Department – Year 12 The Advanced Geographer

Shirley High Curriculum Map

Students begin AQA A Level Geography (7037) and study the units one at a time: Water and carbon cycles, Changing places, Coastal systems and landscapes, and Global systems and global governance, before beginning Resource security in the summer. They take their GCSE knowledge and skills further, developing the independence, extended writing and data skills that A Level demands. NB: units don't fall neatly into half terms so there is some crossover.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Theme/Topic/Skill:	Theme/Topic/Skill:	Theme/Topic/Skill:	Theme/Topic/Skill:	Theme/Topic/Skill:	Theme/Topic/Skill:
	Water and carbon cycles (Paper 1, Section A)	Water and carbon cycles (completed) PPE 1 (November) Changing places (Paper 2, Section B)	Changing places (completed) Coastal systems and landscapes (Paper 1, Section B)	Coastal systems and landscapes (continued)	Coastal systems and landscapes (completed) Global systems and global governance (Paper 2, Section A) PPE 2 (May)	Global systems and global governance (completed) Resource security (Paper 2, Section C) begins
Why Now?	Water and carbon cycles comes first because it teaches the systems language – inputs, outputs, stores, flows, feedback and dynamic equilibrium – that Coasts and Hazards use later. It builds directly on GCSE rivers, flooding, rainforests and climate change, so students start A Level from secure ground. Two case studies ground the theory: the River Eden in Cumbria, studied with real gauging-station data, and the Amazon rainforest. Units are taught one at a time and completed before the next begins.	Water and carbon cycles is completed with the carbon budget, the Amazon case study and the links between the two cycles and climate change. PPE 1 (pre-public examination) in November tests the unit while it is fresh. Changing places then begins: moving from a physical to a human unit keeps both papers live, and the unit opens with ideas about place that students can test against their own experience of Croydon.	Changing places is completed with the two place studies: Croydon, our local place, and Detroit, a contrasting distant place. Students learn to use qualitative and quantitative sources, including census data and web-based GIS (geographical information systems), skills they will use again in Year 13. Coastal systems and landscapes then begins, applying the systems framework from the first unit to a landscape.	Coasts is the department's Paper 1 option and applies the systems ideas from Water and carbon cycles a second time, now to a landscape rather than a cycle. Students study energy, sediment, processes and landforms, then sea level change and the impact of climate change. It builds on the GCSE coasts unit and prepares students for the physical fieldwork at Seaford in Year 13.	Coasts is completed with coastal management and two case studies: Holderness in the UK and Bangladesh, which students first met in Year 8 through the 2017 South Asia floods. Global systems and global governance then begins. It is a core unit that connects much of the course – flows, trade and transnational corporations link back to Changing places and forward to Resource security, which follows it – so it is taught while there is still time to revisit it. PPE 2 in May samples the units taught so far.	Global systems is completed with trade, a transnational corporation, a commodity and Antarctica as a global commons. Resource security then begins, following straight on while trade, transnational corporations and geopolitics are fresh, and building on the GCSE water unit and the Lesotho Highlands Water Project. Starting it now gives Year 13 the time to complete Resource security and Hazards properly before the NEA begins in January. Cumulative retrieval starters keep every Year 12 unit live.
