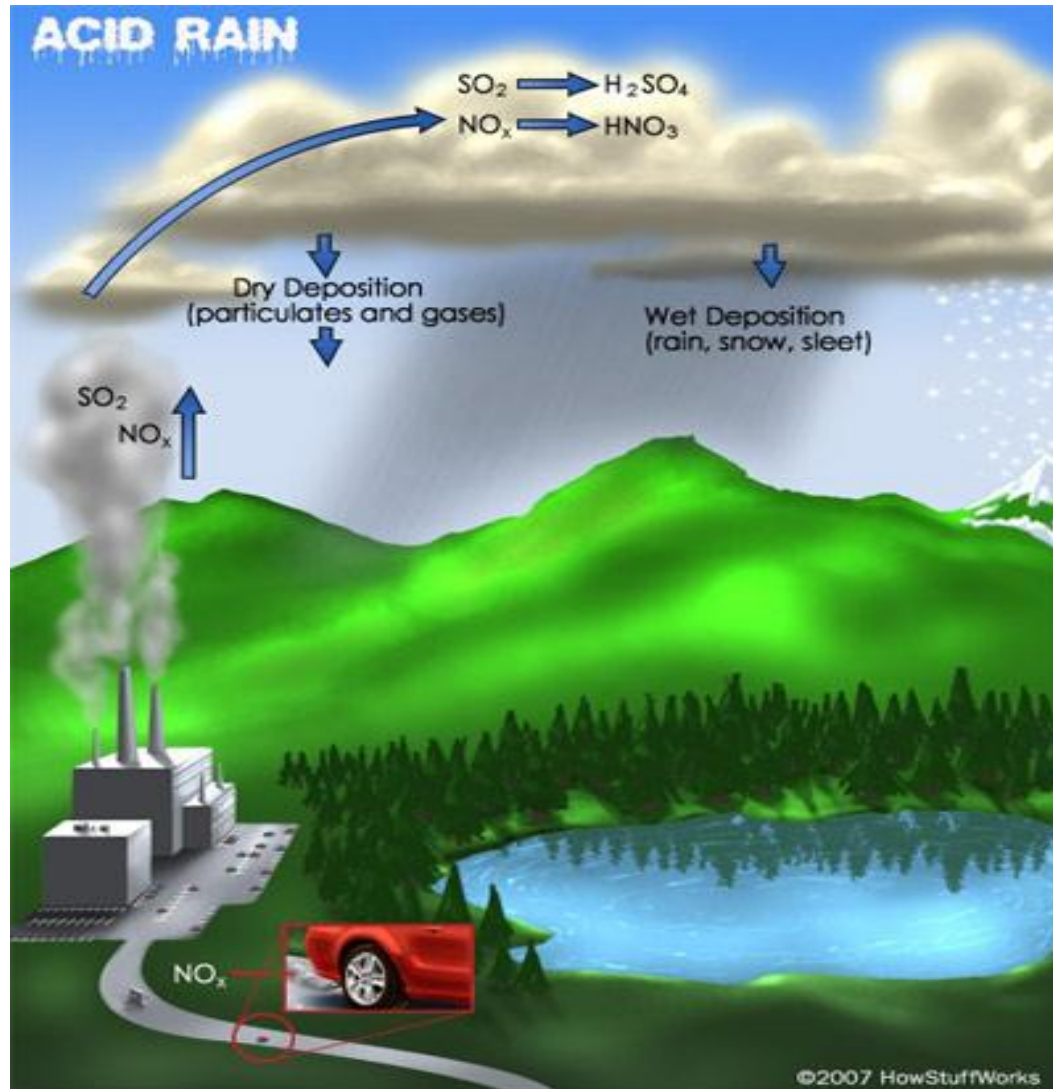
Acid Rain in Germany

- What causes acid rain?

