**Geography A Level Learning Journey**

Carbon Cycle and Energy Security – Remember to revise all content from the specification, however these are the topics to be specifically examined on in Paper 1 and 3.

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| **Key Idea** | **Topic Paper 1** | **RAG** | **Date Revised** | **Date Reviewed** |
| 6.2.a | Explain how phytoplankton sequester carbon during photosynthesis in surface ocean waters. |  |  |  |
| 6.2.a | Explain how carbonate shells move into the deep ocean through the carbonate pump and thermohaline circulation. |  |  |  |
| 6.3.b | Explain how ocean based and terrestrial photosynthesis play an important role in regulation of the atmosphere. |  |  |  |
| 6.3.b | Explain how soil health is influenced by stored carbon which is important for ecosystem productivity. |  |  |  |
| 6.4.a | Describe and explain energy consumption patterns in terms of per capita use and in terms of units of GDP. |  |  |  |
| 6.4.a | Describe and explain energy mix patterns in terms of domestic/foreign, primary/secondary energy or renewable/non-renewable energy. |  |  |  |
| 6.4.b | Understanding that access to energy resources depends on a variety of factors (physical availability, cost, technology, public perception, level of development and environmental priorities. |  |  |  |
| 6.4.b | Understanding that consumption of energy resources depends on a variety of factors (physical availability, cost, technology, public perception, level of development and environmental priorities. |  |  |  |
| 6.4.c | Energy key players have varied roles in securing pathways for energy supply. |  |  |  |
| 6.6.a | Explain how renewable and recyclable energy (nuclear power, wind power, solar power) could help to break the link between fossil fuel use and economic development. |  |  |  |
| 6.6.a | Assess the costs and benefits of the contribution of the above energy resources (socially, economically and environmentally) to energy security. |  |  |  |
|  | **Additional Content for Paper 3** |  |  |  |
| 6.8.c. | Explain how the degrading water and carbon cycle causes threats to ocean health. |  |  |  |
| 6.8.c | Assess how these threats to ocean health affect human wellbeing with a focus on settlements in developing regions that depend on marine resources for food, tourism and coastal protection. |  |  |  |
| 6.9.a | Understand the uncertainty of future carbon emissions, atmospheric concentration and climate warming due to natural factors (the role of carbon sinks). |  |  |  |
| 6.9.a | Understand the uncertainty of future carbon emissions, atmospheric concentration and climate warming due to human factors (economic growth, population, energy sources). |  |  |  |
| 6.9.a | Understand the uncertainty of future carbon emissions, atmospheric concentration and climate warming due to feedback mechanisms (carbon from peat and permafrost, alterations to the thermohaline circulation, forest dieback). |  |  |  |
| 6.9.b | Assess the costs and risks of adaptation strategies for a changed climate (water conservation, resilient agricultural systems, land-use planning, flood risk management, solar radiation management) |  |  |  |
| 6.9.c | Understanding that any attempts to re-balance the carbon cycle would require a global scale agreement which has proven to be politically problematic (carbon taxation, renewable switching, energy efficiency, carbon capture and storage, afforestation. |  |  |  |