Fundamental Concepts	**Key concepts:** Physical and human processes · Interdependence · Scale · Environmental impact **Disciplinary knowledge:** Applying a systems framework to real cycles; calculating a water balance; constructing and interpreting flood hydrographs; using gauging-station data as evidence. **Substantive concepts:** • Natural systems and feedback • Water stores and the processes that change them • Drainage basins and the water balance • Flood hydrographs • Natural and human change in the water cycle • The River Eden: a river catchment case study • Carbon stores and the fast and slow carbon cycles	**Key concepts:** Physical and human processes · Environmental impact · Sustainable development · Place **Disciplinary knowledge:** Weighing natural against human change; evaluating mitigation and adaptation to a justified judgement; then questioning how places are known and experienced. **Substantive concepts:** • Natural and human change in the carbon cycle • The carbon budget and its impact on land, oceans and atmosphere • The Amazon rainforest: a case study of both cycles • Water, carbon, climate and life on Earth • Managing climate change • The concept of place	**Key concepts:** Place · Space · Scale · Interdependence · Cultural awareness · Cultural diversity **Disciplinary knowledge:** Building a place study from qualitative and quantitative sources; reading representations critically against census and geospatial data; reaching a justified judgement about the forces shaping a place. **Substantive concepts:** • Insider and outsider perspectives • Endogenous and exogenous factors • Globalisation and sense of place • Meaning, representation, rebranding and regeneration • Qualitative and quantitative sources • Place studies: Croydon and Detroit • Coasts as natural systems	**Key concepts:** Physical and human processes · Environmental impact · Space · Scale **Disciplinary knowledge:** Applying the systems framework to a landscape; sequencing landform development; using sediment cells and budgets as an explanatory model; interpreting OS maps and beach profile data. **Substantive concepts:** • Sources of energy: wind, waves, currents and tides • Sediment sources, cells and budgets • Geomorphological processes • Landforms of erosion and deposition • Sea level change • Climate change and coasts	**Key concepts:** Environmental impact · Sustainable development · Interdependence · Scale **Disciplinary knowledge:** Weighing hard, soft and integrated management; evaluating resilience, mitigation and adaptation; then handling global data and unequal power relations. **Substantive concepts:** • Coastal management • Holderness: a UK coastal case study • Bangladesh: a coastline beyond the UK • Dimensions and factors of globalisation • Global systems and interdependence • Unequal flows and unequal power	**Key concepts:** Interdependence · Scale · Sustainable development · Environmental impact · Cultural awareness **Disciplinary knowledge:** Evaluating global governance against evidence; then classifying resources and reserves and weighing environmental impact against human need. **Substantive concepts:** • International trade and access to markets • Transnational corporations: Apple • World trade in a commodity: coffee • Global governance and the global commons • Antarctica • Resource security: resources, reserves and water security
Students will…	**Learn about:** • What a system is: inputs, outputs, stores, flows, boundaries, open and closed systems, positive and negative feedback and dynamic equilibrium • The major stores of water – oceans, the cryosphere, land and the atmosphere – their size and residence times • The processes that change water stores: evaporation, condensation and cloud formation, the three causes of precipitation, and cryospheric processes • The drainage basin as an open system: stores, flows, the water balance and the soil moisture budget • Run-off variation and the flood hydrograph, including flashy and subdued hydrographs • How the water cycle changes over time: storms, seasons, drought, farming, urban growth and water abstraction • The River Eden, Cumbria: how precipitation affects stores and transfers, Storm Desmond and the Carlisle floods, land use change and flood management, using real gauging-station data • The major stores of carbon, and the Keeling Curve • The fast carbon cycle: photosynthesis, respiration, decomposition and combustion	**Learn about:** • Natural change in the carbon cycle: wildfires and volcanic activity • Human impact on the carbon cycle: fossil fuels, farming, deforestation and land use change • The carbon budget and its impact on the atmosphere, land and oceans, including ocean acidification and the enhanced greenhouse effect • The Amazon rainforest: the water and carbon cycles, deforestation, feedbacks and mitigation • How the water and carbon cycles are linked, and their role in climate change and in supporting life on Earth • Managing climate change: mitigation and adaptation, carbon capture and storage, and international agreements (Kyoto and Paris) **Changing places:** • The difference between space and place, and what place means • Place identity, and how it is shaped at local, regional and national scales • Insider and outsider perspectives, and near, far, experienced and media places	**Learn about:** • Endogenous and exogenous factors that shape the character of a place • Globalisation and a global sense of place, placelessness, clone towns and localisation • Meaning and representation: how places are represented in media, art, film and music • Rebranding and regeneration, including Liverpool as European Capital of Culture (2008) • Using qualitative sources (photographs, art, oral history) and quantitative sources (census data, the Index of Multiple Deprivation and web-based GIS) • Statistical skills: Spearman's rank correlation