KESTEVEN AND SLEAFORD HIGH SCHOOL

Geography Scheme of Learning

Year 7– Term 4/Unit 4/ Topic Weather and Climate in the UK

Intent – Rationale

This topic provides opportunity to learn about the key physical processes associated with weather and climate. The UK is used as the example and students will consider factors that affect our climate as well as identifying types of rainfall and clouds and explaining their formation. Students will have their first experience of carrying out and writing up fieldwork by considering the microclimate of the school grounds and deciding where to locate a picnic bench.

Sequencing – what prior learning does this topic build upon?	Sequencing – what subsequent learning does this topic feed into?
• At Primary School students the Geography curriculum requires that students can identify seasonal and daily weather patterns in the United Kingdom and the location of hot and cold areas of the world in relation to the Equator and the North and South Poles. They should also be able to use basic geographical vocabulary to refer to seasons and weather.	• In Y8 the students revisit the Hydrological Cycle and extend their knowledge with more key terms and processes in the Rivers and Flood management unit. • The key terminology learnt in this module about the Hydrological Cycle will be referred to again in the GCSE River Processes topic where we look at flood hydrographs and flooding. At A-level students study the topic of the water cycle and water insecurity which builds on some of this prior knowledge.
What are the links with other subjects in the curriculum?	**What are the links to SMSC, British Values and Careers?**
• Science – the water cycle	SMSC: Spiritual development 2: A sense of enjoyment and fascination in learning about themselves, others and the world around them Spiritual development 4: Willingness to reflect on their experiences – weather diaries and evaluation of fieldwork Careers Gatsby Benchmark 4: a) communication, d) organisation, g) teamwork Careers: Meteorological Office jobs, scientists, geologists, meteorologists, weather forecasters, digital technologist
What are the opportunities for developing literacy skills and developing learner confidence and enjoyment in reading?	**What are the opportunities for developing mathematical skills?**
FROM THE LIBRARY *Weather and Climate*; John Corn-551 *Weather and Microclimate Studies*; Julie Noke-551 *Weather;* Ian Westwall-551 *National Geographic*- Magazine section	• Drawing climate graphs and calculating temperature range and central tendency values (mean, median, mode) of rainfall and temperature figures • Fieldwork write up – students will be presenting data using graphs, bar charts, pie charts to present their findings about the microclimate of the school grounds.

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Geography Scheme of Learning

Year 7 – Term 4 – Weather and Climate in the UK

Intent – Concepts

What knowledge will students gain and what skills will they develop as a consequence of this topic?

Know

The difference between weather and climate
How and why we measure and forecast the weather
The water cycle is a closed system and the physical processes that operate
The types of rainfall and clouds in the UK
What an urban heat island is
How to draw a climate graph
Methods of primary data collection for a fieldwork enquiry

Apply

Knowledge about factors affecting the UK climate in explaining the patterns of the UK climate
Knowledge about how to measure wind speed, temperature and observe shade and aspect
Knowledge about calculating average data and range data when drawing climate graphs
Knowledge about factors affecting microclimate to decide where to locate a school bench in the school grounds

Extend

Compare the climate graphs of London and Plymouth by using comparative terminology
Analyse and compare the microclimate at different sites in the school grounds
Evaluate the enquiry about locating a school bench in the school grounds

What subject specific language will be used and developed in this topic?	What opportunities are available for assessing the progress of students?

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1. Weather 2. Climate 3. Thermometer 4. Anemometer 5. Barometer 6. Rain gauge 7. Relief rain 8. Convectional rain 9. Cumulonimbus 10. Microclimate 11. Urban heat island 12. Altitude 13. Prevailing wind 14. Water cycle 15. Evaporation 16.Precipitaion 17.Condensation 18. Transpiration	Assessment will take 3 main forms: 1. In starters, retrieval practice tasks, plenaries and during the lessons – formative assessment to reinforce prior knowledge e.g., word searches, bingo, memory recall, definition matches etc. 2. For homework - tasks that require students to research new knowledge or apply existing knowledge to extended answers. EG. Weather diary 3. Summative assessments: multiple-choice, one- mark answers, extended answers in test or exam conditions as end-of-unit tests Key word meaning and spelling tests are included as part of the focus on building a knowledge bank of geographical vocabulary.

Intent – Concepts

Lesson title	Learning challenge	Higher level challenge	Suggested activities and resources
Measuring and forecasting the weather.	Can I describe the ways of measuring the weather?	Can I explain why we need to forecast the weather?	Powerpoint 1 Starter – discuss weird weather events Define weather and climate Images and demonstration and discussion of weather instruments. Eg. anemometer, thermometer, rain gauge Geog. 2.3rd edition pages 36-37 Answer questions 4,5,6,7 which allows students to complete the table. Extension: Page 36. Q1,2,3 Brainstorm and clips – what groups of people need to know the weather forecast? Show Met Office clips: https://www.youtube.com/watch?time_continue=78&v=KnkpPWe2A74 https://www.youtube.com/watch?time_continue=79&v=bvwPzaEmZp0 Homework: Weather diary • Use the internet and your own personal observations to complete a 'weather diary' for the next 7 days. You will find information from the Met Office where you can search for where you live. • The BBC weather website has a feature 'Weather for the week ahead' • You can also watch video clips of forecasters

