St Michael's Church of England High School – Scheme of Learning Overview

Subject: Geography **Year group: 8**

Unit: 3 – Rivers and Flooding

Overview

This topic combines physical, human and environmental geography so is a broad topic area which will enable students to engage in their own interest area. This topic introduces concepts to underpin GCSE units on Landscapes of the UK. Yr 7 topics cover the hydrological cycle which will enable students to understand processes affecting river basins. Yr 9 covers coasts which therefore will enable students to apply geomorphic processes learnt in this unit to the coastal unit, drawing on and consolidating prior knowledge, making links and connections with previous topic areas.

National Curriculum links - understanding geographical processes, interpreting a range of geographical information such as maps, diagrams, aerial photographs, communicating geographical information in a variety of ways, including maps, numerical and quantitative skills and writing at length. Understanding how geographical processes interact to create distinctive human landscapes that change over time, plus the influence of the physical landscape on human processes. Greater competence using geographical models and theories. Skills – interpreting and analysing different data sources. Developing spatial and environmental understanding. Use of ordnance survey maps, grid references, scale, topographical and thematic mapping, aerial and satellite photographs.

Big Ideas:
Place, space and scale – study of different locations of world rivers, case studies of rivers in high income and low income countries around the world. Impact of processes on global and smaller scales for landform features.
Changing physical and human processes – geomorphic processes - weathering, mass movement, erosion, transportation, deposition. Flooding and interrelationships between people and the environment in relation to causes of flooding and flood control.
Interdependence – People's use of physical landscapes and resources. Interrelationships between causes of flooding – physical and human. Flood control.
Environmental impact and sustainability – People's impact on the Planet – causes of flooding. Sustainable approaches to managing flooding.
Cultural understanding, diversity and perspectives – Study of flooding in high income and low income countries around the world and different responses.

Links to Prior and Future learning

KS1&2 – Students should have studied basic physical and human geography involving rivers and the water cycle. This will be enhanced within this unit. Human use of natural resources such as water should have been studied to give a basis for understanding the importance of rivers to people. Basic map skills should have been covered.

This topic combines physical, human and environmental geography so gives a broad coverage within the topic area. Skills can be drawn on from Yr 7 for students to identify features on maps and in photographs and be able to describe them. Students will have been able to compare and contrast differences in high and low income countries throughout the unit of work on tectonics so this should give time for student to give a more detailed extended written response comparing responses to countries.

GCSE – Paper 1 – UK physical landscapes – students study geomorphic processes, rivers and coasts and will complete a case study in the River Wye. This unit therefore will help to underpin key terms and ideas, physical and human processes and landforms which will be covered in greater depth in GCSE. Paper 3 - OS maps and use of photographs and diagrams, graph analysis.

Knowledge Goals

1. To know the meaning of 'geomorphic processes' – weathering, erosion, mass movement, transportation, deposition. To know the meaning of weathering and four main types of weathering. To be able to explain the main processes which lead to the break down of rocks in situ.
2. To know the meaning of erosion. To be able to explain processes of river erosion – abrasion, hydraulic action, attrition, corrosion.
3. To know the hydrological cycle and how inputs, stores and processes operate within a river basin area. To know how these processes are interdependent. To know how humans can impact physical processes and vice versa.
4. To know the main features of river drainage basins and be able to describe them. To know the locations and names of the world's main rivers.
5. To know how a river changes from its source to its mouth. To be able to identify landforms and processes which may occur in the upper, middle and lower course of a river. To know facts about a river in the UK (River Severn or Tees). To be able to identify features of a river on Ordnance Survey maps.

Lesson sequence

1. Geomorphic Processes – weathering, erosion, mass movement, transportation, deposition. Weathering – mechanical (freeze-thaw/frost shattering, onion skin), chemical (acid rain), biological weathering (plants and animals).
2. Erosion in rivers – abrasion, hydraulic action, attrition, corrosion.
3. Hydrological cycle – inputs, stores, outputs. Evaporation, condensation, precipitation, transpiration, surface run-off, groundwater flow, overland flow, infiltration, percolation, ground water, water table.
4. River drainage basins. Source, mouth, tributary, watershed, confluence, channel, estuary, sea/lake. World rivers map labelling.
5. River long profile. Changes from source to mouth. Case study – River Severn or Tees. Use of OS map skills and photographs – grid references, compass points, scale, use of key, identifying physical and human landform features on maps and photographs. Reference to how humans are influenced by and rely on the natural environment.
6. Waterfalls and gorges – landforms of the upper course of a river. Sketch and label features.