and significance testing using census data • The local place study: the history, character, data and representation of Croydon • The contrasting distant place study: Detroit – its rise and fall, how it is represented and its contested regeneration **Coastal systems and landscapes:** • Coasts as natural systems, and the concepts of landform and landscape	**Learn about:** • Sources of energy at the coast: winds, waves, currents and tides; high- and low-energy coasts • Sediment sources, sediment cells and sediment budgets • Weathering, mass movement, erosion, transportation and deposition • Landforms of erosion: cliffs, wave-cut platforms, caves, arches and stacks, including on the Dorset coast • Landforms of deposition: beaches, spits, tombolos, bars and sand dunes, and estuarine mudflats and saltmarshes • Eustatic, isostatic and tectonic sea level change, and coastlines of emergence and submergence (raised beaches, rias, fjords and Dalmatian coasts) • The impact of recent and predicted climate change on coasts • Statistical skills: interquartile range, standard deviation and the chi-squared test using beach and sediment data	**Learn about:** • Coastal management: hard and soft engineering, shoreline management plans and integrated coastal zone management • Holderness: rapid erosion, coastal management and its effects, using field data • Bangladesh and the Sundarbans: the risks and opportunities of a coastline beyond the UK, storm surges and flooding, and how people respond through resilience, mitigation, adaptation and integrated coastal zone management **Global systems and global governance:** • The dimensions of globalisation: flows of capital, labour, products, services and information • The factors behind globalisation – transport, communications, financial systems and trade agreements – and how globalisation is measured (the KOF index)	**Learn about:** • Global patterns of trade and investment, and trading relationships between developed, emerging and less developed economies • Access to markets and its impact on well-being • Transnational corporations: Apple – its spatial organisation, production, linkages and impacts • World trade in a commodity: coffee, and Fairtrade • Global governance: norms, laws and institutions such as the United Nations and the World Trade Organization • The global commons: Antarctica, the threats it faces and how it is governed (the Antarctic Treaty) • The globalisation critique • Statistical skills: standard deviation, and Spearman's rank to test links between wealth and trade in a commodity **Resource security:** • What a resource is: stock and flow resources, and how reserves are classified (measured, indicated, inferred and possible) • How resources are developed over time: the resource frontier, resource peak and sustainable resource development • Environmental Impact Assessment, using fracking in the Bowland Shale, Lancashire

	• The slow carbon cycle and carbon sequestration in rocks, oceans and on land				• Global systems and interdependence; unequal flows and unequal power relations	• Global patterns of production, consumption and trade in energy and ore minerals, and the geopolitics of resources • Water security: water stress and scarcity, and increasing supply (the Central Arizona Project and the Lesotho Highlands Water Project) • Managing water consumption, and water conflict at different scales
Language for Life (Key terms / Vocabulary)	System, input, output, store, flow, open and closed system, positive and negative feedback, dynamic equilibrium, cryosphere, residence time, latent heat, dew point, evapotranspiration, interception, infiltration, percolation, throughflow, overland flow, run-off, water balance, soil moisture budget, lag time, bankfull discharge, antecedent rainfall, abstraction, saline intrusion, carbon store, flux, sequestration, biological pump.	Carbon sink, carbon source, carbon budget, radiative forcing, enhanced greenhouse effect, ocean acidification, carbon fertilisation, feedback loop, mitigation, adaptation, carbon capture and storage; place, space, location, locale, sense of place, place identity, insider, outsider, near and far places, experienced and media places.	Endogenous, exogenous, agents of change, globalisation, global sense of place, placelessness, clone town, glocalisation, localisation, representation, perception, rebranding, regeneration, re-imaging, flagship development, gentrification, qualitative and quantitative sources, oral history, census, Index of Multiple Deprivation, geographical information systems (GIS), deindustrialisation, Spearman's rank, correlation, significance.	Littoral zone, high- and low-energy coast, fetch, wave refraction, constructive and destructive waves, tidal range, sediment cell, sediment budget, sub-aerial process, hydraulic action, abrasion, wave quarrying, attrition, solution, longshore drift, concordant and discordant coasts, spit, tombolo, bar, saltmarsh, eustatic, isostatic, emergence, submergence, raised beach, ria, fjord, Dalmatian coast, interquartile range, standard deviation, chi-squared.	Shoreline management plan (SMP), integrated coastal zone management (ICZM), hold the line, managed realignment, cost–benefit analysis, resilience, mitigation, adaptation, globalisation, interdependence, capital flow, remittance, time–space convergence, containerisation, trade bloc, protectionism, KOF index.	Terms of trade, comparative advantage, foreign direct investment, transnational corporation (TNC), outsourcing, glocalisation, commodity, Fairtrade, global governance, norm, institution, global commons, tragedy of the commons, Antarctic Treaty, hyperglobalist, sceptic, transformationalist, standard deviation, resource, stock and flow resource, reserve, resource frontier, resource peak, Environmental Impact Assessment, fracking, water stress, water scarcity, virtual water, greywater.
