

## Geography A Level Learning Journey Water & Carbon Cycles

		Water & Carbon Cycle RCL/SKE
	<b>Case studies/ examples</b>	
<b>Intro</b>		<p><b>Systems</b></p> <ul style="list-style-type: none"> <li>• The concept of inputs &amp; Outputs – Dynamic Equilibrium.</li> <li>• An understanding of positive &amp; negative feedbacks and examples.</li> <li>• Ideas cover closed/open systems and cascading system.</li> <li>• Flows &amp; transfers (flux) feature in many of the other components.</li> </ul>
<b>Water</b>		<p><b>Global Water Cycle</b> Atmospheric/ Oceanic/ Cyrospheric/ Terrestrial water.</p> <ul style="list-style-type: none"> <li>• An understanding of the water cycle (flows &amp; transfers).</li> <li>• A memory map of the main stores of water.</li> </ul>
		<p><b>Changes in magnitude of water cycle</b> States of water – water/ice/vapour.</p> <ul style="list-style-type: none"> <li>• Factors that drive the changes heat/latent heat.</li> <li>• Evaporation/Condensation.</li> <li>• Cyrospheric processes – accumulation &amp; ablation (ice melt).</li> </ul>
		<p><b>Drainage Basin System</b> Components of a drainage basin e.g. confluence.</p> <ul style="list-style-type: none"> <li>• Flows &amp; transfers within the drainage basin e.g. evapotranspiration.</li> <li>• How water gets into the river?</li> <li>• Role of vegetation within the drainage basin.</li> </ul>
		<p><b>Water Balance</b> Components of the water balance budget graph.</p> <ul style="list-style-type: none"> <li>• Surplus/ deficit/ recharge/ utilisation.</li> <li>• Wilting Point/ Saturation.</li> <li>• Human &amp; Drainage Basin implications of the water balance.</li> </ul>
		<p><b>Hydrographs</b> Components of a hydrograph – able to label the different parts..</p> <ul style="list-style-type: none"> <li>• Implications of lag-time.</li> <li>• Physical &amp; Human influences on hydrographs.</li> <li>• Run-off variation.</li> <li>• River regimes – annual variability in river discharge.</li> </ul>
		<p><b>Factors affecting the water cycle</b></p> <ul style="list-style-type: none"> <li>• Natural Factors e.g. drought.</li> <li>• Human factors e.g. deforestation/ urbanisation.</li> <li>• Farming practices – soil drainage/ abstraction.</li> </ul>
<b>Carbon</b>		<p><b>Global Carbon Stores</b></p> <ul style="list-style-type: none"> <li>• Major stores of carbon – biosphere – atmosphere – Oceans.</li> <li>• Origins of Carbon – anthropogenic, lithosphere.</li> <li>• Keeling Curve.</li> </ul>
		<p><b>Global Carbon Cycle Transfer</b> <b>Transfers &amp; Fluxes in the Global Carbon Cycle.</b></p> <ul style="list-style-type: none"> <li>• Emissions &amp; Sinks – respiration, photosynthesis, decomposition.</li> <li>• <b>Physical Carbon Pump.</b></li> </ul>

		<ul style="list-style-type: none"> <li>• <b>Biological Carbon Pump</b></li> </ul>
		<p><b>Physical causes of change</b></p> <ul style="list-style-type: none"> <li>• Natural Climate Change.</li> <li>• Impact of cold &amp; warm weather.</li> <li>• Forest Fires &amp; Volcanic Activity.</li> </ul>
		<p><b>Human causes of change</b></p> <ul style="list-style-type: none"> <li>• Combustion of Fossil Fuels.</li> <li>• Deforestation.</li> <li>• Farming Practices.</li> <li>• Urbanisation.</li> </ul>
		<p><b>Carbon Budget</b> Definition of Carbon Budget.</p> <ul style="list-style-type: none"> <li>• Impact on the land – Permafrost.</li> <li>• Impact on the Oceans – Acidification.</li> <li>• Impact on the Atmosphere – <b>Climate Change</b> * recognise that not everywhere will experience the same level of warming.</li> <li>• Albedo Effect.</li> </ul>
		<p><b>Water, Carbon &amp; Climate Change</b> <b>Self-Study section using 1.13 Oxford textbook</b></p> <ul style="list-style-type: none"> <li>• Role of Water &amp; Carbon in supporting life.</li> <li>• Feedback links to Climate Change.</li> <li>• Carbon Cycle feedback Loop.</li> <li>• <b>Water &amp; Carbon Cycle feedback loop</b></li> </ul>
		<p><b>Mitigating impact of climate change</b></p> <ul style="list-style-type: none"> <li>• Carbon Sequestration &amp; <b>Technology</b>.</li> <li>• Changing farming practices.</li> <li>• Changes in Aviation practices.</li> <li>• International agreements on Carbon Emissions and Climate Change – <b>Kyoto / Paris</b>.</li> </ul>
	Amazon	<p><b>Rainforest case study</b> <b>Carbon &amp; Water Cycle and Rainforests (Brazil):</b></p> <ul style="list-style-type: none"> <li>• Components &amp; functions of the rainforest.</li> <li>• Adaptations within the TRF.</li> <li>• The TRF as a resource and impacts of human exploitation of the TRF.</li> <li>• Drivers of change – soil, climate, rivers.</li> <li>• Mitigation and management.</li> </ul>
	Exe and Nidd	<p><b>Drainage Basin Case Study</b> Case Study of a river at a local scale (<b>River Exe</b>) and comparison with the River Nidd.</p> <ul style="list-style-type: none"> <li>• Characteristics of the River Exe.</li> <li>• Water Balance of the River Exe.</li> <li>• Recent developments that effect the local drainage basin.</li> <li>• Exmoor Mires Project – fieldwork, methodologies, results &amp; conclusions.</li> </ul>

