

Year 6 – Mr Jennings and Mr Caldwell

Geography – The Mountain Environment

The mountain environment, together with mapwork and other skills.

This unit is based on QCA Unit 15.

ABOUT THE UNIT

This is a 'long' unit that encourages children to investigate, through research, other places in the UK, Europe and further afield that share a similar physical environment. It builds on earlier work, *eg studying a contrasting locality*. It is a challenging unit suitable for older children and easily extended for more able children who can study the complex relationships between the elements.

Children, working in groups or individually, will need to use a range of resources, which could include textbooks and pictures as well as CD-ROMs and the internet. The unit offers opportunities for children to follow up much of the research in their own time.

The unit may be shortened to a 'medium' unit by leaving out the final sections.

The unit offers links with literacy, mathematics, IT, speaking and listening, and environmental education.

PLACES

- Widening range of scales
- Patterns
- Wider context
- UK locality
- Overseas locality
- Physical and human features
- Similarities and differences
- Effect of features on activities

SKILLS

- Observe and question
- Collect and record evidence
- Analyse and communicate
- Use geographical vocabulary
- Use globes and atlases
- Identify places on maps A, B & C
- Use secondary sources
- Use ICT

THEMES

- Weather: microclimates, seasons, world weather
- Settlement: land use issues
- Environment: impact, sustainability

VOCABULARY

In this unit, children are likely to use:

- environment, mountain, landscape, weather data, season, blizzard, avalanche, snowstorm, snowdrift, tourism, litter, erosion

They may also use:

- safety procedures, whistle

RESOURCES

- globe, maps, atlases
- pictures of different environments
- books about mountain environments
- primary geography texts
- CD-ROMs (*The Big Picture* and *The Mountain Book*)
- internet weather services
- web sites about mountain environments

PRIOR LEARNING

It is helpful if the children have:

- studied contrasting places, as in Units 10 and 13, for example
- some experience of using secondary sources to find out a range of information

EXPECTATIONS

at the end of this unit

most children will:

describe varying weather conditions in the world and understand how these influence the way in which the area is developed; use a wide range of resources to find out information

some children will not have

made so much progress and will:

relate the questions posed to one mountain environment, *eg the Lake District*; show more limited understanding of the impact of the global scale; access information using ICT with teacher support

some children will have

progressed further and will also:

find a range of source materials and plot detailed, sophisticated weather information; show a better developed understanding of the links between cause and effect

FUTURE LEARNING

This unit provides a foundation for further studies of landforms, climate and environments in geography at key stage 3.

LEARNING OBJECTIVES	POSSIBLE TEACHING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE
CHILDREN SHOULD		CHILDREN	
What is a mountain environment?			
<p>1. learn how to complete a KWL chart with others</p> <p>2. recall and reflect on existing knowledge</p> <p>2. identify some important characteristics of a mountain environment</p>	<p>SECTION 1</p> <p>What do we know already? (Activation of prior knowledge)</p> <ul style="list-style-type: none"> • What are mountains? (mountains as a landscape feature; within the domain of geographical study; dictionary definition) • KWL group activity (reference Y5 Lake District study): what do we already know about mountainous areas? what might we learn about mountainous areas? • What is the nearest mountain to us in Nottingham? <p>SECTION 2</p> <p>Features of environments (<i>The Big Picture</i> e-book images available; internet)</p> <ul style="list-style-type: none"> • discussion: what are some examples of landscape features (to include natural and man-made features) • Ask the children to look at pictures of different kinds of environments and identify the varying features of each type of environment. In pairs: list features of mountain environment and another type of environment <ul style="list-style-type: none"> • more than one other type of environment • plenary feedback: share features of mountain environment; report features of "their" other environment(s) • <i>The Big Picture</i> activity sheet AS1: features of mountain landscape 	<ul style="list-style-type: none"> • complete KWL chart • list features of different types of environments and specifically a mountain one • contribute to discussion and report about the environment(s) investigated • complete labelling task 	<p>Resources</p> <p>Dictionaries</p> <p>(internet access: google: "define: mountain" or "what is a mountain")</p> <p>Pictures of different environments</p> <p>The Big Picture: Mountains (BBC book and CD-ROM)</p> <p>Mountains and mountain ranges (Teacher's information and suggested activities pp 4-5; activity sheet AS1: A mountain landscape; e-book page; additional websites)</p> <p>Internet</p> <p>Photos of mountain environments: http://www.icteachers.co.uk/photos/mountains.htm http://www.icteachers.co.uk/photos/snowdon.htm</p> <p>introduction to environments http://www.globio.org/glossopedia/environment/</p>

