



# Geography A Level Water and Carbon Cycle curriculum map

2019 - 20

Topic	Big question / theme	Small / Sub questions	Assessment Opportunities and Criteria. Teacher Feedback point (TFP)	Assessment
Systems in Physical geography		Systems in physical geography: Systems concepts and their applications to the water and carbon cycles inputs-outputs, energy, stores/components, flows/transfers, positive/negative feedback, dynamic equilibrium.		
The Water Cycle		<b>The Water Cycle</b> <ul style="list-style-type: none"><li>• Global distribution and size of major stores of water – lithosphere, hydrosphere, cryosphere and atmosphere.</li><li>• Processes driving change in the magnitude of these stores over time and space, including flows and transfers: evaporation, condensation, cloud formation, causes of precipitation and cryospheric processes at hill slope, drainage basin and global scales with reference to varying timescales involved.</li><li>• Drainage basins as open systems – inputs and outputs, to include precipitation, evapotranspiration and runoff; stores and flows, to include interception, surface, soil water, groundwater and channel storage; stemflow,</li></ul>		

		<p>infiltration overland flow, and channel flow. Concept of water balance.</p> <ul style="list-style-type: none"> <li>• Runoff variation and the flood hydrograph.</li> </ul> <p>Changes in the water cycle over time to include natural variation (including storm events, seasonal changes) and human impact (including farming practices, land use change and water abstraction).</p>		
The Carbon Cycle		<p><b>Week 4-6</b> <b>The Carbon Cycle</b></p> <ul style="list-style-type: none"> <li>• Global distribution and size of major stores of carbon – lithosphere, hydrosphere, cryosphere biosphere, atmosphere.</li> <li>• Factors driving change in the magnitude of these stores over time and space, including flows and transfers at plant, sere and continental scales. Photosynthesis, respiration, decomposition, combustion, burial, compaction, carbon sequestration in oceans and sediments, weathering.</li> <li>• Changes in the carbon cycle over time, to include natural variation (including wild fires, volcanic activity) and human impact (including hydrocarbon fuel extraction and burning, farming practices, deforestation, land use changes).</li> </ul> <p>The carbon budget and the impact of the carbon cycle upon land, ocean and atmosphere, including global climate</p>		

Water, Carbon, Climate and Life on Earth		<p><b>Water, Carbon, Climate and Life on Earth</b></p> <ul style="list-style-type: none"> <li>The key role of the carbon and water stores and cycles in supporting life on Earth and particular reference to climate. The relationship between the water cycle and carbon cycle in the atmosphere. The role of feedbacks within and between cycles and their link to climate change and implications for life on Earth.</li> </ul> <p>Human interventions in the carbon cycle designed to influence carbon transfers and mitigate the impacts of climate change.</p>		
Case Study 1		<p><b>Week 8-9</b></p> <p><b>Case Study 1</b></p> <p>Case study of a tropical rainforest setting to illustrate and analyze key themes in water and carbon cycles and their relationship to environmental change and human activity.</p>		
<u>Case Study 2</u>		<p><b>Case Study 2</b></p> <p>Case study of a river catchment(s) at a local scale to illustrate and analyze the key themes above, engage with field data and consider the impact of precipitation upon drainage basin stores and transfers and implications for sustainable water supply and/or flooding.</p>		