



PLANIT
TEACHERS

Understanding Global Warming: Exploring its Impact on the Great Barrier Reef, Rising Sea Levels, and Geological Changes

Introduction

This worksheet is designed for students aged 11-14, following the UK Primary School Curriculum. It aims to educate students about global warming, its effects on the Great Barrier Reef, rising sea levels, and geological changes, while promoting mixed ability differentiation.

Page 1: What is Global Warming?

Foundation: What is Global Warming?

Answer: Global warming is the gradual increase in the overall temperature of the Earth's atmosphere, primarily due to human activities like burning fossil fuels.

Core: How does Global Warming affect the Earth?

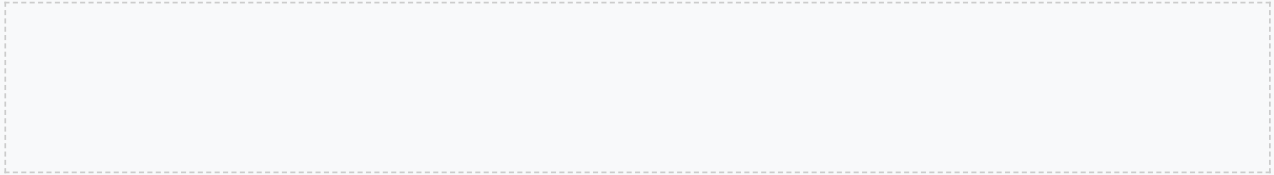
Answer: Global warming leads to rising sea levels, more extreme weather events, and changes in weather patterns, affecting ecosystems and human societies.

Extension: Analyze the role of Greenhouse Gases in Global Warming

Answer: Greenhouse gases, such as carbon dioxide and methane, trap heat in the atmosphere, contributing to global warming. Human activities like deforestation and burning fossil fuels increase these gases, exacerbating the problem.

Foundation: Draw a simple diagram of the Carbon Cycle

Instructions: Include the atmosphere, oceans, land, and living things.



Core: Explain how Carbon is exchanged between the Atmosphere and Oceans

Answer: Carbon is exchanged through processes like photosynthesis, respiration, and the absorption of CO₂ by oceans.

Extension: Discuss how Human Activities disrupt the Carbon Cycle

Answer: Human activities like burning fossil fuels and deforestation release more CO₂ into the atmosphere, disrupting the balance of the carbon cycle.

Foundation: What is the Great Barrier Reef?

Answer: The Great Barrier Reef is the world's largest coral reef system, located off the coast of Australia, known for its rich biodiversity.

Core: How does Global Warming affect the Great Barrier Reef?

Answer: Global warming causes coral bleaching, which occurs when corals are stressed by high water temperatures, leading to the expulsion of their algal symbionts and often resulting in the coral's death.

Extension: Evaluate the impact of Coral Bleaching on Marine Biodiversity

Answer: Coral bleaching affects not only the coral itself but also the myriad species that depend on the reef for habitat and food, leading to decreased biodiversity and negative impacts on local economies.

Foundation: What causes Rising Sea Levels?

Answer: Rising sea levels are caused by the melting of glaciers and ice caps, and the thermal expansion of seawater as it warms.

Core: Describe the effects of Rising Sea Levels on Coastal Communities

Answer: Rising sea levels can cause flooding, erosion, and saltwater intrusion into freshwater sources, threatening homes, infrastructure, and livelihoods.

Extension: Discuss potential Adaptations to Rising Sea Levels

Answer: Adaptations include constructing sea walls, relocating communities, and restoring natural barriers like mangroves and dunes.

Foundation: What are Geological Changes?

Answer: Geological changes refer to alterations in the Earth's physical structure, such as changes in landforms, resulting from natural processes or human activities.

Core: Explain how Global Warming induces Geological Changes

Answer: Global warming leads to more frequent and intense natural disasters like hurricanes, droughts, and wildfires, and alters weather patterns.

Extension: Analyze the impact of Geological Changes on Ecosystems and Human Societies

Answer: Geological changes can lead to loss of biodiversity, disrupt food chains, and affect human settlements and economies.

Page 6: Reducing Our Carbon Footprint

Foundation: List three ways to reduce your Carbon Footprint

Answers: Using public transport, recycling, and turning off lights when not in use.

Core: Research and present on a Renewable Energy Source

Instructions: Choose a source (e.g., solar, wind, hydro) and discuss its benefits and challenges.

Extension: Design a campaign to reduce your School's Carbon Footprint

Instructions: Include strategies for energy efficiency, waste reduction, and promoting sustainable practices among students and staff.

Page 7: Case Study - The Great Barrier Reef

Foundation: Describe the current condition of the Great Barrier Reef

Answer: The reef is suffering from coral bleaching and habitat destruction, affecting its biodiversity.

Core: Analyze the impact of Human Activities on the Reef

Answer: Human activities like pollution, overfishing, and coastal development contribute to the reef's degradation.

Extension: Propose a Conservation Plan for the Great Barrier Reef

Instructions: Include strategies for reducing pollution, protecting habitats, and promoting sustainable tourism.

Page 8: Rising Sea Levels - A Local Perspective

Foundation: Research how Rising Sea Levels affect your Local Community

Instructions: Consider flooding, erosion, and saltwater intrusion.

Core: Discuss potential Adaptations for your Local Community

Instructions: Include constructing sea walls, relocating buildings, and restoring natural barriers.

Extension: Evaluate the Economic and Social implications of Rising Sea Levels on your Community

Instructions: Consider the impact on housing, infrastructure, and local businesses.

Page 9: Geological Changes and Extreme Weather

Foundation: What is the relationship between Global Warming and Extreme Weather Events?

Answer: Global warming can lead to more frequent and intense extreme weather events like hurricanes, droughts, and heatwaves.

Core: Explain how Geological Changes affect Ecosystems

Answer: Geological changes can lead to loss of biodiversity, disrupt food chains, and alter habitats.

Extension: Discuss the role of Climate Change in exacerbating Geological Changes

Answer: Climate change can increase the frequency and severity of geological events like earthquakes, landslides, and volcanic eruptions.

Page 10: Conclusion and Action Plan

Foundation: Summarize what you have learned about Global Warming

Instructions: Include its causes, effects on the Great Barrier Reef, and rising sea levels.

Core: Reflect on how you can contribute to reducing Global Warming

Instructions: Consider personal actions, community initiatives, and political advocacy.

Extension: Design an Action Plan to mitigate the effects of Global Warming

Instructions: Include personal, community, and global strategies, and propose a timeline for implementation.