6. To know what a waterfall is, how one is formed and know and be able to label the main features of a waterfall. To know and be able to explain how a gorge is created.
7. To know what meanders and oxbow lakes are, be able to label features of these landforms and be able to explain how they are formed. To be able to draw a cross section of a meander.
8. To causes of flooding and be able to categorise these into physical and human causes. To be able to explain at least on physical and one human cause in detail.
9. To know the different effects and responses to flooding. To be able to identify and explain short term and long term solutions to flooding. To understand reasons for the different responses to flooding in high income and low income countries and be able to empathise. To discuss sustainable responses to flooding.
10. To know how to complete a piece of extended written work answering a key question. Key question 'Is flooding worse in rich or poor countries?' Extension 'What are the sustainable solutions to flooding?'
11. Revision, correcting, response, consolidation.
12. End of year exam – tectonics, industry, rivers and flooding.

7. Meanders, oxbow lakes and floodplains – landforms of the lower course of a river. Cross sections (skills)
8. Causes of flooding – physical and human
9. Effects and responses to flooding – case studies. High income country and low income country. E.g. River Severn/Mozambique.
10. As above. Extended writing. Key question 'Is flooding worse in rich or poor countries?' Extension 'What are the sustainable solutions to flooding?'
11. Revision, correcting, responding, consolidation.
12. End of year exam.

Key vocabulary (Tier 2 and 3)

See knowledge organiser:
Freeze-thaw/frost shattering, onion-skin, biological, chemical weathering, mechanical weathering, erosion, transportation, deposition, abrasion, attrition, hydraulic action, corrosion, suspension, solution saltation, traction.
Hydrological cycle, evaporation, condensation, precipitation, interception, storage/stores, infiltration, run-off, flows, transpiration, stemflow, thoughflow, percolation, groundwater, groundwater flow, river/drainage basin, watershed, source, mouth, tributary, stream, channel, confluence, drainage density.
Upper, middle and lower course, v shaped valley, interlocking spurs, steep slopes, vertical erosion, tributaries, gradient, waterfalls, lateral erosion, flood plain, meanders, oxbow lakes, channel
Hard rock, soft rock, erosion, abrasion, hydraulic action, splashback, undercutting, plunge pool, gorge.
Lateral erosion, alluvium, floodplain, silt, meander, oxbow lake, river cliff, current, slip-off-slope or river beach, lateral erosion, inner bank, outer bank.
Urbanisation, deforestation, monsoon, tropical storm, storm surge, surface run-off, saturation.
Short term response or solution, long term response or solution, evacuation, flood warnings, levees, dams, urbanisation, afforestation, demountable, coping stones, embankments,
long-term aid, short-term aid, foreign aid.
Cause, effect, response, HIC, LIC, short term response, long term response, flood prevention/control, levees, embankments, dams, afforestation, deforestation, urbanisation,

Command words:
Identifying, annotating, describing, explaining, comparing, contrasting, summarising, concluding,

Reading/Writing/Numeracy development

Numeracy: Graphs on economic activity – data analysis (pie charts, percentages and proportions). Homework task – data collection and additions. Measurements of farms – hectares/acres conversion and comparison to 'football pitches' etc.

Literacy: Use of Frayer model for important key terms and knowledge organisers for key terms and meanings

Reading of more complex texts, supported reading, classwork comprehension, extended writing

Horrible geography texts –
Literacy homework reading tasks - Wide World magazine

Teaching strategies

QFT strategies – use of task organisers, red and green cards to check progress and understanding, writing frames and sentence openers, modelling tasks and use of model answers, links to prior learning explicitly made, use of knowledge organisers for key terms and meanings, alternative ways to demonstrate understanding – diagrams, mind maps, use of verbal assessment of understanding, use of mini whiteboards for notes, recording of ideas, multi-sensory approaches used to support spoken language – symbols, pictures, models, role-play, use of kinaesthetic learning, careful use of classroom assistants, new learning broken down into chunks, instructions given in small chunks with visual cues, whole class work, paired work, individual work clearly transitioned and explained, group work and paired work to provide positive support and role models, seating arrangements and room layout to support students, use of faculty laptop available for some lengthy written work, use of reading aloud, model reading, students encouraged to speak one at a time and turn take, repeat questions and summarise student responses, key learning points reviewed throughout lesson, contexts given to learning and links or real life examples given, use of Frayer model for focus key terms.

Assessment

Teacher assessed (whole class mark sheets) – formation of waterfalls exam style question. Extended writing task on flooding.

Peer and self assess – class work on river basins, meanders, flooding

Knowledge quiz homework and reading/comprehension homework to be quizzed each lesson and self assessed. Teacher to address misconceptions and inform teaching

Assessed through **end of year exam** – plate tectonics, economic activity, rivers and flooding

Homework

Knowledge organisers – revision for knowledge quizzes
Use of Teams to set homework
Seneca Learning
Research on flooding case studies – use of newspaper articles
Reading and summarising/comprehension – Horrible Geography Books, Raging Rivers
Revision for end of year exam

Cultural/Social/Economic Development	Subject specific information
Knowledge of places around the UK and wider world Link to careers – industry sectors, careers involving geography – flood management Group work activities	O.S. map skills