Extended writing Opportunities	4-mark questions every lesson, with model answers. 6-mark: analysing water abstraction data. 6-mark: natural and human causes of the 2005 Carlisle flood. 20-mark: the factors affecting flood hydrographs (River Eden).	20-mark: human impact on the carbon cycle through farming. 20-mark: rainforest carbon stores and their management (the Amazon). 20-mark: the relationship between the water and carbon cycles. 6-mark: the challenges of carbon sequestration. Then 4- and 6-mark questions on place.	6-mark 'assess' questions on place, identity and representation. Extended write: 'To what extent has Detroit's regeneration benefited all of its residents?' A place-study portfolio for Croydon.	6-mark: dynamic equilibrium on beaches. 6-mark: constructive and destructive waves. 9-mark: the role of wind in the coastal system.	20-mark: the effectiveness of coastal management. Assessing mitigation measures in Bangladesh. 4-mark questions on the drivers of globalisation.	20-mark: transnational corporations and unequal flows, with a model answer. 20-mark: the governance of Antarctica. 6-mark: fracking and energy security. 9-mark: physical factors and water stress. 20-mark: 'It is impossible to meet water demands without damaging the environment'.
Maths Across the Curriculum	Water balance calculations ($P = Q + ET \pm \Delta S$); discharge = area × velocity; drawing storm hydrographs from data; ratios and percentage change from River Eden gauging-station data; interpreting the Keeling Curve.	Converting carbon to carbon dioxide; carbon budget percentages; percentage change in forest loss; pH as a logarithmic scale; an introduction to census data.	The clone-town index; mean, median and misleading statistics; census and Index of Multiple Deprivation data; comparing Detroit with Croydon using census data; Spearman's rank correlation between census indicators, with significance testing.	Tidal range and tide tables; wave period; beach profiles from angle and distance data; erosion rates by rock type; extending sea level trends; interquartile range and standard deviation of sediment size; the chi-squared test on sediment shape between sites.	Cost–benefit analysis of coastal defences; estimating the population of Bangladesh at risk from a storm surge; the KOF globalisation index; reading trade maps.	Standard deviation; Spearman's rank to test whether wealth is linked to coffee production and consumption; profit shares along a commodity chain; depletion curves; Leopold matrix scoring; water availability per person.
Links to careers / aspirations	Hydrologist, Environment Agency, flood risk engineer, climate scientist, water company engineer.	Climate scientist, carbon analyst, environmental consultant; town planner, community development officer.	Town planner, regeneration officer, local government, journalist, market researcher, data analyst.	Coastal engineer, geomorphologist, marine conservation, Environment Agency.	Coastal defence engineer, insurance risk analyst; economist, logistics and supply chain manager.	Trade analyst, diplomat, NGO and charity sector, British Antarctic Survey scientist, environmental impact assessor, water engineer; beginning to shape a UCAS personal statement.
Cultural Capital	Storm Desmond (2015) and the Carlisle floods; the 2022 UK drought; the Keeling Curve and the Mauna Loa observatory; the National River Flow Archive.	The Kyoto Protocol and the Paris Agreement; indigenous peoples of the Amazon; Australia's Black Summer (2019–20); global coral bleaching; the ideas of Agnew and Tuan about place.	Representations of place in art, film and music: Canaletto's and Doré's London, Slumdog Millionaire, Motown and 8 Mile; Liverpool as European Capital of Culture (2008); the ideas of Doreen Massey and Edward Relph.	The Jurassic Coast, a UNESCO World Heritage Site (Old Harry Rocks, Durdle Door, Lulworth Cove); Kiribati and the threat of sea level rise to island nations.	Villages lost to the sea on Holderness; cyclones and storm surges in Bangladesh, and the Sundarbans mangrove forest; the film The Founder and the story of McDonald's.	Fairtrade and the coffee chain; Antarctica: Captain Scott, the British Antarctic Survey and the Antarctic Treaty; the debate about globalisation; Malthus and Boserup on population and resources.
Practical Application of Skills	Drawing and interpreting storm hydrographs; calculating a water balance for the River Eden; analysing National River Flow Archive data; annotated systems diagrams.	Analysing carbon budget data; drawing ocean carbon pump diagrams; comparing forest and pasture data for the Amazon; drawing a map of a place from memory.	Web-based GIS and census mapping for Croydon; comparing historical maps; a Street View clone-town survey of a local high street; interviewing a long-term resident; evaluating sources.	Annotating an OS map of the Dorset coast with grid references; constructing beach profiles; wave-tank experiments on erosion and slumping; field sketching from photographs.	Annotating a defence scheme using online maps; a choropleth map of Bangladesh's population density with a storm-surge flood line; a Croydon high street audit of chains and independents.	A coffee trade game; an Antarctica mapping project; an Environmental Impact Assessment and Leopold matrix for a fracking site.