Acid rain occurs when factories' smoke or vehicles' exhaust containing sulfur dioxide and nitrogen oxides go up into the atmosphere and come back down to earth in the form of harmful precipitation (rain, snow, etc.)

Dry deposits also fall from the sky when there is no precipitation.

Illustration of how acid rain occurs



Effects of Acid Rain

- What effects does acid rain have on the environment of Germany and that of neighboring countries?

Damage to vegetation

Damage to lakes, rivers and streams

Contamination of drinking water

Damage to buildings and monuments

Sulfur deposits from acid rain are carried through the air causing acid rain in other countries **in Europe.**

Damage due to Acid Rain



Warm Up

- 1. Title of lesson today: **Air Pollution in the United Kingdom**
- 2. EQ: **What environmental issue happens in the United Kingdom?**

SS6G9

The student will discuss
environmental issues in Europe

- a. Explain the major concerns of Europeans regarding the issues such as acid rain in Germany, **air pollution in the United Kingdom**, and the nuclear disaster in Chernobyl, Ukraine.

Air Pollution in the United Kingdom

- What causes Air Pollution?:
- Power stations and Vehicle emissions
- Vehicles' exhaust containing sulfur dioxide and nitrogen oxides go up into the atmosphere

Examples of Air Pollution in the U.K.



Air Pollution and Acid Rain Are Related because.....

- Air pollution rises into the air and returns as acid rain in the form of precipitation or a “dry fall”.
- Air pollution is carried from the U.K. to other countries by air currents resulting in acid rain in those countries as well.
- <http://www.bbc.com/news/uk-26851399>

Negative Effects of Air Pollution

- Acid rain in European countries.
- Damage to fish; hurts economy.
- Damage to buildings; they have to be fixed
- Can cause harm to people (lung damage; mostly in babies and the elderly)

Solutions to Air Pollution

- improving public transportation to reduce number of vehicles on road therefore reducing emissions.
- Use of cleaner fuels, emission controls and advanced engine technologies.

Quick Write: 5 minutes to write and answer questions:

- 1. What environmental concerns do countries in Europe face?
- 2. How are specific European countries addressing specific environmental concerns (acid rain in Germany, and air pollution in England)?

