

# He **Europe's Environmental Issues**

**Directions:** Complete the chart below with information that you learn during the presentation. If time allows, color your illustrations.

	<b>Acid Rain in Germany</b>	<b>Air Pollution in the United Kingdom</b>	<b>Nuclear Disaster in Chernobyl, Ukraine</b>
CAUSES			
EFFECTS			
SOLUTION			
ILLUSTRATION			





Acid Rain  
in  
Germany

# Acid Rain

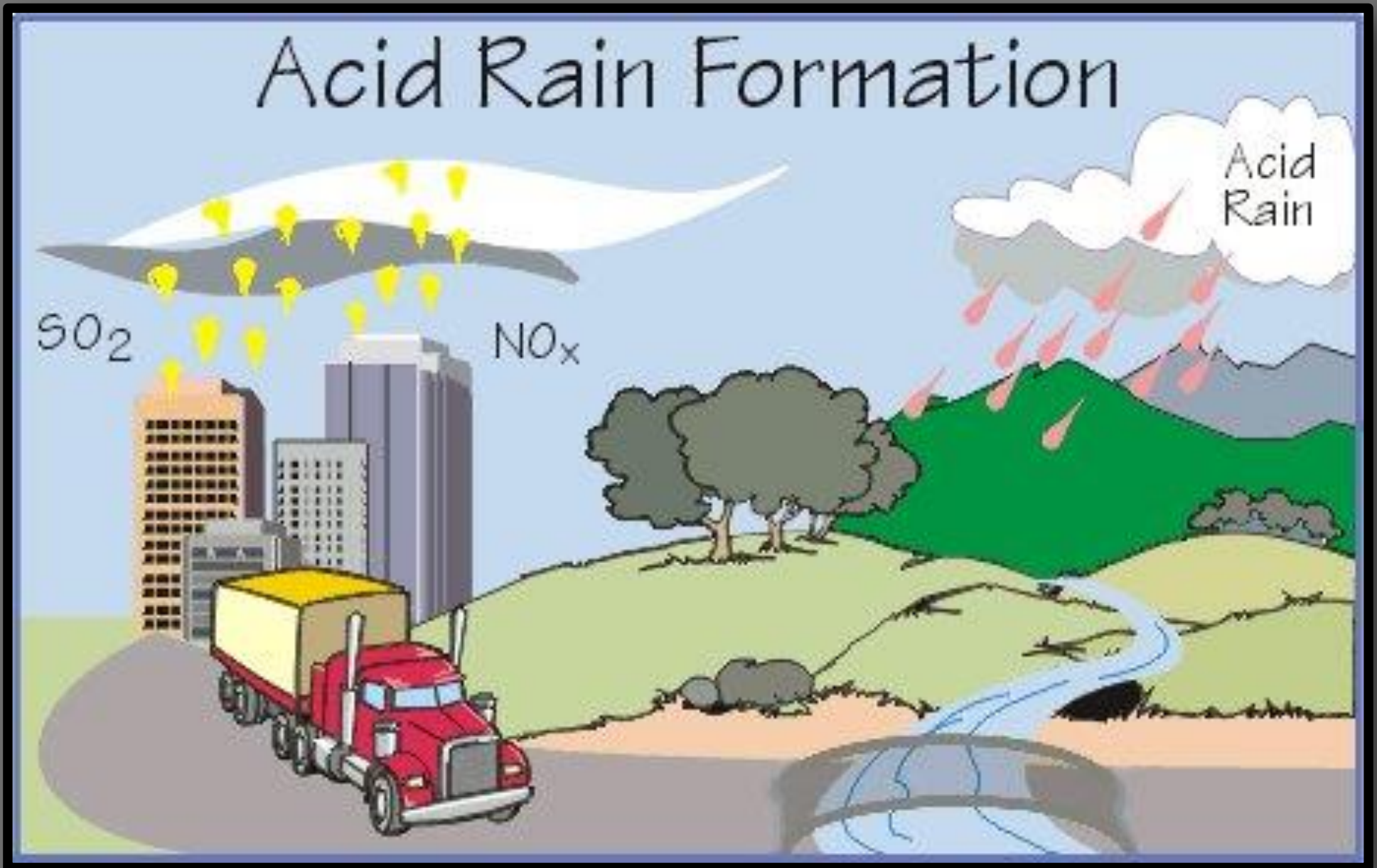
- Over the past 30 years, acid rain has been damaging Germany.
- It contaminates soil, kills trees, eats holes in the surfaces of buildings & statues, pollutes rivers, and harms wildlife.



# What is Acid Rain?

- Acid rain is a result of air pollution.
- When any type of fuel is burned, a lot of different chemicals are produced and released into the air.
- The chemicals mix with water in the clouds and come down with rain.

# Acid Rain Formation



# What is Acid Rain?

- The rain that falls has weak levels of acid mixed in.
- It's not acidic enough to burn your skin, but it is very harmful for the environment.





Left Branch shows needle loss and discoloration due to acid rain.

# Causes

- The main source of acid rain is smoke from factories (burning fuels like natural gas, coal, & oil).
- Cars and buses also produce harmful gases.

