


# Weather and Climate





A Programme of Study for Year 8 Geography  
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## Weather and Climate

This Scheme of Work has been written by Humanities teachers at Quintin Kynaston School with an emphasis on achieving understanding of the subject rather than simply a drive to complete a syllabus. It is designed for our multi-cultural student body spanning a range of abilities. Wherever practicable we prepare **Differentiated Resources** (indicated by a ) for students with Special Needs, those who are early English learners and for gifted and talented students. Further work is in hand on

these. We also take into account National Strategies: specific tasks are indicated by  for **Literacy**,  for **Numeracy** and  for **Information Technology**. Topics supporting **Citizenship** are marked . This Scheme of Work will be reviewed and revised in due course.

October 2003

Key Question	Learning Objectives	Key Vocabulary	Suggested Activities	Resources	Homework
What do we mean by weather and climate?	<ul style="list-style-type: none"> <li>To state the elements of weather and climate</li> <li>To distinguish between the two terms</li> <li>To use descriptive terms to describe the weather.</li> </ul>	Atmospheric Pressure Climate Humidity Meteorology Precipitation Temperature Visibility Weather	Connect descriptive term to correct element of weather and climate. The Balloon Game.	Key Geography Foundations Worksheet Dice Cardboard	Fill in Weather Diary on sheet provided.
How is a weather map constructed?	<ul style="list-style-type: none"> <li>To define a weather symbol</li> <li>To list what features are used to show the weather</li> <li>To construct a weather map</li> </ul>	Drizzle Hail Sleet Symbol	Construct a weather map using given symbols.	Worksheet	For the lesson, find out meaning of the terms latitude and altitude and why they are important in Geography.

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How does latitude affect temperature?	<ul style="list-style-type: none"> <li>To define latitude</li> <li>To describe the variation of temperature with latitude</li> <li>To explain why places with different latitudes have different temperatures</li> </ul>	Equator Latitude Poles	Draw diagram on the board depicting rays of the sun incident at the Equator and the Poles. Students copy diagram onto Worksheet.	Worksheet Torch Globe Atlas	Dispersion diagram of latitude against mean July temperature for selected cities (sheet provided).
How does altitude affect temperature?	<ul style="list-style-type: none"> <li>To define altitude</li> <li>To describe the variation of temperature with altitude</li> <li>To explain why places with different altitudes have different temperatures</li> </ul>	Altitude Atmosphere Sea Level	Say why it is difficult climbing a high mountain (breathlessness, shortage of oxygen). Say what equipment mountain climbers and astronauts take with them (oxygen cylinders). Draw on the board diagram depicting rays of the sun incident at sea level and at high altitude, and their absorption into the atmosphere. Students copy onto Worksheet.	Worksheet	Dispersion diagram of altitude against mean July temperature for selected cities (sheet provided).

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How do land and sea differences affect temperature?	<ul style="list-style-type: none"> <li>To state which of land or sea heats up and cools down quicker</li> <li>To explain why land and sea differ in their rates of heating and cooling</li> <li>To explain why interior and coastal locations differ in their summer and winter temperature regimes</li> </ul>	Coastal Interior Opaque Transparent	Draw diagram on the board depicting rays of the sun incident on land and sea in the winter, with a wind flowing from the cool land to the warmer sea. Students to copy onto Worksheet.	Worksheet	Dispersion diagram of distance from the coast against mean July temperature for selected cities (sheet provided).
How do seasonal differences affect temperature?	<ul style="list-style-type: none"> <li>To name the four seasons</li> <li>To explain why there are seasons</li> <li>To explain why temperatures vary with season</li> </ul>	Equinox Hemisphere Solstice	Using two spherical objects (tennis ball and globe), teacher demonstrates the apparent movement of the sun around the Earth: it is not in a flat plane. Draw diagram on the board depicting the Earth and sun in the summer solstice, equinox and winter solstice positions. Students to copy onto Worksheet	Worksheet Tennis ball Globe	Pattern between June, March/September and December temperatures for selected cities that lie near the Tropics and the Equator

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How does aspect affect temperature?	<ul style="list-style-type: none"> <li>To define aspect</li> <li>To describe how temperature varies with aspect</li> <li>To explain why places with different aspects have different temperatures</li> </ul>	Aspect Hemisphere	Teacher places model hill on table and explains that a torch (representing the sun) will be shone on both sides of the hill (facing, and away from, torch). Students to speculate which side will have the higher light reading. Then one student shines torch on both sides of the hill while another holds the sensormeter and a third records readings on board.	Worksheet Torch Model of hill Light level SensorMeter	To prepare for next lesson, draw diagrams to represent the different types of cloud and place them in order of thickness (which would let most sunshine through?)
How does cloud cover affect temperature?	<ul style="list-style-type: none"> <li>To define cloud cover</li> <li>To describe how temperature varies with cloud cover</li> <li>To explain why places with different cloud cover have different temperatures</li> </ul>	Cloud Cover Insolation	Teacher suspends cotton wool layer (representing cloud) above the table and explains that the torch ("sun") will be shone on table through the cotton, and directly. Students to speculate on which side will have the higher light reading. Then one student shines torch on both sides while another holds the sensormeter on both sides (under the "cloud" and directly onto table) and a third records readings on board.	Worksheet Torch Cotton wool Light level SensorMeter	In preparation for next lesson, find out the meaning of the term urbanization and list the main materials to be found in an urban area.

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How does urbanization affect temperature?	<ul style="list-style-type: none"> <li>To define urbanization</li> <li>To describe how temperature varies with urbanization</li> <li>To explain why places of different degrees of urbanization have different temperatures.</li> </ul>	Radiation Urbanization	Draw diagram on the board depicting the heat being given off by the CBD, suburbs and countryside parts of a city. Students copy onto worksheet, fill in blanks with and without answer sheet (answers in mixed up order).	Worksheet Answer sheet	To prepare for next lesson, find out what ocean currents are and what causes them to flow.
How do ocean currents affect temperatures?	<ul style="list-style-type: none"> <li>To define ocean currents</li> <li>To describe how temperature vary with ocean currents</li> <li>To explain why places with different ocean currents have different temperatures</li> </ul>	Cold Current Equator Poles Warm Current	Using p. 117 of the Atlas, students draw on the worksheet some warm ocean currents in red and in blue some cold currents in blue and name them.	Worksheet (map) Collins Longman Atlas	Comparison between temperatures of towns/cities adjacent to warm and cold ocean currents (sheet provided).