			• Use the weather symbols to help to include information about temperature, precipitation, cloud cover and wind
Hydrological Cycle	Can I use the terms precipitation, evaporation, condensation, surface run off and infiltration in describing the hydrological cycle?	Can I explain the physical processes operating in the hydrological cycle?	Powerpoint 2 Starter: Singing in the rain and weather station symbols to identify Hydrological cycle definition and facts Show clip of the Wate Cycle song and students draw diagram on mini whiteboard and talks to to their partner the processes at work. Draw simple labelled sketch of the hydrological cycle. Page 83. Q2 and Q4 Plenary – without looking what do these words mean? Precipitation, evaporation, condensation, infiltration
Types of rainfall	Can I describe relief rain, convectional rain and frontal rain and give examples of where/when they occur?	Can I explain how and why relief rain, convectional rain and frontal rain form?	Powerpoint 3 • Starter questions: How long does a drop of water spend on average in the atmosphere before falling back to earth? • How long can a drop of water spend in the ocean before evaporating into the air? Explain to partner how it rains Explanation of relief, convectional and frontal rain using slides and clips. https://www.bbc.co.uk/programmes/p00xnpcz https://www.bbc.co.uk/programmes/p00xrchy https://www.bbc.co.uk/programmes/p00xnq2v Students complete labelled diagrams with explanation – see SL for sheet of diagrams Extension tasks: Geog. 2 Third edition Pages 38-39. Q1,3,7 1. Plenary: Name the three types of rainfall? 2. Yorkshire is often in a rain shadow. What does this mean? 3. What direction does most of Britain's rain come from? 4. Why does convectional rain often happen in summer? 5. Why would you expect most rainfall to be convectional at the Equator? Homework: Make up a weather song or rap or write a poem about RAIN! You can work in twos of threes if you would like. It can be on any topic of the weather we have studied so far. ie. Rainfall types, forecasting, types of rain, clouds (you may need to research) Use clip for inspiration https://www.youtube.com/watch?v=kBfaAN_tWW4&safe=active
Extra lesson: Clouds	Can I explain how clouds form?	Can I recognise and compare different types of cloud formations	Powerpoint 4 Starter: What is a nephrologist? William Wordsworth poem – Daffodils – 'I wandered lonely as a cloud' How do clouds form? Recap of hydrological cycle Images and explanation of cloud types on slides Task – complete cloud worksheet Task:Geog.2 3rd edition. Q 4,5,6 Plenary: Cloud quiz to check knowledge – can you name the cloud?

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Climate graphs	Can I draw and interpret a climate graph?	Can I compare two climate graphs and calculate temperature range and mean rainfall?	Powerpoint 5 Starter: Image of London climate graph What is this graph called? What information does it show? Describe what it shows. How might this graph be useful? Task: Explanation of how to draw a climate graph using data of Plymouth from Geog. 2 Third Edition page 46 Answer questions: 1. Complete the drawing of your climate graph for Plymouth using the information on page 46 in Geog. 2 3rd edition. 2. Calculate the average (mean) temperature by adding up all the months temperatures, then divide your result by 12. 3. Are any months the same temperature as the average? 4. What was the range of temperature? (The difference between the highest and lowest temperature) 5. What was the average (mean) rainfall? 6. What was the range of rainfall? 7. Extension: complete question 3 pages 46-47 of the textbook. Plenary: Compare your climate graph with the one of London on page 47. a) Which one gets more rain? b)Which one is hotter in summer? c) Which one is colder in Winter? Can you explain reasons why? What factors do you think influence the UK climate?
Factors affecting the UK climate	Can I describe factors that influence the UK climate?	Can I explain factors that affect the UK climate?	Powerpoint 6 Starter: Show images of the week Britain froze - what?where? when? Who? Why? https://www.youtube.com/watch?v=oCTW0NmAH8E (Beast from the East) Use slides and Geog. 2 4th edition pages 48-49 to explain the factors that affect the UK climate. eg. latitude, tilt of the earth, distance from the sea, ocean currents, altitude Task: 1) On plain paper produce a poster explaining the different factors that affect the UK climate. Include brief notes on: • Latitude • Tilt of the earth • Distance from the sea • Altitude • Ocean currents • Prevailing wind direction.

			Make it as clear as possible with sketches and colour to help you remember facts! Extension: In pairs write a script explaining the different things (factors) that affect the UK climate. Role 1 – School child in Y6 interested in weather! Role 2 – Weather expert Consider the ideas from the poster that you have drawn and write a short script. Use good 'geographical' words!
Urban Heat Island	Can I describe what a heat island is and how people are affected by living/working there?	Can I suggest some creative ideas for limiting problems caused by an urban heat island?	Powerpoint 7 Starter: Starter: Living graph exercise. Read the statements below. Decide where they should be placed on your climate graph of Plymouth Show an urban temperature graph and describe Brainstorm - Why do urban areas have higher temperatures? Define urban heat island and microclimate Why temperatures in cities are higher than in rural areas? https://www.youtube.com/watch?time_continue=158&v=t-sXHl3l-rM up to 2:18 Task: (Skills) Draw a cross section of an urban heat island – see worksheet Plenary: Study the image. Write down what has been done or could be done to reduce the heat island effect?
Fieldwork enquiry (3 lessons in total)– data collection for microclimate in the school grounds	Can I independently collect data in the school grounds to help me find the best site for a picnic bench?	Can I pose an enquiry question about microclimates in the school grounds and collect appropriate data to support this?	Powerpoint 8/9 Explanation and discussion of fieldwork including data collection methods using powerpoint Explanation of key questions and hypothesis Students provided with maps, equipment (anemometer, compass and thermometer) and data collection sheets and they locate 5 sites before carrying out fieldwork in groups.
Fieldwork – write up for microclimate in the school grounds	Can I present my data using an appropriate method and begin to analyse it?	Can I present my data using an appropriate method and analyse and evaluate the enquiry?	Powerpoint 8/9 Writing up of fieldwork by producing bar charts, annotated photos and proportional symbols on maps. Discussion of evaluation – www/ebi of fieldwork
Assessment	Students will be assessed on their fieldwork reports. They will also be completing a key word knowledge test.		