# Effects

- Acid rain can effect trees in several different ways.
- It dissolves & washes away the nutrients and minerals in the soil.
- It also causes the release of harmful substances such as aluminum into the soil.

# Black Forest

- Acid rain has destroyed nearly half of the Black Forest in Germany!
- This has really harmed Germany's economy because one of its major natural resources is timber.



# Effects

- Acid rain causes the water in rivers and lakes to become more acidic.
  - Fish and other animals that live in these waters are dying, as well as the animals that drink from these waters.
- It also causes people to face harmful health hazards because the rain contaminates the drinking water in fresh water reservoirs.

# Effects

- Nitrogen and sulfur in acid rain are eating away at many of Germany's landmarks, causing buildings and artwork to deteriorate.
- Concrete, metals, limestone, and marble are all susceptible to acid rain, and many of Germany's cultural objects that are hundreds of years old are slowly corroding away.

# Acid Rain Can Cause Erosion in Stone Statues & Buildings





# Germany's Solution

- In Germany, power plants that use water power are replacing many coal-burning factories.
- They are developing new types of energy, such as wind turbines and solar power.
- Germany's government has passed laws to reduce emissions from cars and factories.



**Air Pollution  
in the  
United Kingdom**

# Air Pollution

- Many of the world's largest and most industrialized countries are in Europe.
  - Paris, London, Berlin, Rome, Amsterdam
- These cities tend to have a lot of factories, a lot of traffic, and produce a lot of air pollution.
- A country that has been greatly effected by this problem is the UK.



# UK's Air Pollution

- London, the capital of UK, is famous for air pollution.
- The word “smog” was first used in 1905 to describe air in London (thick fog + smoke).
- Thick London smog happens when sunlight acts on the gases from factory or automobile exhausts, or when water in the air mixes with smoke particles.



# Causes

- In the past, the major source of air pollution was smoke from burning coal in factories.
- The air quality in the UK began diminishing due to the smoke and air pollutants emitted from the burning coal.





# Causes

- Today, exhaust from automobiles is the big problem.
- Emissions from automobiles contain carbon monoxide and nitrous oxide, which stay close to the ground and contribute to low-lying smog.



# Effects

- Asthma and pneumonia are linked to vehicle emissions.
- Air pollution burns the lungs, nose, and eyes, and endangers human life.
- When air pollution levels are high, children, sick people, and the elderly have to stay inside to avoid breathing the hazardous air.



# Effects

- Air pollution also harms vegetation.
- Vegetation exposed to polluted air for long periods of time grows more slowly and is more susceptible to disease and insects.
- This causes a major decrease in crop production.

# UK's Solution

- Starting in the 1950s, UK's government has created smokeless zones in London where only smokeless fuels could be used.
- Electricity has also been used more in factories and homes.
- Laws have been created that require automobile makers to build cars that produce less exhaust.
- People have been asked to drive less and are encouraged to use public transportation or walk.

**What is Europe  
doing to fix  
these problems?**

# Environmental Policies

- In Western Europe, nations are trying to lessen pollution.
  - They are spending money and researching new ways to produce power that cause less environmental damage.
- In Eastern Europe, few nations are researching new technologies.
  - They have less money.



# European Union

- Most countries in Europe are members of a group called the European Union.
- Since its formation in 1993, the EU has passed policies designed to fight acid rain, improve air quality, restrict toxic waste, and reduce pollution.



**Nuclear  
Disaster  
in  
Chernobyl,  
Ukraine**



Lithuania

Belarus

Russia

Poland

Ukraine

Slovakia

Hungary

Moldavia

Romania

Rovno ■ Chernobyl ■ Pripyat  
Kiev ●  
Khmel'nitski ■

Zaporozhe ■  
South Ukraine ■

Odessa ●

# Nuclear Power

- Between 1922 and 1991, Ukraine was part of the Soviet Union and was known for its fertile farmland and successful agricultural industry.
- During the 1980s, many countries in Europe began using nuclear power plants to produce cleaner and cheaper energy in order to rely less on fossil fuels.

# Nuclear Power

- Many European countries had strict regulations on nuclear power use; however, Ukraine did not.
- Chernobyl was a growing city in Ukraine, and it was home to the largest nuclear power plant in Europe.
- Unlike other nuclear power plants, Chernobyl was used to produce nuclear weapons material.