Answer

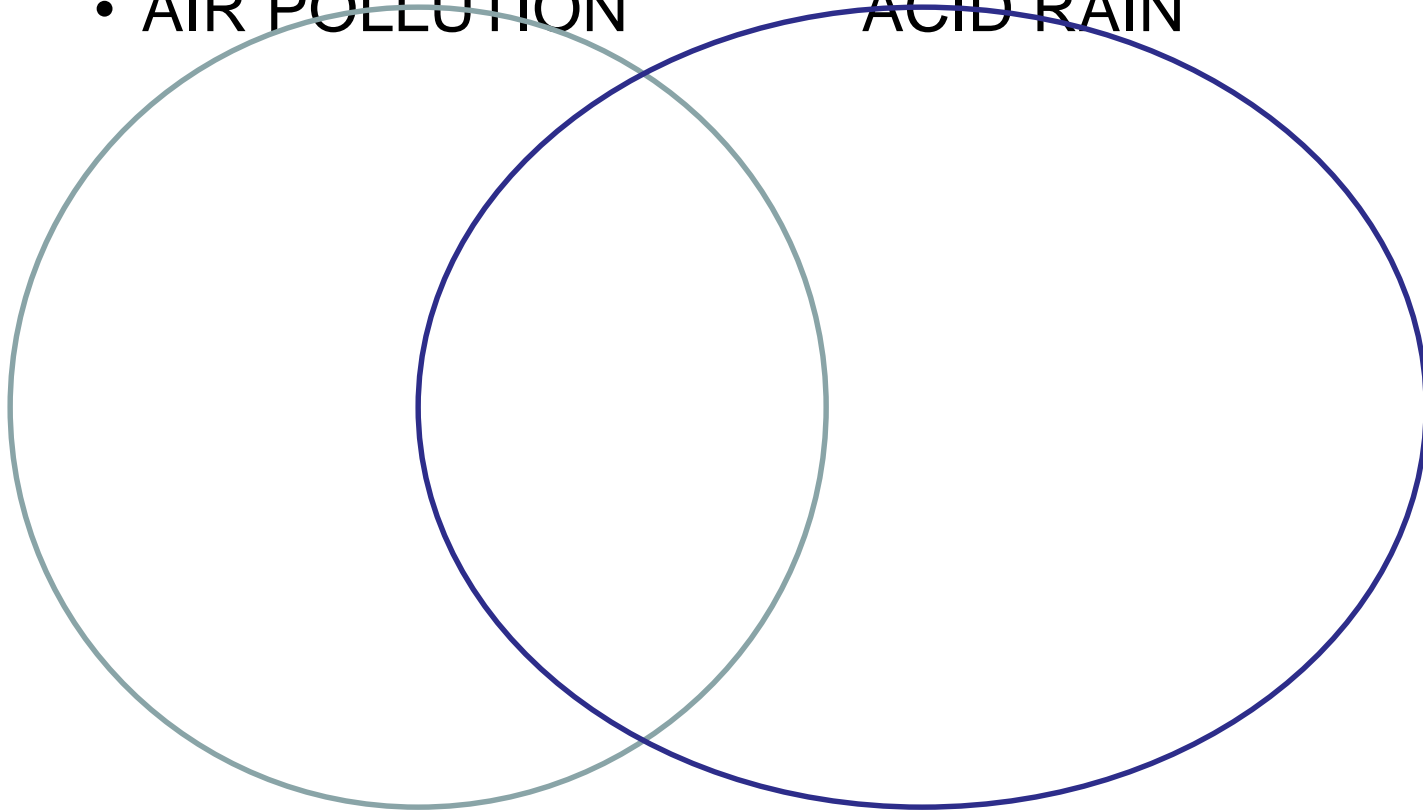
Activity: Choose 1; complete on next sheet in NB (use notes and page 237-238 in text to assist you)

- Choice task will consist of (students will choose 1):
 - 1. Written response: Write 2-3 paragraphs explaining the causes, effects and solutions involving Acid Rain and Air pollution.
 - 2. Students will create a picture book showing illustrations of the causes and effects and solutions of Acid Rain and Air pollution.

Ticket Out Door—list 3 facts about each and 2 they have in common (next clean sheet in notebook):

- AIR POLLUTION

ACID RAIN



Chernobyl

- Chernobyl is a city in Ukraine, and on April 26, 1986, the nuclear power plant outside of this town had one of the worst nuclear disasters in history.
- An explosion occurred when scientists were doing an experiment.
- The explosion released radioactive material into the atmosphere.
- The release of this material resulted in long term environmental consequences in Ukraine and other countries across Europe.