LEARNING OBJECTIVES	POSSIBLE TEACHING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE
CHILDREN SHOULD		CHILDREN	
Where are mountain environments found?			
<p>3. learn to interpret land height information on maps, atlases and globes</p> <p>4. about the world distribution of major mountain areas</p>	<p>SECTION 3 Mountains, hills and maps (c.f. <i>The Mountain Book</i> pp 6; worksheet: <i>What are mountains</i>)</p> <ul style="list-style-type: none"> • Discuss with the children the difference between a hill and a mountain. • How mountains, hills, valleys etc. are shown on maps: shading (c.f. OPA pp 6-7); contours (c.f. OS maps of Nottingham area) • Ask the children to name and locate the main world mountain areas (OPA pp 6-7) and record these on an outline map of the world or <i>The Big Picture</i> sheet AS 7 <ul style="list-style-type: none"> ➢ ditto mountain areas in the British Isles ➢ ditto mountain areas in a country of their choice <p>subsequent follow-up if there is time when group is in the computer room they can explore mountainous areas in the world on the following site: http://www.peakware.com/encyclopedia/zoom.htm</p>	<ul style="list-style-type: none"> • identify land height from maps etc. • record the global distribution of major mountain areas on a blank map • record the distribution of mountain areas in the UK 	<p>Resources</p> <p>Globe, Oxford Practical Atlases (OPA), selection of other atlases, OS maps etc</p> <p>The Big Picture: Mountains (BBC book and CD-ROM) Mountains of the world activity sheet AS7</p>

LEARNING OBJECTIVES	POSSIBLE TEACHING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE
CHILDREN SHOULD		CHILDREN	
What are these places like?			
<p>5. know about the features of Snowdonia</p> <p>6. make notes from information on the internet and text</p>	<p>SECTION 4a Finding out about Snowdonia</p> <ul style="list-style-type: none"> Ask children: what do we need to find out in order to say "we know about what Snowdonia is like"? Children find out about Snowdonia by using the websites: http://www.eryri-npa.co.uk/page/screen.php?nav1=education&nav2=54&nav3=1&nav4=1&nav5=1&level=1&lang=eng and http://www.ccw.gov.uk/kids/dsp_snowdonframe.cfm <p>They should make notes about: what the place is like, where it is, what the landscape is like, animals and plants in the landscape, what people do in the area</p> <ul style="list-style-type: none"> ➤ Ask children to read and make notes on the Andes (under the same headings as above) using the text and pictures of the <i>Natividad and Toledo</i> website: http://www.dundee.ac.uk/psychology/N&TE/index.html show <i>Flight over Snowdon</i> video (18 minutes) 	<ul style="list-style-type: none"> investigate features of Snowdonia use secondary sources use ICT to access information 	<p>ICT: use of CD-ROMs or the internet to gather information. Main resource will be Snowdonia National Park Authority website: http://www.eryri-npa.co.uk/ and the "projects" section in the "kids" part of the Countryside Council for Wales site: http://www.ccw.gov.uk/kids/dsp_snowdonframe.cfm</p>
<p>7. know about the individual character of contrasting mountain environments</p> <p>8. use a range of material to provide evidence of their findings</p>	<p>SECTION 4b</p> <ul style="list-style-type: none"> Divide the class into small groups and ask each group to investigate a mountain environment, eg <i>the Austrian Alps (Goetzers)</i>, <i>the Himalayas (Katmandu)</i>. They should think about: <ul style="list-style-type: none"> what the place is like, where it is, what the landscape is like and what people do in the area They should use sources like pictures, maps, artefacts, CD-ROMs and the internet. ➤ investigate a further mountain environment 	<ul style="list-style-type: none"> investigate how mountain environments are similar and different in nature across a range of places and scales use secondary sources use ICT to access information 	<p>Literacy: children can revise their research skills through this activity, eg by <i>evaluating the usefulness of a variety of resources, including texts, newspapers, CD-ROMs and the internet</i>. Children can develop their library research skills through these activities by using an index, resource lists and inventories. They should be encouraged to reflect on the usefulness of different ways of recording the information collected.</p> <p>ICT: use of CD-ROMs or the internet to gather information. Main resource will be <i>Mountains Book</i> CD-ROM/website</p>

