West Kirby Grammar School

Curriculum Map – Year 12 Physical Geography (2022-23)

Topic name	Term	Skills developed	Prior learning	Next link in curriculum
<u>Tectonics & Hazards: EQ1 Why are some locations more at risk from tectonic hazards?</u> 1.1 a, b &c. The global distribution of tectonic hazards can be explained by plate boundary and other tectonic processes Understanding the larger geographical /geological features of the Earth.	Autumn 1	• Use of tectonic plate maps • Use of models and thinking in 3D • Analysis of hazard distribution patterns on world and regional scale maps. • Use of simple sketches that summarise complex information • Completion of a multi layered sketch map.	Y7 tectonics (from 2021.09) Y8 Kenyan rift system Y10 Tectonic hazards (from 2022.09)	Overview of A1 tectonic Processes sessions in Y13
1.2 a & b. There are theoretical frameworks that attempt to explain plate movements.		• Use of block diagrams to identify key features of different plate boundary settings. • Establishing scientific theory – continental drift into Plate tectonic theory.	Y7 tectonics (from 2021.09) Y10 Tectonic hazards (from 2022.09) London Optional Trip	Revision London Nat History Optional Trip
1.3 &1.2c Physical processes explain the causes of tectonic hazards and impact on: • the type of **volcanic** eruptions. • **earthquake** magnitude and focal depth (Benioff zone). • Whether earthquakes lead to **tsunamis**		• Understanding igneous rock types by reference to actual lavas and ejected material samples in class. • Also reference to igneous table to show how colour crystal size and composition allows process to be matched with rock type. • Primary v secondary effects • Analysis of tsunami time-travel maps to aid prediction	Y7 tectonics (from 2021.09) Y10 Tectonic hazards (from 2022.09) Optional Iceland fieldwork – Lava centre London Optional Trip	Revision London Nat History Optional Trip
<u>Tectonics & Hazards: EQ2: Why do some tectonic hazards develop into disasters?</u> 1.4 Disaster occurrence can be explained by the relationship between hazards, vulnerability, resilience, and disaster.	Autumn 2	• Using models such as the 'Pressure and release's (PAR) and hazard risk equation to compare hazards • Comparing hazards affecting differing economies.	Use of models in globalisation unit Y12 Y10 Tectonic hazards (from 2022.09) Econ development Y11. Optional Iceland fieldwork	Revision Some aspects are in Health and Human Rights (Unit 8A) in Y13. London Nat History Optional Trip
1.5 Tectonic hazard profiles are important to an understanding of contrasting hazard impacts, vulnerability and resilience.		• Use of correlation techniques to analyse links between magnitude of events, deaths and damage	Y10 Tectonic hazards (from 2022.09)	revision
1.6 Development and governance are important in understanding disaster impact and vulnerability and resilience.		• Statistical analysis of contrasting events of similar magnitude to compare deaths and damage.	Y10 tectonics especially Quakes in Haiti (LIC) and Chile (NEE)	revision

