

Topic 6: Atmospheric Systems & Societies (10 hours)

Subtopic 6.4 Acid Deposition

Significant Ideas:

- ❖ Acid deposition can impact living systems and the built environment.
- ❖ The pollution management of acid deposition often involves cross-border issues.

Knowledge & Understanding

6.4.1 The **combustion of fossil fuels** produces **sulfur dioxide** and **oxides of nitrogen** as *primary pollutants*. These gases may be converted into *secondary pollutants* of **dry deposition** (such as ash and dry particles) or **wet deposition** (such as rain and snow).

6.4.2 The possible **effects of acid deposition** on *soil, water, and living organisms* include: - **direct effect** – e.g., acid on aquatic organisms and coniferous forests, - **indirect toxic effect** – e.g., increased solubility of metal (such as aluminum ions) on fish, - **indirect nutrient effect** – e.g., leaching of plant nutrients.

<p>6.4.3 The impacts of acid deposition may be limited to areas downwind of major industrial regions but these areas may not be in the same country as the source of emissions.</p>	
<p>6.4.4 Pollution management strategies for acid deposition could include: - altering human activity – e.g., through reducing use, or using alternatives to, fossil fuels; international agreements and national governments may work to reduce pollutant production through lobbying, - regulating and monitoring the release of pollutants – e.g., through the use of scrubbers or catalytic converters that may remove sulfur dioxide and oxides of nitrogen from coal-burning power plants and cars.</p>	
<p>6.4.5 Cleanup and restoration measures may include spreading ground <i>limestone</i> in acidified lakes or <i>recolonization</i> of damaged systems – but the scope of these measures is</p>	

limited.	
Applications & Skills	
6.4.AS1 <i>Evaluate</i> pollution management strategies for acid deposition.	