GCSE Paper 1: Tectonic Hazards

West Kirby Grammar School

Learning about this topic is important because: Studying plate tectonics helps us to understand how major landforms, such as mountains and rift valleys are formed but also appreciate that the Earth's surface is dynamic and constantly moving. It explains how and where volcanoes form, earthquakes strike and tsunamis are generated. Understanding of the science is crucial for civilians, governments and charities to manage the impacts – through predication, preparedness and planning.

This builds on: Studying the location of Earth's key physical features – continents, oceans and mountains etc from KS2 and Y7, learning about the physical geography of Africa in Y8 and also, studying weather hazards (Y8).

This leads to: Developing an understanding of Earth's systems, which can link to other topic, such as urbanisation – many megacities are in tectonically active locations, including Tokyo in Japan – the world's largest. This can also link to Changing economic world that you will study in Yr11 and how being tectonically active can impact a countries ability to develop.

We will learn:	**Check list ✓**	**RAG Rate**
How natural hazards can be classified and different types of natural hazard.		
What is the Earth's structure and the main layers of its interior.		
Where plate boundaries are found globally, and which areas are vulnerable to tectonic hazards.		
What happens at different types of plate boundary – destructive, constructive and conservative.		
How the theory of plate tectonics developed from Alfred Wegener's initial theory of Continental Drift in 1912. How tectonic plates move – mantle convection, slab pull and ridge push.		
Two different types of volcanoes – shield and composite/stratovolcanoes, and how they form at the relevant plate boundary.		
How and where earthquakes strike. What is the structure of an earthquake?		
Case study of earthquake: Chile (NEE) in 2010 – primary and secondary effects, immediate and long-term responses.		
Case study of earthquake: Haiti (LIC) in 2010 – primary and secondary effects, immediate and long-term responses.		
Why people continue to live in areas at risk of tectonic hazards.		
How the impacts of earthquakes can be reduced through monitoring, prediction, protection and planning.		

What skills will we develop/practise:

- Analysis of hazard distribution patterns on world scale maps.
- Use of block diagrams to identify key features of different plate boundary settings.
- Identify patterns and relationships between physical processes and tectonic hazards.
- Evaluate the impacts of tectonic hazards when considering a countries level of development.
- Assess the effectiveness of responses to tectonic events.

Some of the vocabulary that we will use includes: Plate tectonics, Tectonic plate, Lithosphere, Asthenosphere, Mantle, Core, Crust, Continental crust, Oceanic crust, Convection currents, Plate boundary, Constructive boundary, Destructive boundary, Conservative boundary, Subduction, Plate margin, Ocean trench, Fold mountains, Mid-ocean ridge, Rift valley, Magma, Lava, Magma chamber, Vent, Crater, Ash cloud, Pyroclastic flow, Lava flow, Tephra, Volcanic bomb, Lahar, Volcanic eruption, Shield volcano, Composite volcano, Caldera, Dormant volcano, Active volcano, Extinct volcano, Hotspot, Earthquake, Focus, Epicentre, Seismic waves, Tremor, Aftershock, Fault, Fault line, Friction, Pressure, Tsunami, Liquefaction, Magnitude, Richter Scale, Moment Magnitude Scale (Mw), Mercalli Scale, Hazard, Risk, Vulnerability, Primary effects, Secondary effects, Immediate response, Long-term response, Monitoring, Prediction, Protection, Planning, Evacuation, Emergency aid, International aid, Governance, Appropriate technology, Pacific Ring of Fire.

GCSE Paper 1: River landscapes

West Kirby Grammar School

Learning about this topic is important because: As part of the wider 'Living with the physical environment' unit of course where you studies coastal landscapes in year 9, you will now learn about the dynamic nature of physical processes in play in rivers that shape the landscape. The aims of this topic are to develop an understanding of the processes and features in river landscapes, and the need for management strategies governed by sustainability.

This builds on: The water cycle learnt in Yr7 resources and Yr8 weather and climate. You will apply your knowledge of physical processes from the coasts topic in Yr9 to understand how different river landforms are created. Finally you will take your learning from Urbanisation in Yr9 to understand the impacts of developing land near river systems.