Chernobyl

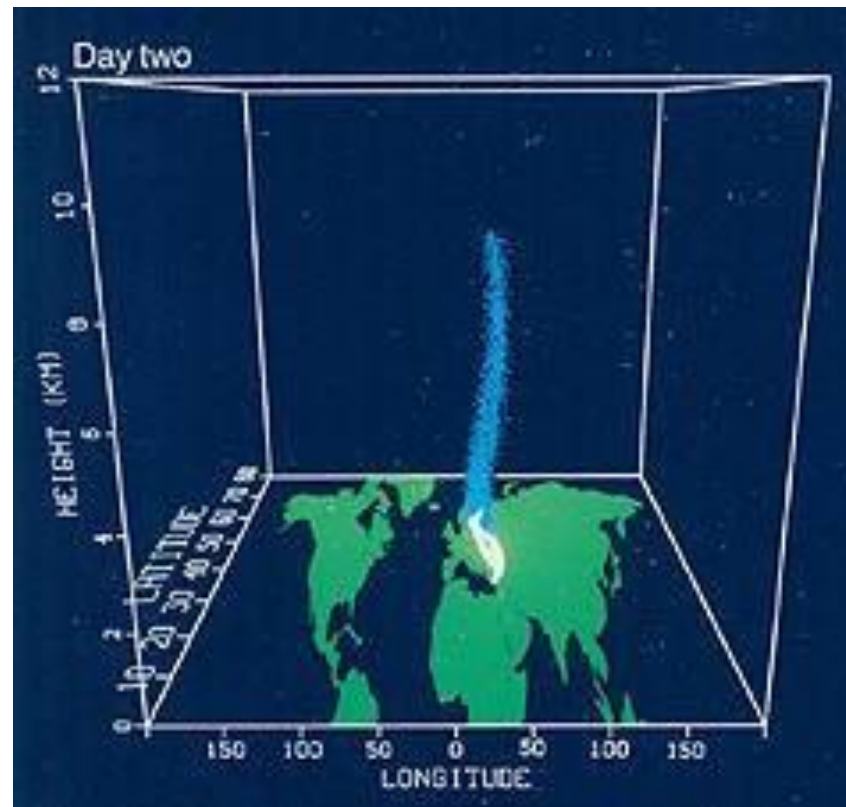


Chernobyl Nuclear Disaster

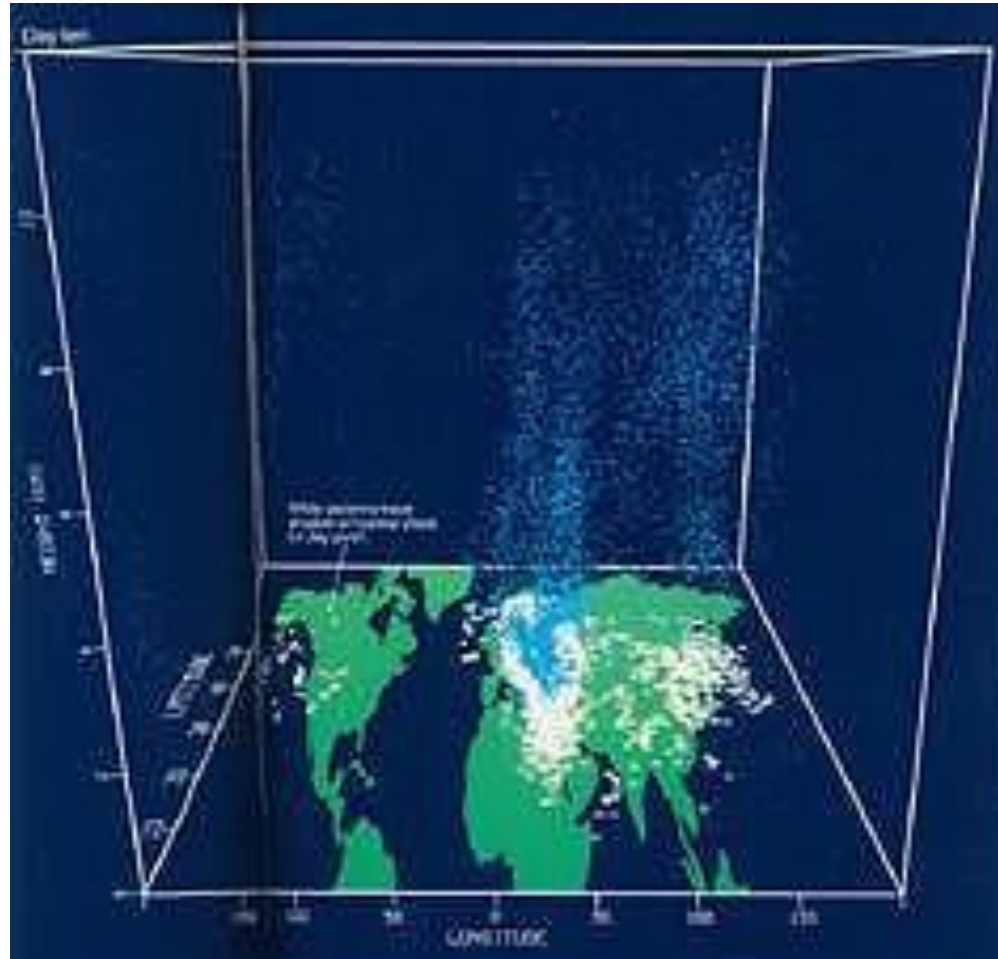
April 26, 1986

- What were the consequences of the disaster?
 - Evacuation
 - Land Contamination
 - Economic impact on East and North
 - Europe farmers
 - Health issues- cancer, birth defects, death
- Did not effect just Chernobyl, but spread to surrounding countries by air currents.
- This disaster still effects people and land TODAY.
- This nuclear disaster was the worst in history.

