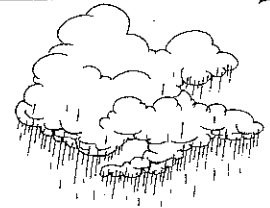


# Chapter 21

**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.

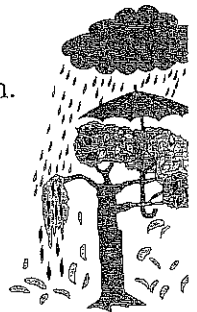


### Word Definition

**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

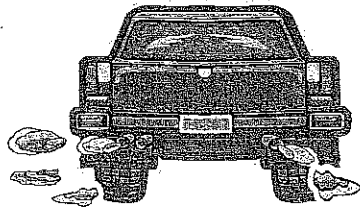
Brick and stonework buildings damaged

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

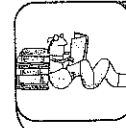
Factories	
Cars	
Government	

### 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

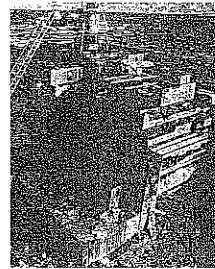
In April 1986, a nuclear reactor exploded at the Chernobyl nuclear power plant in Ukraine, causing the worst nuclear disaster in history. At the time, Ukraine was part of the Soviet Union, which dissolved in 1991. Toxic radioactive material shot into the air and drifted over western parts of the Soviet 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.

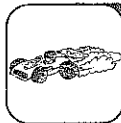


Chernobyl nuclear plant



### 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 II



### 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.*

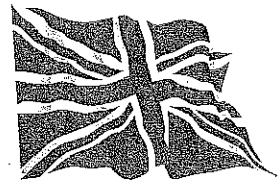
- a. *Compare how the location, climate, and natural resources of the United Kingdom and Russia affect where people live and how they trade.*
- b. *Compare how the location, climate, and natural resources of Germany and Italy affect where people live and how they trade.*

## It All Makes Sense!

The location of a country, its climate, and its natural resources have a tremendous impact on where its people live, how they make a living, and how they trade with other countries. You will learn about a few examples in Europe below.

### Welcome to the United Kingdom!

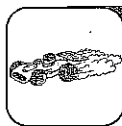
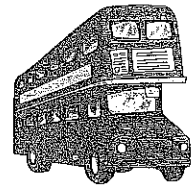
The **United Kingdom (UK)** may be a small island nation, but it has had a tremendous impact on world history! The UK consists of Great Britain (includes England, Scotland, and Wales) and Northern Ireland. Its capital is London, England.



Although the UK is **located** very far north, a current of warm ocean water called the Gulf Stream flows by the British Isles and keeps the temperatures mild. Its moist climate with plenty of rain is good for crops. The island of Great Britain has a jagged coastline with good harbors for trading vessels.

Great Britain is divided into a highland zone (north and west) and a lowland zone (south and east). Important **natural resources** like coal, oil, and natural gas are found in the mountainous highland zone. Large reserves of oil and natural gas found recently in the North Sea have made Great Britain a major supplier of those resources. Most Britons live in the lowland zone, where farming and England's major cities are located. Only about one percent of British people work in agriculture, and the country has to import about one-third of its food.

**Most British citizens live in urban areas.** The capital city of London, a world center for trade and banking, is located in the southeastern part of England. More than 7 million people live in London! Many Britons work in service industries like banking, insurance, and tourism. Great Britain also has thriving manufacturing industries, including iron and steel production and electronics.



#### Quick Quiz

Write T for True and F for False.

- \_\_\_ 1. Great Britain has a very cold, Arctic climate.
- \_\_\_ 2. The UK includes England, Scotland, Wales, and Northern Ireland.
- \_\_\_ 3. Oil and natural gas are important British natural resources.
- \_\_\_ 4. Farming is the largest industry in Great Britain.
- \_\_\_ 5. Most Britons live in urban areas.



# The Big Country—Russia!

In contrast to the UK, Russia is the largest country in the world! Most citizens live in western Russia on the European Plain. This “heartland” is home to Russia’s major cities, farms, grazing land for livestock, and the country’s warmest temperatures.

