PEAK DISTRICT NATIONAL PARK
LEARNING & DISCOVERY TEAM
TEACHERS NOTES
CARBON AND WATER CYCLES – A STUDY OF PEATLANDS

Age range: A-Level	**Duration:** 10.30 – 15.00	**Available:** September to February
Locations available: North Lees Estate (near Sheffield)		

An investigation into the role peat and moorland play in the global carbon and water cycles and the way in which they help to mitigate the effects of climate change.

Students will:

- Have a safe, fun and enjoyable experience in the Peak District National Park, and understand that the Peak District National Park exists because of its special, valued characteristics.
- By the end of the visit students will understand how peat is a significant carbon and water store and how carbon and water flow in and out of a peatland and how to calculate their importance.
- Students will have an experience of different data collecting techniques, using quadrats, plant ID keys, and using various meters and pH tests. They will collect data of soil/peat depth for statistical analysis, with consideration of limitations and evaluation of techniques

Important Notes for this Programme:

Clothing and footwear: As this programme is only available outside of the breeding season for ground-nesting birds, it is important that students (and staff) come dressed for and prepared to be outside all day in potentially wintery conditions. The terrain for this day is both rough and very boggy in places, and the weather can change quickly in an upland environment. All participants must have sturdy footwear/wellingtons, warm clothing and spare layers. See our pre-visit guidance for more details.

Lunch: will be taken on route at a suitable location. Please note there are **no toilets available** so a toilet stop is advised before arrival and the **mobile phone reception is very poor**.

We strive to make our visits accessible to all. Days can be tailored to your group's needs. While many of our sites are accessible to people with limited mobility, we advise you to discuss your particular needs with us before booking.

Main Curriculum Links:

Geography fieldwork investigation and geographical skills - provides contextualized learning in inspiring real world environments to develop geographical understanding.

- AQA - 3.1 Physical geography; 3.1.1 Water and carbon cycles. 1.5 Qualitative and quantitative skills
- OCR - 1.2 Earths Life Support Systems – the importance of water and carbon to life on Earth.
- Edexcel – Topic 6 The carbon cycle and Energy Security 6.2,6.3 climate change, 6.9 role of peatlands.
- Eduqas – 2.1 Global systems water and carbon cycles

<table>
<tr><th>Key Learning Objectives
Students should learn ….</th><th>Learning Outcomes</th></tr>
<tr><td rowspan="3">How peat is a significant carbon and water store
Carbon and water flow in and out of a peatland and how to calculate their importance.
The physical and chemical factors affecting the distribution of moorland plants and they role they play in maintaining the health of the ecosystem
The concept of carbon and water cycles on a local and global level through an ecosystem
That ecosystems are affected by human activity and are carefully monitored and managed.
Different data collecting techniques, using quadrats, ID keys, using various meters and pH tests.
Collecting data for statistical analysis, limitations and evaluation of techniques
Thinking Skills – All activities promote independent enquiry, creative thinking, team working and effective participation</td><td>All students will be able to:
Using various data collection techniques for practical fieldwork, transects, quadrats, measuring tapes, ID keys etc
Using meters and Apps to measure abiotic parameters
Have opportunity to discuss and understand the importance of peatlands an there role in the carbon cycle.</td></tr>
<tr><td>Most students will be able to:
Sampling methods, random, systematic or stratified
Discuss that sustainable management is needed to conserve and enhance peatlands.</td></tr>
<tr><td>Some students will be able to:
Understand the connection between the local and global carbon cycle and links to climate change.</td></tr>
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Assessment for Learning
Learning will be continually assessed throughout this programme through questioning, observation, and discussion to check and compare results

Ideas for Extending Learning Before / After the Visit

- Before your visits have a look at these short film clips:
  Working Together: Moors for the Future Partnership
  Blanket bogs are worth protecting – Cleaner water
  Blanket bogs are worth protecting - Tackling climate change

  The Peak District and South Pennine moors - remarkable places on your doorstep and
  Peak District National Park Authority – Corporate Strategy: Landscape

- Fact sheets and free ID guides at moorsforthefuture.org.uk/our-resources

Contact Details: 01629 816 373 Learning.discovery@peakdistrict.gov.uk