This leads to: This is a synoptic topic with coasts, many of the core principles are the same. This topic can also support your understanding of the Living world and resources topics you will learn in Yr11. The main case study learnt in this topic are the same at extreme weather in the UK, helping with your overall understanding.

We will learn:	**Check list ✓**	**RAG Rate**
The location of key physical features in the UK, including upland and lowland regions and river systems.		
How the shape of river valleys change as rivers flow downstream using long profiles and cross profiles. Distinctive characteristics of the upper, middle & lower course (Bradshaw model)		
How fluvial processes operate: *erosion* (hydraulic action, abrasion, attrition, solution, vertical & lateral); *transportation* (traction, saltation, suspension, solution) & *deposition*.		
Distinctive fluvial landforms result from different physical processes in the upper, middle & lower course: *Erosion in the upper course*: interlocking spurs, gorges & waterfalls, *Erosion & deposition in the middle course*: meanders & ox-bow lakes, *Deposition in the lower course*: levées, floodplains & estuaries.		
The stores, flows and outputs of the drainage basin hydrological cycle. Human & physical causes of flooding – land use, precipitation, geology & relief		
How to use hydrographs to show the relationship between precipitation & discharge.		
The River Tees as an example of a UK river valley with landforms of erosion & deposition.		
The costs and benefits of hard and soft engineering strategies to manage flooding.		
Case study: Storm Desmond 2015 - Cockermouth flood prevention measures.		

We will develop/practise skills including:

- Interpreting long profiles and cross profiles.
- Interpreting hydrographs
- OS map skills
- Data collection methods – measuring velocity and discharge of rivers
- Data presentation techniques – drawing scatter graphs, proportional triangles

Some of the vocabulary that we will use includes: Abrasion, alluvium, attrition, channel, cumecs, deposition, discharge, erosion, estuary, evaporation, fluvial, gorge, hydraulic action, impermeable, infiltration, interception, meander, percolation, permeable, riffles, river cliff, saltation, slip-off slope, surface run-off, suspension, throughflow, traction, transpiration, transportation, tributary, urbanisation, velocity, weathering.

GCSE Paper 2: Urban issues and challenges

West Kirby Grammar School

Learning about this topic is important because: Studying urbanisation helps us understand how cities grow and the opportunities and challenges this creates for people and the environment. Comparing cities in LICs, NEEs and HICs shows how levels of development influence urban change and the different ways cities are managed. This knowledge helps us make informed decisions about creating more sustainable and resilient cities in the future.

This builds on: Your KS3 understanding of development in Yr8, including studies of China, Africa and Kenya, where you explored different levels of development and their impacts. They also build on the Year 9 Urbanisation unit, using their prior knowledge of Lagos to deepen their understanding of urban growth, challenges, opportunities and sustainable city development at GCSE.

This leads to: This unit develops your ability to make synoptic comparisons between urbanisation in NEEs and HICs, using your prior knowledge of Lagos alongside the new study of London. It also prepares your well for the Changing Economic World unit in Year 11 by developing your understanding of development, economic change, migration and the links between urbanisation and global development.

We will learn:	**Check list ✓**	**RAG Rate**
Why the world's population is becoming increasingly urban through rural-to-urban migration and natural increase.		
The characteristics and global distribution of megacities and how urbanisation differs between LICs, NEEs and HICs.		
Recap: The causes of rapid urban growth in Lagos, Nigeria, including rural-to-urban migration and natural increase.		
Recap: The opportunities and challenges created by rapid urbanisation in Lagos, including social, economic and environmental impacts.		
Recap: How Lagos is becoming more sustainable through improvements to transport, waste management, housing and water supply. Urban planning strategies.		
The distribution of population and major urban areas in the UK, and why London has grown into a global city.		
The national and international importance of London, including its economic, political and cultural significance.		
How migration has influenced London's growth, population and cultural diversity.		
The social, economic and environmental opportunities and challenges created by urban change in London.		
The impacts of urban sprawl on the rural–urban fringe, including the growth of commuter settlements.		
How urban regeneration has transformed parts of London, using the London Olympic Park as a case study.		
How cities can become more sustainable, including strategies for water and energy conservation, waste recycling, green spaces and sustainable transport.		