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CHILDREN SHOULD		CHILDREN	
What are these places like? continued			
<p>9. make a clear presentation of their findings in an appropriate way, using ICT where appropriate</p> <p><i>See ICT Unit 6A Multimedia Presentation for objectives related to creating a presentation using ICT</i></p> <p><i>See Literacy planning for objectives related to creating a non-chronological report.</i></p>	<p>SECTION 4c cross-curricular elements</p> <ul style="list-style-type: none"> • groups create a Powerpoint presentation of their findings • groups give their presentations to the rest of the class • Individuals or pairs write a non-chronological report about the mountain area they have researched. 	<ul style="list-style-type: none"> • create a presentation and a well organised non-chronological report 	<p>ICT: use of Powerpoint presentation software.</p> <p>Speaking and listening: when making their presentations, children can think about how to use salient detail or striking examples.</p> <p>Literacy: children plan and write a non-chronological report to present their findings.</p>

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CHILDREN SHOULD		CHILDREN	
How were mountains/mountain ranges formed? Are they changing?			
<p>9. learn how mountains are formed</p> <p>10. link cause and consequence in relation to how the landscape of mountain environment continues to change</p>	<p>SECTION 5 (c.f. <i>The Mountain Book</i> pp 7-9; worksheets: 2a/2b <i>What are mountains</i>; pp 10-11 and 12-15)</p> <ul style="list-style-type: none"> • Ask children to name some of the mountain regions they have studied; recall some of the features of these areas. • Ask: What caused the land to be shaped like this? Has it always looked like this? Is it changing? • display the following site on the interactive whiteboard and explore some of the links to explain how mountains were formed: http://www.mountain.org/education/subexplore/explore02.cfm • show the BBC Mountains and Coasts video programme 1 (20 minutes) <i>Focus: what/who has shaped the landscape</i> • while they are watching the video ask the children to create a concept map (or complete a concept complete or a chart) showing cause and consequence in relation to the formation of the mountains in Snowdonia and 	<ul style="list-style-type: none"> • complete a chart or concept map 	

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CHILDREN SHOULD		CHILDREN	
How does the weather compare in each of these places?			
<p>11. interpret weather data from sites at different altitudes on Snowdon</p> <p>12. predict and hypothesise in relation to weather at different altitudes on Snowdon</p> <p>13. interpret information presented as graphs</p>	<p>SECTION 6a</p> <ul style="list-style-type: none"> • use the internet to look at weather data for Snowdon http://www.fhc.co.uk/weather/current/ • record current weather for, Snowdon summit (1085m), Clogwyn station (770m) and Llanberis (105m) • discuss: what would you expect to find if you looked at the weather data for other times of year? what patterns would you expect to notice when comparing weather at Snowdon summit (1085m), Clogwyn station (770m) and Llanberis (105m) in different seasons in the year? • remind children how to load data and use MS Excel to create a graph from a set of data • ask children to produce a range of graphs • discuss graphs especially in relation to the children's hypotheses/expectations • ask children to note six facts about the data they think are the most important • discuss WHY conditions change with altitude and why weather is very changeable on mountains: height (-5 °C per 1000m; aspect – steepness of slopes creating shaded areas; stronger winds higher up) c.f. The Big Picture pp 26-27 	<ul style="list-style-type: none"> • investigate weather data at different altitudes in the same locality • use ICT to access and process information 	<p>IT: use of the internet to gather information on weather.</p> <p>The Big Picture: Mountains (BBC book and CD-ROM)</p> <p>Mountains weather (Teacher's information and suggested activities pp 26-27; activity sheet AS8: Danger on the mountain)</p>

LEARNING OBJECTIVES	POSSIBLE TEACHING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE
CHILDREN SHOULD		CHILDREN	
How does the weather compare in each of these places? continued			
<p>14. find relevant data and present it in suitable ways</p> <p>15. understand the effects of varying weather conditions on different types of human activity</p>	<p>SECTION 6b (c.f. <i>The Mountain Book</i> pp 16-23; worksheets: 7a-7g)</p> <ul style="list-style-type: none"> • What do the groups remember about the mountain environments they researched? • Look at and discuss <i>The Big Picture: Mount Kilimanjaro</i> (see <i>The Big Picture</i> pp 13-14) • Ask each group “re-visit” their area and produce a set of weather data for their location, plotting the data on a graph and analysing the results. If possible, ask the children to find out the weather data for each environment on the day of the lesson from the weather services on the internet. <ul style="list-style-type: none"> ➢ ditto for a further location • Discuss with the whole group the similarities and differences between the weather in each of the environments. • Consider this in relation to the global position of the place (especially in relation to distance from the equator) • Discuss with the children what the weather would be like in a different season and consider what specific weather conditions are associated with these places, eg <i>blizzards, snowdrifts, avalanches, floods</i>, and the effects they have on human activity. 	<ul style="list-style-type: none"> • find relevant data and present it in suitable ways • understand the effects of varying weather conditions on different types of human activity 	<p>Literacy:</p> <p>Mathematics: when children plot and analyse weather data on graphs, there are links to collecting, representing and interpreting data.</p> <p>IT: use of the internet to gather information on weather.</p>

