5: Weather and climate

Syllabus ref.	Learning objectives	Suggested teaching activities
2.4 Weather	Describe how weather data is collected	Learners define the term 'weather' and draw a mind map of weather elements from observation and using clips of weather forecasts or photographs (see: **www.bbc.co.uk/weather/**).
		Learners to understand how the weather is measured – draw a fully labelled diagram and description of the weather instruments shown in the syllabus and how they are used to measure each aspect of the weather. Include siting factors as appropriate and the optimum site for each instrument – learners should be able to explain the site for each instrument. Illustrate a method for identifying cloud types and the amount of cloud – use practical observation skills to practise the method and identify cloud type. Learners conduct independent research to draw sketches or print photographs of different cloud types and write a description for each one. Learners could also keep a daily record of cloud type and cover from observations. **(I)**
		Show examples of instruments if available and provide opportunities for learners to record elements of the weather using them – for example, keeping a daily weather diary. **(I)**
		Fieldwork opportunity: observing the weather, using simple instruments to measure and record weather over a period of time.
		Introduce the idea of a Stevenson Screen (**http://en.wikipedia.org/wiki/Stevenson_screen**) – show if you have one in school – or show photographs/sketches. Learners annotate a diagram to show a Stevenson Screen, its characteristics and their purpose and how it is used. Learners describe and explain the siting of a Stevenson Screen and how this helps to ensure accurate readings. **(I)**
		Follow up with a decision-making exercise – provide a sketch map of various sites around school. Learners work in pairs to decide where to site the Stevenson Screen – mark location on the map and write up notes to explain their choice.
		Could be done as a practical activity with learners observing characteristics of each site in the field.
		Provide examples of simple digital instruments that can be also used to measure the weather – learners complete a card sorting activity to show the advantages and disadvantages of using digital instruments for weather observations. Record ideas in a table.
		The following links will be useful here: Climate: **www.bbc.co.uk/schools/gcsebitesize/geography/weather_climate/climate_rev1.shtml**

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		Weather and climate: **www.geography.learnontheinternet.co.uk/topics/weather.html**
	Make calculations using information from weather instruments	Learners either use data that they have collected themselves or secondary data provided by the teacher about elements of the weather. Work in pairs to analyse the data (describe trends) and make calculations such as annual total, daily total, mean, median, mode, range, maximum, minimum, etc.
	Use and interpret graphs and other diagrams showing weather and climate data	Learners use either their own data or secondary data to draw graphs and diagrams of weather data. Describe what each graph shows – looking for trends, giving evidence, identifying anomalies. Include graphs/diagrams such as bar graphs, line graphs, scattergraphs, wind rose, dispersion graph, isolines maps, radial graphs, etc. **(I)** Scattergraphs can be used to show relationships between different types of weather – for example, precipitation and air pressure – learners describe the relationship. Introduce the term 'climate' and update key word glossary – ensure learners can state the difference between weather and climate. Introduce the skill of constructing a climate graph – learners produce an accurate climate graph using climate data for the place where they live. **(I)** Follow up with questions to analyse – for example, minimum and maximum, annual total, range, annual distribution of rainfall and temperature, etc. **(I)** – this could be done as a true/false activity (see Appendix: True/False) for assessment for learning. Living graph activity – learners place labels at points on the climate graph to test their understanding.
2.5 Climate and natural vegetation	Describe and explain the characteristics of two climates: equatorial and hot desert. Describe and explain the characteristics of tropical rainforest and hot desert ecosystems.	Learners name hot deserts on a map using an atlas. **(I)** Describe the distribution of hot deserts from the map. Provide climate data – learners use this to draw and analyse a climate graph for a case study area of hot desert. **(I)** Whole class presentation to explain the factors affecting the hot desert climate (i) in general (ii) highlight those specific to case study region – learners write up as a report with appropriate labelled diagrams. Introduce the term 'ecosystem' and associated key words (see: **www.geography.learnontheinternet.co.uk/topics/ecosystem.html** and **www.s–cool.co.uk/gcse/geography/ecosystems**). Learners label a food web for a hot desert – answer questions to explain the links between different parts of the food web. **(I)** Link to case study region. Provide a simple soil profile – learners explain the link between the soil type and the ecosystem. Learners work in pairs to analyse photographs to identity how vegetation and animals have adapted to the hot desert climate and produce annotated sketches to explain how the adaptation helps them to survive. Explain the limitations of desert soil for plant