What skills will we develop/practise:

- Interpret population, migration and urban growth data to identify patterns and trends in urbanisation.
- Use maps, choropleth maps and GIS to investigate the distribution, growth and characteristics of cities.
- Analyse demographic data such as population pyramids, birth rates and migration figures to explain urban change.
- Interpret photographs, satellite images and land-use maps.
- Evaluate evidence from a range of geographical sources to make informed judgements.

Some of the vocabulary that we will use includes: Urbanisation, Rural-urban migration, Natural increase, High-income country (HIC), Newly emerging economy (NEE), Low-income country (LIC), Manufacturing, Formal and informal economy, Economic growth, Squatter settlements, Megacity, Gross domestic product (GDP), Push factors, Pull factors, Quality of life, Access to safe water, BRICS, Brownfield site, dereliction, high income country (HIC), informal economy/employment, integrated transport, international migration low income country (LIC), MINT, megacity, middle-income country, multicultural city, net migration, newly emerging economy (NEE), population density, quality of life, regeneration, remittance, rural-urban migration, sustainability, squatter settlements, urban greening, urban sprawl.

GCSE Paper 1: Weather Hazards

West Kirby Grammar School

Learning about this topic is important because: People all around the world are affected by weather every day. Weather hazards include tropical storms, flooding from heavy rainfall and drought from heatwaves. To identify areas of the world that are most vulnerable to extreme weather we need to understand general atmospheric circulation and the mechanisms in play that leads to different weather at different latitudes. Having an understanding of how and why weather happens when and where it does can help you better understand the different challenges countries have, while understanding the greater risk that climate change creates as it changes weather as we know it.

This builds on: At KS3 you will have learnt the foundations of weather and climate in year 8. Further to this your learning of Climate change and Urbanisation and Lagos can help with your understanding of how a changing climate impacts communities.

This leads to: Your learning of extreme weather will support your understanding of the Ecosystems and resources topics in Yr11. The knowledge here will also support the Paper 3 pre-release issue evaluation.

We will learn:	**Check list ✓**	**RAG Rate**
What is Global atmospheric circulation and how does it determine the patterns of weather and climate around the world?		
What are the conditions required for the formation of tropical storms (hurricanes, cyclones and typhoons) and how does this influences their global distribution?		
How does climate change affect the distribution, frequency and intensity of tropical storms in the future.		
Case Study: Typhoon Haiyan (2013) – What were the primary and secondary effects? What were the immediate and long-term responses?		
What weather hazards affect people in the UK – flooding from prolonged rainfall, droughts from heatwaves etc. What evidence is there to suggest extreme weather becoming more common?		
Case Study: Cockermouth floods in 2015 due to Storm Desmond – causes, social, economic and environmental impacts and management strategies.		
What evidence exists to suggest that there has been changes in climate from the beginning of the Quaternary to present day?		
The natural causes of climate change – Volcanic eruptions, Earth's orbit, tilt of the earth on its axis and sunspots. The human causes of climate change part– The enhanced Greenhouse effect, fossil fuels, agriculture, industry, urbanisation and deforestation.		
Effects of climate change on different scales, local, national and global.		
Adapting to the effects of climate change – Building design, coastal protection, artificial glaciers and agricultural changes.		
Mitigating the effects of climate change – Carbon capture, afforestation, international agreements and alternative energies.		

We will develop/practise skills including:

- Use maps, graphs, climate data and satellite images to identify patterns and trends.
- Use a range of data and sources to explain weather hazards and climate change.
- Describe how physical and human processes shape weather, climate and environmental change.
- Assess the social, economic and environmental impacts of hazards and the effectiveness of management strategies.
- Use evidence from named examples to support explanations and comparisons.

Some of the vocabulary that we will use includes: Anticyclone, atmospheric pressure, climate, climate change, cold front, convection, Coriolis effect, depression, dew point, drought, eccentricity, enhanced greenhouse effect, eye, eye wall, Ferrel cell, humidity, global atmospheric circulation, Hadley cell, hurricane, ice core, Milankovitch cycles, obliquity, precipitation, Polar cell, precession, Quaternary Period, rain shadow, relief rainfall, storm surge, synoptic chart, warm front, warm sector, water vapour.