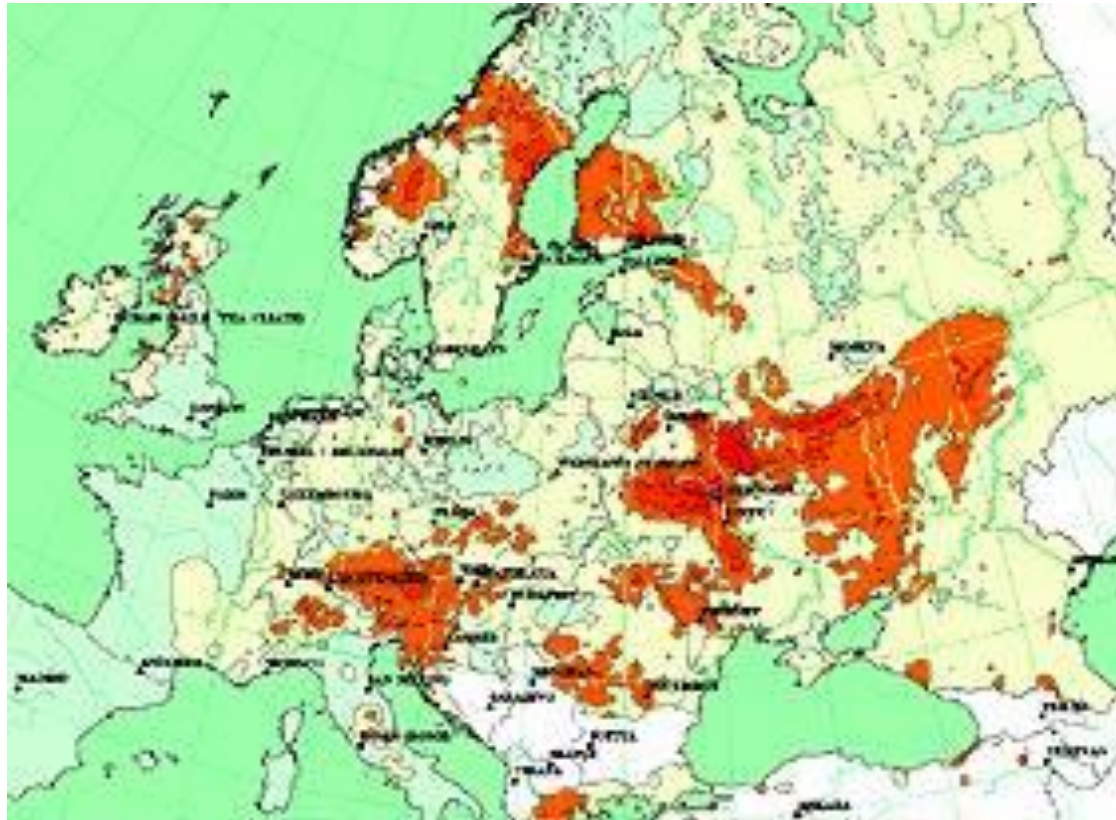
Radiation Plume from Explosion



How Radioactive Materials Spread Through the Atmosphere



General Map of Chernobyl Fallout Throughout Europe

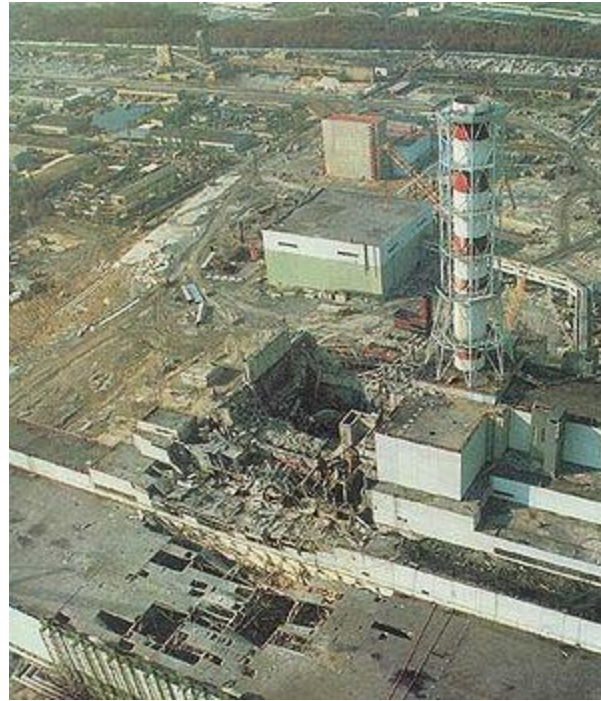


1996

Figure 31. Radiation Hotspots Resulting From the Chernobyl Nuclear Power Plant Accident



Photos of the Effects of the Chernobyl Disaster



Chernobyl Disaster, cont.

- Most deaths were attributed to nuclear fallout which was more than 400 times more than the amount of nuclear fallout caused by the bomb over Hiroshima.
- Evacuation and resettlement of over 360,000 people.
- The Soviet Union tried to cover up the critical nature of the accident. Firefighters did not know that the fire they were fighting contained deadly amounts of radiation poison. Most of these men died within 3 months after the accident.

Chernobyl Disaster, cont.

- The residents of the city of Pripyat, where the reactor was located, were told that the evacuation would only be temporary. To this day there are still personal belongings in homes in the city.
- Radioactive fallout experienced as “pieces” on peoples clothes all over Europe.
- By December, 1986, a huge concrete dome had been constructed to entomb the reactor.

How do these major environmental issues effect the economies and population of Europe TODAY?

- Acid Rain

Damage to fish stocks and forests have great economic impact to local economy and international trade.

Damage to buildings resulting in money having to be spent to renovate.

Closure of many factories resulting in loss wages.

- What can be done?

European Union memebbers have agreed to the Kyoto Protocol, or reduce emissions of greenhouse gasses

Find alternative energy sources

Conserve resources

All of these “fixes” cost money!!

How do these major environmental issues effect the economies and population of Europe TODAY?

- Air Pollution

Respiratory disease= greater healthcare costs.

Contribution to acid rain in the U.K .and other European countries.

Damage to fish stocks and forests have great economic impact to local economy and international trade.

Damage to buildings resulting in money having to be spent to renovate.

Closure of many factories resulting in loss wages.

Money has to be spent on improving public transportation to reduce number of vehicles on road therefore reducing emissions.

How do these major environmental issues effect the economies and population of Europe TODAY?

- What can be done about air pollution?

Use of cleaner fuels, emission controls and advanced engine technologies.

How do these major environmental issues effect the economies and population of Europe TODAY?

- Chernobyl

People don't really know how much damage was done.

Agriculture in other parts of Europe suffered.

Affected land useless in the Soviet Union.

Payments to victims

Loss of jobs due to closed reactors

High medical costs.