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<u>Tectonics & Hazards: EQ3. 3: How successful is the management of tectonic hazards and disasters?</u> 1.7 Understanding the complex trends and patterns for tectonic disasters helps explain differential impacts.		• Interrogation of large data sets to assess data reliability and to identify and interpret complex trends	-	revision
1.8 Theoretical frameworks can be used to understand the predication, impact and management of tectonic hazards	Spring 1.	• Applying models such as the hazard management cycle and the Park Model to real life situations	Use of models in globalisation unit Y12 Optional Iceland fieldwork	Glacial landscape management Y12
1.9 Tectonic hazard impacts can be managed by a variety of mitigation and adaptation strategies, which vary in their effectiveness.		• Use of Geographic Information Systems (GIS) to identify hazard risk zones and degree of risk related to physical and human geographical features.	Previous work using GIS e.g.Y7 damaged environment Y10 use of GIS in coasts.	Revision will try and evelop further with visitor on GIS in GeogSoc.
<u>Option 2A: Glaciated Landscapes and Change. EQ1: How has climate change influenced the formation of glaciated landscapes over time?</u> 2A.1 The causes of longer and shorter climate change, which have led to icehouse greenhouse changes.	Spring 1.	• Graphical analysis of reconstructed climate versus landform evidence for past glacial/ interglacial periods.	Y8 & Y9 climate and climate change work; Y10 Weather hazards Y12 spring fieldwork to Snowdonia	Synoptically linked to Y13 water cycle (Unit 5) and carbon cycle Y13 (Unit 6)
2A.2 Present and past Pleistocene distribution of ice cover.		• Comparison of past and present distribution of glaciated landscapes using global and regional maps.	Light tough in Y7 glacial	Y13 water cycle (unit 5) Cryosphere
2A.3 Periglacial processes produce distinctive landscapes.		• Website research including GIS to identify periglacial features in Canada	Previous work using GIS e.g.Y7 damaged environment & Y10 Y9 Russia unit	Y13 climate change in the Arctic tundra (Both Water and carbon units)
<u>EQ2: What processes operate within glacier systems?</u> 2A.4 Mass balance is important in understanding glacial dynamics and the operation of glaciers as systems.	Spring 2	• Use of numerical data to calculate simple mass balance and equilibrium line position; • use of GIS to identify main features of glacier types and assess glacier health.	-	Use of large models such as hydrological cycle Y13 Water cycle.
2A.5 Different processes explain glacial movement and variations in rates.		• Cirque orientation analysis using large-scale maps (OS maps); calculating Spearman's rank correlations of height of basin, size of basin and orientation and commenting on the significance of the correlation.	Possible introduction of ranking at GCSE Fieldwork depending on task. Y12 spring fieldwork Optional Iceland fieldwork	Y13 Carbon (Unit 6) climate change

2A.6 The glacier landform system		• Use of measures of central tendency to compare rates of glacier movement. • Developing a key word vocabulary and the concept of scale and situation in the field.	--	Revision
<u>EQ3 3: How do glacial processes contribute to the formation of glacial landforms and landscapes?</u> 2A.7 Glacial erosion creates distinctive landforms and contributes to glaciated landscapes.		• Cirque orientation analysis using large-scale maps (OS maps); calculating Spearman's • rank correlations of height of basin, size of basin and orientation and commenting on • the significance of the correlation.	Y7 glacial unit Y12 spring fieldwork - Snowdonia Optional Iceland fieldwork	Summer fieldwork in Lake District
2A.8 Glacial deposition creates distinctive landforms and contributes to glaciated landscapes.		• Till fabric analysis using rose diagrams. • Use of British Geological Society (BGS) glacial drift maps, Ordnance Survey (OS) maps, • GIS and fieldwork results to reconstruct past ice extent and ice flow direction. • Drumlin morphometry and orientation survey to measure correlation of height, length and elongation ratio. Statistical comparison of two data sets from contrasting locations.	Y7 glacial unit Y12 spring fieldwork – Snowdonia Optional Iceland fieldwork	London Nat History Optional Trip Summer fieldwork in Lake District
2A.9 Glacial meltwater plays a significant role in creating distinctive landforms and contributes to glaciated landscapes.		• Use of student t-test to analyse changes in sediment size and shape in outwash plains; • central tendency analysis of both glacial and fluvioglacial deposits (comparison of size, • shape and degree of sorting of clasts).	Y12 spring fieldwork – Snowdonia Optional Iceland fieldwork – outwash plains	Possible NEA coursework topic.Summer fieldwork in Lake District
<u>EQ4: How are glaciated landscapes used and managed today?</u> 2A.10 Glacial and periglacial landscapes have intrinsic cultural, economic, and environmental value. ACTIONS include attitudes ranging from exploitation to preservation	Summer	• Discussing different viewpoints about actions in a balanced way.	Y10 Fieldwork in the Lake District and also FWK in Iceland. Optional Iceland fieldwork	Summer fieldwork in Lake District
2A.11 There are threats facing fragile active and relict glaciated upland landscapes How indirect actions by players affect natural systems.		• Numerical analysis of mean rates of glacial recession in different global regions.	Y12 spring fieldwork Optional Iceland fieldwork South Shore	Summer fieldwork in Lake District
2A.12 Threats to glaciated landscapes can be managed using a spectrum of approaches. How ACTIONS range from exploitation to preservation.		• Discussing different viewpoints about actions in a balanced way.	Y7 Glacial unit Y12 spring fieldwork.	Summer fieldwork in Lake District

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