

# 11 CHEM

# LEARNING ABOUT ACID RAIN

Additional material

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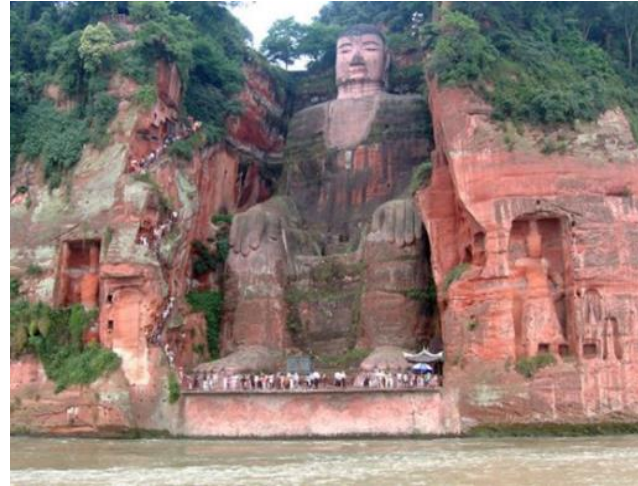
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# Acid rain global threat



Effects of acid rain in the woods of Jizera Mountains, Czech Republic



The Leshan Giant Buddha in China is being slowly destroyed by acid rain.

- First concerns emerged in the 60s → dying lakes  
forest damages
- Nowadays it emerges as an important problem concerning developed countries
- Scientists conclude that the combustion of fossil fuels is the cause of acid rain.

# What is Acid rain?

**ACID RAIN** is any form of precipitation that is unusually acidic.

- Effects
  - Living beings
  - Infrastructures
- Measuring the pH of the rain we can know if it is acid.

# What is the pH?

**The pH** is a magnitude that measures the degree of acidity or basicity.

- In aqueous solutions  $\longrightarrow$   $\text{pH} = -\log [\text{H}_3\text{O}^+]$ 
  - Acid  $\longrightarrow$   $\text{pH} < 7$
  - Neutral  $\longrightarrow$   $\text{pH} = 7$
  - Basic  $\longrightarrow$   $\text{pH} > 7$

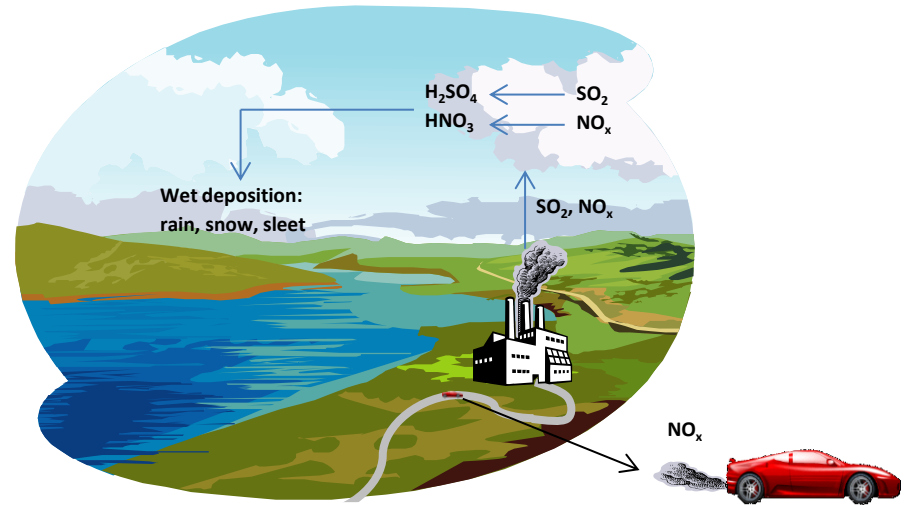
**ACIDIC RAIN**



**ABNORMALLY LOW pH**

# Acid rain formation

	pH	
Battery Acid	1	Acid ↑
	2	
Acid Rain	3	
	4	
Normal Rain	5	Neutral
Water	7	
Ocean Water	8	Basic ↓
Liquid drain cleaner	9	
	10	
	11	
	12	
	13	
	14	



1. Emissions of sulphur dioxide and nitrogen oxides released to the atmosphere.
2. Gases dissolve react with air and water forming acid compounds such as sulphuric and nitric acids.

➡ **ACID RAIN**