

Topic 7: Climate Change & Energy Production (13 hours)

Subtopic 7.3 Climate Change – Mitigation & Adaptation

Significant Ideas:

- ❖ Mitigation attempts to reduce the causes of climate change.
- ❖ Adaptation attempts to manage the impacts of climate change.

Knowledge & Understanding

7.3.1 **Mitigation** involves reduction and/or stabilization of *GHG* emissions and their removal from the atmosphere.

7.3.2 **Mitigation strategies to reduce GHGs** in general may include: - **reduction of energy** consumption, - **reduction of emissions** of oxides of nitrogen and methane from agriculture, - use of **alternatives to fossil fuels**, - **geo-engineering**.

7.3.3 **Mitigation strategies for carbon dioxide** removal (CDR techniques) include: - **protecting and enhancing carbon sinks** through land management, e.g., through the UN collaborative program on reducing emissions from deforestation and forest degradation in developing countries (**UNREDD**), - using **biomass as a fuel**

source, - using carbon capture and storage (CCS), - enhancing carbon dioxide absorption by the oceans through either fertilizing oceans with compounds of nitrogen, phosphorous, and iron to encourage the biological pump, or increasing upwellings to release nutrients to the surface.	
7.3.4 Even if mitigation strategies drastically reduce future emissions of GHGs, past emissions will continue to have an effect for decades to come.	
7.3.5 Adaptation strategies can be used to reduce adverse effects and maximize any positive effects. Examples of adaptations include <i>flood defenses</i>, <i>vaccination programs</i>, <i>desalinization plants</i>, and <i>planting of crops</i> in previously unsuitable climates.	
7.3.6 Adaptive capacity varies from place to place and can be dependent on financial and technological resources. <i>MEDCs</i> can provide economic and	

technological support to <i>LEDCs</i> .	
7.3.7 There are international efforts and conferences to address mitigation and adaptation strategies for climate change, e.g., the <i>Intergovernmental Panel on Climate Change (IPCC)</i> , <i>National Adaptation Programs of Action (NAPAs)</i> , and the <i>United Nations Framework Convention on Climate Change (UNFCCC)</i> .	
Applications & Skills	
7.3.AS1 Discuss mitigation and adaptation strategies to deal with impacts of climate change.	
7.3.AS2 Evaluate the effectiveness of international climate change talks.	