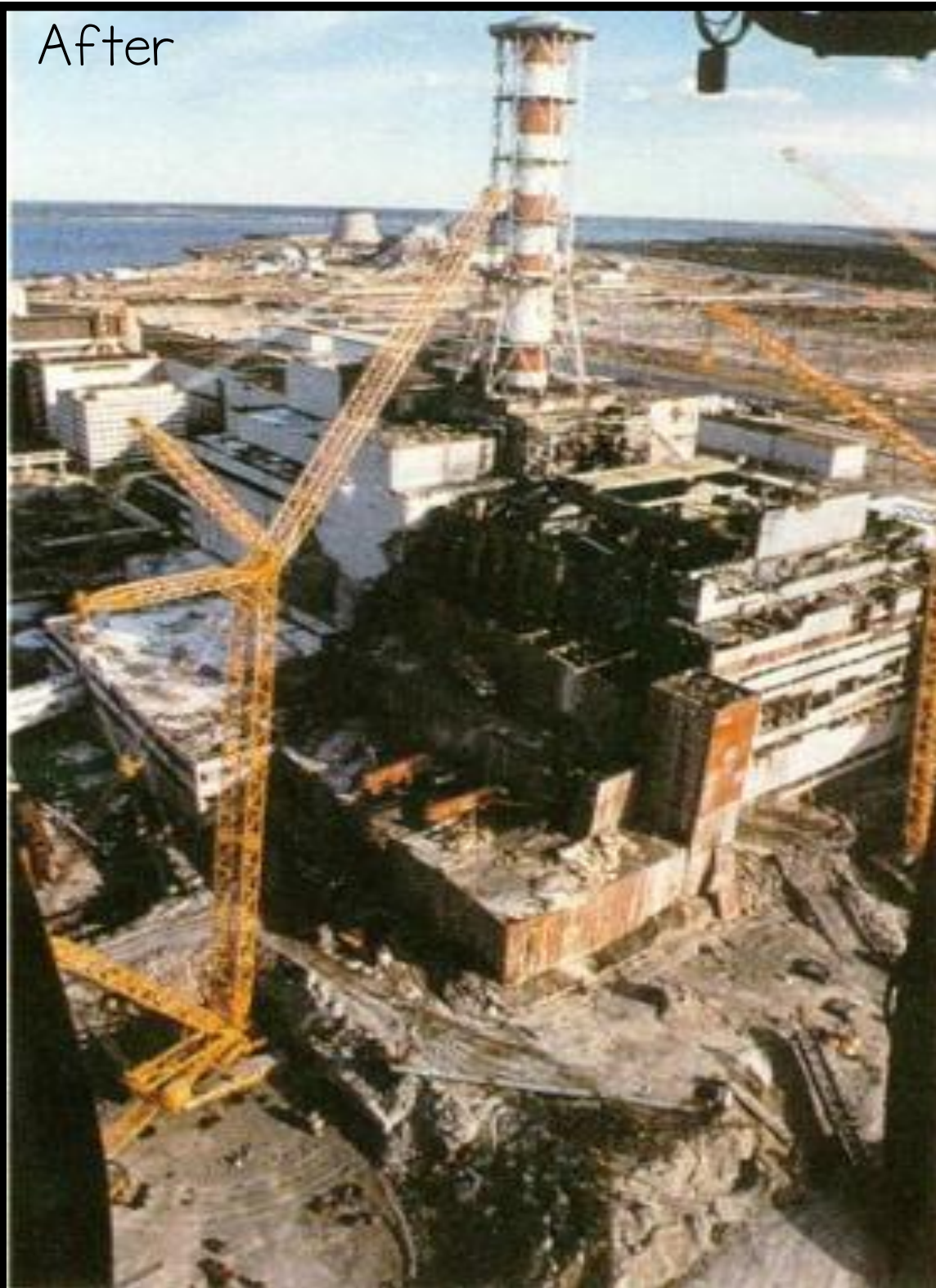
# Chernobyl

- In 1986, the Soviet Union generated 10% of the world's nuclear power.
- On April 26, 1986, one of the reactors at the Chernobyl nuclear power plant exploded.
- The explosion released large amounts of deadly radioactive nuclear material into the atmosphere.

Before...



After





# Soviet Reaction

- The morning after the explosion, there was no hint of a disaster.
- After 36 hours of being exposed to radiation, the people were finally told to pack their clothing and evacuate their homes.
- There was a 18 mile evacuation zone.

# Worldwide Impact

- Nearly nine tons of radioactive material (90 times as much as the Hiroshima bomb) was hurled into the sky.
- Over the following days, winds mostly blowing north and west, carried fallout into Belarus, as well as Russia, Poland, & other countries around the world.



# Effects

- In the first months after the accident, 28 emergency workers died from acute radiation syndrome.
  - Doctors have noticed an increase in cases of cancer who lived nearby.
- Many animals died or got sick.
  - Fish in nearby rivers were unsafe to eat for many years.
- Millions of acres of farmland have been poisoned.

# Radiation Suits Worn By Workers



# Effects

- The people exposed to the high levels of radiation developed a high level of health problems, including thyroid cancer, autoimmune disorders, birth defects, and other health issues.



# Chernobyl Today

- Chernobyl continued to produce electricity for another 14 years, until international pressure forced its closure in 2000.
- An official exclusion zone around the plant remains in place, extending for 18 miles.
- It is one of the most radioactive spots on Earth.



# Chernobyl Today...A Ghost Town



# Chernobyl Today

- In 2011, Ukraine opened up an area so tourists can see first-hand the effects of the disaster.
- Forests surrounding the city have repopulated with a variety of wildlife and vegetation.
- Radiation levels are still so high that humans cannot live here for 20,000 years!



Amusement Park

# Hospital (Baby Room)



# School Classroom



# School Classroom

