




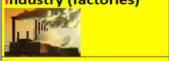

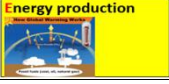


Big Question: How do specific countries manage the threats of tropical storms?

Lesson	Essential Knowledge
<p>Lesson One – Climate Change vs. Global Warming</p>	<p>Climate change looks at the long-term change in the average weather patterns that influences our climate, whereas global warming looks at the increase of global temperatures due to increasing concentrations of greenhouse gases in the atmosphere. There are various causes for climate change and global warming. The four main natural causes of climate change look at VASO, which stands for volcanic eruptions, asteroid collision, solar output and orbital change. The four main human causes of climate change look at FITE, which stands for farming, industry, transport and energy. In addition, there are different pieces of evidence documenting our changing climates. The main three natural pieces of climatic evidence look at HIT, which stands for historical sources, ice cores and tree rings. In comparison, the three main sources of climate change caused by humans looks into global warming, sea level rise and thermal expansion, as well as the emission of greenhouse gasses causing the enhanced greenhouse effect.</p> <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; text-orientation: mixed; background-color: red; color: white; padding: 5px; margin-right: 10px;"> V <hr/>A <hr/>S <hr/>O </div> <div style="writing-mode: vertical-rl; text-orientation: mixed; background-color: red; color: white; padding: 5px; margin-right: 10px;"> F <hr/>I <hr/>T <hr/>E </div> <div style="display: flex; flex-direction: column; gap: 5px;">         </div> </div>
<p>Lesson Two – Ecological Breakdown</p>	<p>An ecological breakdown looks at the impacts and effects of climate change upon different biomes (a global-scale ecosystem). For example, in 2021, the Mediterranean biome witnessed large-scale wildfires, forest fires and droughts from increasing regional temperatures, that has caused populations to be displaced, the loss of life and the rapid decline of biodiversity for the suffering biome. Different global biomes and countries are more vulnerable to the effects of climate change, where countries such as Spain, India and China are more vulnerable to the impacts of climate change, compared to area's and countries such as Northern Canada or Namibia. Climate change is affecting every biome, whether desertification (the expansion of desert/arid/barren environments) in the desert, melting permafrost in the Arctic tundra, bushfires in the tropical grasslands or even coral bleaching in coral reefs, all of these are severely affecting the life of flora and fauna in these biomes. In detail, the key case studies look at the impacts of climate change in the coral reefs of the Cayman Islands and the tropical rainforest in Bangladesh.</p>
<p>Lesson Three – People & The Planet</p>	<p>The causes of climate change span back to the mid-18th and early 19th centuries, when countries such as the United Kingdom experienced the Industrial Revolution, which led to the extensive consumption of fossil fuels, the growth of factories through industrialisation, the rapid population increase of residents in cities (known as urbanisation), along with the increasing availability of affordable transport. Over the past centuries, greenhouse gas emissions have continued to rise, trapping heat in our atmosphere, causing a vast array of irreversible effects upon our planet. These can be social impacts of smog and water scarcity, economic impacts linked to declining agricultural work due to famine and drought, along with environmental impacts looking at the increasing frequency and intensity of tropical storms. In addition, everybody is entitled to their own views and opinions, but on the subject of climate change, people continue to conflict over who's to blame? Greta Thunberg is a leading climate change activist who continues to stand up for her generation who are feeling the full brunt and force of climate change, whereas climate change deniers like Donald Trump continue to deflate the impacts and effects of climate change, by even questioning if this process is real, or simply a hoax?</p>
<p>Lesson Four – Growing Intensity</p>	<p>Climatic hazards, such as tropical storms (hurricanes, cyclones and typhoons), blizzards, droughts, heatwaves, flash floods, wildfires and more, are continuing to increase in their frequency and intensity, causing a wide range of social, economic and environmental impacts upon affected countries. One location, which is USA, is the most</p>

	<p>diversely hazardous country on Earth. Every single state experiences different or multiple climatic hazards every year, whether wildfires in California and Washington, or blizzards in Oregon, hurricanes in Florida or droughts in Arizona. However, tropical storms are continuing to grow in size and strength, where key features of the storms structure, such as the eye, eye wall, cumulonimbus clouds, cirrus canopy clouds and more are continuing to be investigating by climatologists. Tropical storms form in areas of 26.5°C (water surface temperatures), with high humidity from warm air rising, along with being situated within the Inter-Tropical Convergence Zone. However, storms can dissipate (dissolve/disintegrate) when they reach landfall, cooler regions or collide with other weather systems.</p>
<p>Lesson Five – Management & Response</p>	<p>Tropical storms only affect certain regions, therefore specific countries have to effectively prepare, manage and respond to the threats and hazards presented by either a hurricane, typhoon or cyclone. A country’s number one duty, is to protect life and mitigate the impacts created by a natural disaster. However, those affected by tropical storms have different reasons for their vulnerability, which looks at physical, economic and social factors. Physical factors look into a country’s altitude, their geology and global geographical position. Economic factors look into the availability of technology, effective forecasting and monitoring equipment. Lastly, social factors look into the amount of people living in poverty in comparison to those residing in affluent (wealthy) areas, along with more personal characteristics of age, gender and disabilities. These differences in vulnerability lead to a range of impacts, that also takes into consideration the strength and category of a tropical storm recorded on the Saffir-Simpson Model. A comparative study looks at the management methods of preparation and response for Cyclone Alia in Bangladesh (Developing Country), Hurricane Irma in the US/Caribbean (Developed Countries), along with Super Typhoon Megi in the Philippines (Emerging Country).</p>