LEARNING OBJECTIVES	POSSIBLE TEACHING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE
CHILDREN SHOULD		CHILDREN	
What effect does the environment have on life?			
<p>16a. show understanding that varying weather conditions can have a significant impact on life in an area</p> <p>17. know some of the key factors that affect the types of plants that grow at different altitudes on mountains.</p>	<p>SECTION 7a: plant life in mountain environments (c.f. <i>The Mountain Book</i> pp 24-25; worksheet:11&12)</p> <ul style="list-style-type: none"> • discuss the kinds of things the children found to be growing in the mountain environments they studied • did they spot any patterns in the kind of things growing in relation to altitude • read <i>The Mountain Book</i> pp 24-25 (alternatively use interactive whiteboard to display http://www.panda.org/news_facts/education/middle_school/habitats/mountains.cfm focussing on mountain ecosystems and the associated graphic) • worksheet <i>Vegetation in mountain environments</i> could be used 		<p>Science: this unit relates closely with units in Science Unit 6A : Interdependence and adaptation</p>
<p>16b. show understanding that varying weather conditions and the vegetation can have a significant impact on life in an area</p> <p>19. identify some typical adaptations of animals that live in mountain environments.</p>	<p>SECTION 7b: animal life in mountain environments (c.f. <i>The Mountain Book</i> pp 26-27; worksheet:13)</p> <ul style="list-style-type: none"> • did the children notice anything about the kinds of animals which live in the mountains • read <i>The Mountain Book</i> pp 24-25 (alternatively discuss information sheet Living in the mountains and picture sheet mountain life) key question: How are mountain animals adapted to the harsh climate in which they live? Further information is on website: http://www.panda.org/news_facts/education/middle_school/habitats/mountainlife.cfm [difficult reading!] • ask children to design an animal to live in a mountain environment adding notes about, for example, its size, coat, colouration, diet, habits. 		<p>Science: this unit relates closely with units in Science Unit 6A : Interdependence and adaptation</p>

LEARNING OBJECTIVES	POSSIBLE TEACHING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE
CHILDREN SHOULD		CHILDREN	
What effect does the environment have on life? continued			
<p>16c. identify ways in which people's lives are affected by living in a mountainous area</p> <p>20. evaluate in relation to reasons for people choosing to live in mountain regions</p>	<p>SECTION 7c: people's lives in mountain environments (c.f. <i>The Mountain Book</i> pp 28-41; worksheets:13-20)</p> <ul style="list-style-type: none"> • 10% of people live in mountainous areas • Key questions: <i>Why might people want to live on a mountain? What would you miss most if you lived in a mountain village?</i> • discuss how people's way of life is affected by living in mountainous areas – consider how their homes, clothes, the kinds of jobs they do may be affected • <i>The Big Picture</i> worksheet AS 6 prioritisation activity 		
What would I need to do to plan a camping holiday in this area?			
<ul style="list-style-type: none"> • use the knowledge they have gained about weather conditions and the local environment to plan a camping holiday to the area 	<p>Section 8 (cf <i>The Mountain Book</i> pp 44-45 <i>The Big Picture</i> pp 26-27, 35-36 worksheets AS 5a & AS 8)</p> <ul style="list-style-type: none"> • Ask the children to plan a camping holiday to one of the areas. Ask them to consider questions like: <i>How would we travel there? What sort of equipment would we need? What would we have to watch out for? What safety precautions would we need to take? How could we find out about local weather conditions?</i> • Ask the children to draw a poster to warn people of the dangers they might face in the area. 	<ul style="list-style-type: none"> • how the environment affects the nature of human activity 	<p>Environmental education: safety in upland areas.</p>

Andes information (to compliment Natividad):
<http://www.blueplanetbiomes.org/andes.htm>