


TOPIC: Peatlands and Land use SOCIAL SCIENCE	P5- 7
<p>This lesson will teach the students what land use means and the different ways in which we can manage peatlands for our use. The pupils will research some of the most popular land uses in Scotland and make power point presentations on their positives and negative implications for peatlands.</p> <p>When researching pupils, will learn how to identify credible sources of information and understand many sources may be biased.</p>	
LIT 2-04a LIT 2-06a LIT 2-09a LIT 2-10a LIT 2-13a LIT 2-14a LIT 2-15a LIT 2-18a	SOC 2-01a SOC 2-08a SOC 2-08b SOC 2-15a
<p>Learning Intention: We are learning to create a powerpoint and present them</p> <p>Success Criteria</p> <p>I can use the internet to research information on a topic</p> <p>I can identify if a source of information is trustworthy or not</p> <p>I can identify which pieces of information are relevant to my aim</p> <p>I can communicate the information I find to others through a powerpoint</p> <p>I can describe what the term ‘land-use’ means</p> <p>I can give examples of land-uses of peatlands in Scotland</p> <p>I can list the positive and negative impacts of one peatland land-use</p>	
Key words Peatlands Land use Credible	Other – SDGs, UNCRC, Digital Skills 

TEACHER NOTES

Peatlands

- Peatlands are a type of wetland
- Peat is a soil that is very carbon rich, because a healthy peatland is waterlogged, and so dead plants don't fully decompose like they would in your compost.
- Because of this, more organic matter is made than breaks down, so the peat grows – at a rate of 1cm every 10 years! In some areas of Dumfries and Galloway, our peatland is 8 or 9m deep, meaning it has been forming for 8000 or 9000 years (since the last ice age).

Peatlands and Land use

Land uses that pupils can choose from are:

Farming
 Game Keeping
 Peat Cutting
 Forestry
 Nature Reserve

Positives and negatives of each land use:

**Forestry - iucn-uk-peatlandprogramme.org, forestryandland.gov.scot,
Searching 'planting trees on peatlands' brings several position statement results from
nature conservation and scientific organisations.**

Forestry is planting and managing of forests and trees. After World War II large nonnative commercial forests were planted on peatlands across the UK to provide wood for construction and improve the land after the war. Extensive areas of peatlands have been planted during the past 60 years. This has involved draining the peatland because they were too wet for commercial conifers. We understand now that timber crops should not be planted on deep peat (peat over 50cm deep).

Positives:

- If a degraded peatland has already lost biodiversity, then native or mixed afforestation (tree planting) may support and enhance biodiversity. If managed correctly it can create a good edge habitat.
- Improve air quality
- Provides timber.
- Supports rural economies by providing timber and jobs

Negatives:

- It alters the water table of the peatland. Water is lost by evapotranspiration from the trees and is also intercepted by the trees and prevented from reaching the bog.
- Shading of trees can prevent the growth of bog species. This can impact the growth of peat forming species and inhibit peat formation and impact biodiversity through habitat loss.
- Loss of carbon. Drains are created to plant the forests. Draining leads to the drying and degradation of peat, which results in the release of stored carbon into the atmosphere. Drainage dries and damages the peat. This releases carbon and contributes to climate change.

Peat-cutting - firsthand accounts are more common in the results as this practice is mostly present in islands and rural Scotland.

<https://www.shetlandmuseumandarchives.org.uk/blog/why-burn-peats>

<https://www.carboncentre.org/post/the-peat-we-cut>

<https://www.bbc.com/future/article/20201203-peat-the-decline-of-the-worlds-dirtiest-fuel>

Search "why cut peat" for more results

Past and present, peat has been cut out and dried for use as fuel for heating and electricity and as compost for horticulture and gardening.

Positives:

- Peat has been a valuable source of fuel, particularly in remote areas where other forms of energy is scarce. It is also crucial in the production of Scotch whisky. Some domestic peat banks cut for fuel are decades old and are managed to minimise erosion. This provides a connection to cultural heritage.