Russia has a very cold climate, thanks to its location near the Arctic Ocean. Russia does not get a lot of rainfall, and only about 10 percent of Russia’s total land is suitable for agriculture. Grains like wheat and barley are major crops. Russia imports a lot of its food, particularly meat.

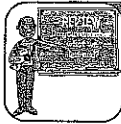
Russia is rich in mineral resources, with huge deposits of coal, oil, and natural gas, and massive forests. Unfortunately, it is difficult and expensive to harvest and transport these resources because of the harsh climate and remote locations. Many Russian goods are transported by railroad because rivers and major ports are blocked by ice in the winter. Russia’s mining, manufacturing, and fishing industries are fueled by the country’s natural resources.



## Quick Quiz

Circle the correct answers below.

1. Russia is the largest / smallest country in the world.
2. Most Russians live in western / eastern Russia.
3. Russia’s climate is warm / cold.
4. Russia has many / few natural resources, but they are easy / hard to get to.



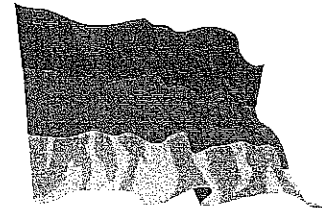
## Quick Review

Fill in the chart below comparing the United Kingdom and Russia. Circle the things that the UK and Russia have in common.

	United Kingdom	Russia
Location		
Climate		
Farmland		
Where People Live		
Natural Resources		

## Genuine Germany

You might say that Germany has it all! Germany is a very prosperous nation, with one of the largest populations in Europe and the strongest economy. Germany truly owes much of its success to its **location, climate, and natural resources!**



Germany enjoys a **moderate climate** with warm, mild summers and cool winters. Extreme weather conditions do not occur very often. This mild climate is good for Germany's agriculture industry, which uses about half of Germany's land.

Germany's **location** and geography yield many other benefits. Although Germany produces many crops, manufacturing drives the country's economy. The Ruhr Valley in western Germany is the most densely populated area in the country, filled with factories, cities, and towns. Most Germans live in the **cities and towns of western Germany**. Enormous **deposits of coal and iron ore** found in the Ruhr region fuel a huge manufacturing industry known for steel production, automobiles, building materials, and many other items. These manufacturing products are easily transported to the nearby Rhine River, Germany's major commercial waterway, and then on to the North Sea and the Atlantic Ocean to trade with the world!



### Quick Quiz

Fill in the blanks below.

1. Germany has the strongest \_\_\_\_\_ in Europe.
2. Germany has a \_\_\_\_\_ climate, which is good for agriculture.
3. \_\_\_\_\_ is the driving force behind Germany's economic success.
4. The \_\_\_\_\_ Valley is densely populated. It holds massive deposits of natural \_\_\_\_\_ needed for German industry.

## Incredible Italy!

Italy attracts millions of tourists every year because of its spectacular scenery, beautiful weather, and fascinating history and culture. Italy enjoys a moderate **climate** with generally cool winters (colder in mountain regions) and warm summers. Mountains cover about 70 percent of the country.



About two-thirds of Italians live in the **northern part of the country**, home to most of Italy's industry and agriculture. Because of their location close to central Europe, the industrial cities in northern Italy can trade easily with other European countries. Grapes, often grown along mountainsides, are Italy's most valuable crop. Italian grapes have made Italy the largest wine producer in the world.

Italy has few mineral resources, and has to import most of its raw materials for industry. Tourism is the country's most important industry. Tourists flock to Italy to enjoy its climate and view ancient ruins and magnificent art from some of history's most famous artists like Leonardo da Vinci and Michelangelo.



Mona Lisa by Leonardo da Vinci



**Quick Review**

Fill in the lists below. Use the word bank to help you. Some words may be used more than once.

**Germany**

**Italy**

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**Climate**

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**Most Important Industry**

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**Natural Resources**

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**Highly Populated Area**

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**Trade**

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**Word Bank**

tourism	west
moderate	access to rivers and sea
few minerals	manufacturing
coal and iron ore	close to central Europe
north	