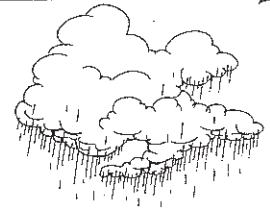


Chapter 21

SS6G9 *The student will discuss environmental issues in Europe.*

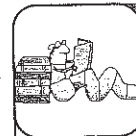
a. Explain the major concerns of Europeans regarding the issues such as acid rain in Germany, air pollution in the United Kingdom, and the nuclear disaster in Chernobyl, Ukraine.

Rain, Rain, Go Away!



Every country on our planet faces **environmental issues**. Many of the environmental problems in Europe have come about because of poor practices in the past by local industries. Industry has made many countries wealthy, but has also had some terrible effects on the environment.

One example is the problem of **acid rain in Germany**. What is it? Acid rain is rain polluted by gases released into the air by the burning of fossil fuels, like coal or oil. In the first half of the 1900s, the former country of East Germany burned massive amounts of brown coal (or lignite) to produce electricity. When burned, brown coal gives off a gas called sulphur dioxide. This gas mixes with moisture in the air, so when it rains, the rain is polluted with sulphur dioxide.

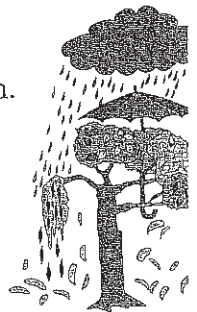


Word Definition

acid rain: rain mixed with pollutants in the air

What are some effects of acid rain?

- Acid rain has taken a terrible toll on Germany's forests. Experts estimate that more than one-half of Germany's trees have been damaged or killed by acid rain.
- Acid rain pollutes rivers and lakes, killing fish as well as the plants and microscopic organisms that fish need to survive.
- Acid rain eats away at brick and stonework buildings. Experts say that some buildings are losing up to 4 percent of their weight each year from acid rain damage!



Hard-to-Believe-But-True!

Acid rain is harming some of the world's most precious buildings and sculptures. The famous Parthenon in Greece and India's Taj Mahal are both showing damage from acid rain!



Essential Skills

Put a check mark next to each problem caused by acid rain in Germany.

Trees damaged or killed

Lakes and rivers polluted

Fish die

Average temperature getting colder

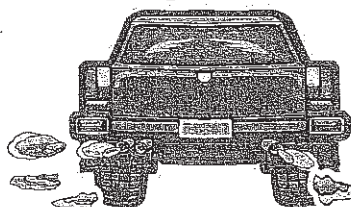
Brick and stonework buildings damaged

Fewer schools built

Now What Happens?

The acid rain in Germany is a concern for all Europeans, and for people around the world. Brown coal is still Germany's chief domestic source of energy, meeting one-quarter of the country's energy needs. Therefore, Germany has made strict changes to its coal production practices and closed old, inefficient factories.

Germany has also put strict laws in place to reduce pollution. Factory owners are fined if they do not reduce the amount of sulfur dioxide they emit into the air. Cars must have a special converter fitted to the exhaust system, and the government is working to change over to less polluting fuels like oil and natural gas. Today, improving the environment is a top issue in German society!



Essential Skills

Next to each item below, write what that entity is doing to help the acid rain and pollution problem in Germany

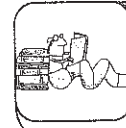
Factories	
Cars	
Government	

Air Pollution in the United Kingdom

Air pollution is a concern in the United Kingdom (UK). In the past, it was caused mainly by emissions from factories or from homes burning coal for heat. The pollution mixed with the fog that occurs frequently in the UK. The resulting smog hovered over cities, leading to 4,000 deaths in the Great London Smog of 1952.



Today, the UK's air pollution is mainly caused by emissions from cars and trucks and from ozone. Pollutants from cars include carbon monoxide and nitrous oxides. They hover close to the ground, contaminating the air people breathe. Ozone adds to the problem, forming when air pollutants mix and react with sunlight to form smog. Air pollution can lead to many health problems.



Word Definition

smog: a visible haze of air pollution over cities

The UK has been working hard to reduce air pollution since the Great London Smog occurred. The government has tightened emissions standards for vehicles, endorsed the use of cleaner fuels, and urged citizens to use public transportation like buses and subway systems.



Essential Skills

Write F for Fact and O for Opinion.

- ___ 1. Air pollution is the biggest problem faced by citizens of the UK.
- ___ 2. The Great London Smog was the saddest event in UK history.
- ___ 3. The UK's air pollution problem today is caused by vehicle emissions and ozone.
- ___ 4. Ozone forms when air pollutants interact with sunlight.
- ___ 5. The UK government is not doing enough to reduce pollution.
- ___ 6. The UK government has tightened emissions standards for vehicles to help reduce pollution.



Background Check

The word 'smog' originally meant a combination of smoke and fog. Today, smog refers to a combination of many pollutants visible in a brownish-yellow haze.

Nuclear Disaster in Ukraine

In April 1986, a nuclear reactor exploded at the Chernobyl nuclear power plant in Ukraine, causing the worst nuclear disaster in history. At the time, Ukraine was part of the Soviet Union, which dissolved in 1991. Toxic radioactive material shot into the air and drifted over western parts of the Soviet Union, Eastern Europe, and Scandinavia. Fallout (radioactive particles falling to the ground) contaminated about 100,000 acres, including the animals, crops, and forests on the land. About 135,000 people were evacuated and resettled in other areas. About 30 people died in the blast, and thousands more who cleaned up the site died later from radiation poisoning.



Word Definition

nuclear power: generate electricity using the heat produced when atoms are split

The main **environmental effects** of the disaster have been contaminated farmland, surface water, and groundwater. Today, the area around the Chernobyl nuclear plant is considered one of the most polluted places on Earth. Although the reactor was buried in a concrete casing designed to absorb radiation, experts fear leakage into the nearby groundwater, and are working to re-contain the site. No one knows exactly how many illnesses and cancers have been caused by this disaster, but about 4,000 children in the fallout zone have been diagnosed with thyroid cancer in recent years. Ukraine and Belarus have spent huge amounts of money on cleanup efforts.



Chernobyl nuclear plant



Hard-To-Believe-But-True!

The Chernobyl blast released 100 times more radiation than the two atomic bombs released over Japan near the end of World War III



Quick Quiz

Answer the questions below.

1. The worst nuclear disaster in history occurred at the _____ nuclear power plant in _____.
2. True or False? Radioactive material from the blast stayed within 20 miles of the nuclear plant.

3. Some environmental effects of the disaster include contaminated _____, _____, and groundwater.
4. True or False? The concrete casing around the reactor is guaranteed never to leak.

5. True or False? Many cases of cancer have been linked to this disaster. _____

Chapter 22

SS6G10 *The student will explain the impact of location, climate, natural resources, and population distribution on Europe.*

a. *Compare how the location, climate, and natural resources of the United Kingdom and Russia affect where people live and how they trade.*

b. *Compare how the location, climate, and natural resources of Germany and Italy affect where people live and how they trade.*