- The sight of peat stacks and the distinct smell of peat smoke are integral parts of the cultural landscape in certain parts of Scotland and Ireland. This cultural significance can enhance local identity and attract tourists.
- Cut peat can be used for many things such as in gardening, fuel, whisky.

Negatives

- Extraction of peat results in highly degraded landscapes and causes major losses of biodiversity. This extraction exposes the land to erosion, especially in wet conditions, leading to the loss of more peat.
- When peat is cut and exposed to air it releases carbon dioxide, contributing to climate change.
- The removal of vegetation reduces the peatland's ability to absorb water, leading to further erosion and degradation.

Game-keeping - basc.org.uk, iucn-uk-peatlandprogramme.org - pupils may want to research 'burning peatland negatives' to get more results

Managing peatlands for hunting, particularly for game birds like grouse, involves burning and other land management practices to promote the growth of certain plants, like heather, that provide food and shelter for these birds.

Positives:

- Game-keeping supports rural economies through activities like hunting tourism. The maintenance of grouse moors can provide jobs in remote areas, including roles in game management and hospitality. Hunting fees can contribute to local income.
- Game-keeping often involves managing habitats to maintain a landscape to support a variety of other wildlife.
- Controlled burning can promote the growth of young heather, which provides food for grouse and other species *

Negatives:

- Controlled burning, known as "muirburn," is used to maintain the heather moorland that grouse prefer. However, burning too frequently damages peatland and loses typical bog species that are vital for maintaining the peat's waterlogged conditions. Without these plants, peat dries out, decomposes, and releases carbon, further contributing to climate change*
- Managing land primarily for one species, such as grouse, reduces the variety of other plants and animals on the peatland and decreases biodiversity *

*Different sources will talk about this positively or negatively depending on their bias.

Agriculture - soilassociation.org, iucn-uk-peatlandprogramme.org,

fensforthefuture.org.uk (fens are a type of peatland, particularly common in much arable land in southeast England)

Peatlands are often drained and converted to grassland or cropland for farming purposes.

Positives:

- Provides food! Lowland peatlands can provide fertile soil, making them valuable for growing crops and supporting food production.
- Farmers will work to protect their land, and many will work to protect peatland carbon stores.
- On some sites livestock can be used to control scrub and tree regeneration.

Negatives:

- Peatlands are drained to provide grassland and cropland. Draining peatlands for agriculture exposes peat to air and releases significant amounts of carbon.
- Continuous ploughing and the application of fertilisers deplete the peat of its natural nutrients and structure, leading to soil erosion and loss of productivity over time.
- Many peatlands are used for grazing sheep, but this can result in trampling and overgrazing. Grazing animals can trample sensitive areas, leading to compaction and erosion. Overgrazing reduces plant diversity.
- Nutrient runoff from fertilisers can pollute watercourses.

Nature Reserve – RSPB, Wildlife Trust, Buglife, etc. Pupils may wish to search for ‘nature reserve negatives/positives’ rather than specifying peatlands for more results.

Nature reserves are protected areas where human activities are limited or managed to protect the habitat. Peatlands managed as nature reserves prioritise conservation, protecting biodiversity, and preserving natural habitats.

Positives:

- Nature reserves protect peatlands, allowing native species to thrive and supporting their overall health.
- Healthy, intact peatlands act as carbon sinks, storing more carbon than they release.
- Nature reserves offer opportunities for people to learn about the importance of peatlands through educational programs and guided tours. They also provide recreational opportunities like birdwatching, hiking, and photography,

Negatives:

- Unlike other land uses, nature reserves generally don’t generate significant income from activities like agriculture or game-keeping. This can be a disadvantage in areas where economic development is needed.
- Maintaining nature reserves requires ongoing funding and management efforts.
- There may be conflicts with the local community as sometimes nature reserves can restrict activities that the land can be used for.