

Biology Activities

Teacher Notes and Resources for Pupil Use

Classroom Activity

Hold a Biodiversity Debate - Woodland vs Moorland

The right tree in the right place? Even though there is a consensus among the majority of people that we should try to protect and enhance biodiversity, native woodland expansion can still be the subject of much controversy. This debate is designed to help pupils become aware of the sometimes contentious issues surrounding conservation biology. It will also help pupils to see arguments from different points of view and to come to a well-informed conclusion or opinion. This activity can be easily differentiated to suit any age and stage of learner. It would be best done after studying The Great Trossachs Forest and viewing TGTF educational films like 'Wildlife' and 'Trees'.

Moorland is a broad term used to describe any land that is not actively farmed or under trees. It includes many types of habitat, such as bogs, juniper scrub, streams and grassland as well as heather moorland or 'heath'.

Debate activity: To debate the following statement:

"The biodiversity of The Great Trossachs Forest has been severely reduced over the years due to human activities such as deforestation. We must therefore plant new native trees to allow the remaining ancient native woodlands to expand, and also to link up isolated patches of native woodland to each other."

There are two ways the debate could be organised.

- **Simple for and against.** Split the class into four groups; two are 'pro woodland expansion' and two are 'pro protecting moorland' (against woodland expansion).
- **Role-play debate.** Split the class into four groups, each group takes on the role of one of the given characters in the debate.

Characters in a role-play debate are:

- **A tourist** who likes what they consider to be a traditional Scottish landscape, largely without trees.
- **A moorland ecologist** who believes the expansion of the woodland will have negative impacts on important open-ground species.
- **A woodland ecologist** who believes that the expansion of the forest is necessary to help woodland biodiversity, and to help species adapt and move in the face of climate change.
- **A local city resident** who is very concerned about climate change and believes that planting trees is a very positive way to help prevent climate change.

Teacher plan:

- Introduce the task and split the class into four groups (5 min)
- Give one information card (p3-5) to each group, either a Pro woodland or Pro moorland sheet, or a role play card, so everyone in the group takes on the same role. The group works together to collate their arguments, using information provided on the card but also their own ideas. (10 mins)
- Each group puts forward one member who they think will best represent their ideas. The selected pupils become the panel at the front of the class. The panel needs a chair to mediate and promote discussion - depending on the class this could be you or a pupil. If you're doing the role-play debate the panel can have name labels, eg 'Kevin, Tourist'. The rest of the class become the audience or 'floor' (3 mins)
- Each panel member has 2 minutes to put forward their view on the statement for debate (10-15mins).
- To add a fun, competitive element, at the end of each speaker the floor can 'vote' by raising a 'Moorland' or 'Woodland' card to show how persuasive their argument was. Pages 6 & 7 can be photocopied double-sided for this purpose.
- The chair can then open up the debate to members of the floor to challenge or ask questions of any of the panel members. (15 mins)
- To end the debate the chair can ask for a final vote, for and against the statement. This could also be done using the prepared double-sided voting cards (5 mins)
- Ask pupils to share what they've learnt during the debate. What are their views now? What did they decide and why? (5 mins)

Pro Woodland Expansion Pupil Notes

- Only 4% of Scotland's land area is native woodland and the UK is now one of the least wooded countries in Europe. However, this has not always been the case - once 80% of Scotland was covered in native trees.
- Woodlands should be expanded in the coming decades to help lock carbon up in trees and forest soils, therefore helping to prevent climate change. Trees can also help reduce the risk or impact of floods, and stop soil being washed away by heavy rain.
- People think that the Scottish moorland landscape without trees is natural. Actually it is the result of people's management of the land and many hundreds of years of deforestation and over-grazing by sheep and deer. Most moorland would become woodland naturally if it was not burnt or grazed regularly.
- Well managed native woodland supports a huge range of species. Increasing the amount of woodland, and linking existing woodlands together with new native woodland, will be hugely beneficial for species that are reliant on woodland habitats, such as red squirrels and the rare narrow-headed wood ant.
- Large areas of non-native conifer forests can be a visual eyesore and do not support much biodiversity. In The Great Trossachs Forest all woodland expansion will be a mix of native species, appropriate to the place. The woodland expansion here will only add to the beauty of the landscape.



Woodland and moorland in TGTf (c) FC Photo Library / John McFarlane

Pro Protecting Moorland (Against Woodland Expansion) Pupil Notes

- Moorland is a vital habitat for many Scottish species. Any expansion of woodland will mean there will be a reduction in the amount of moorland in the area. This will have a direct impact on the numbers of some of our most important species, such as Golden Eagles. Eagles can't hunt in woodlands as they are unable to see their prey species, such as voles. They need large areas of open moorland to be able to hunt and survive.
- The open moorland landscape of Scotland has been celebrated for hundreds of years. The purple heather of Scottish heath and moorland is famous around the world and people come to Scotland from all over to see these views. More trees will mean it will be harder for visitors to admire the views in The Trossachs and might lead to a decrease in visitor numbers.
- Deer eat young trees so for woodland expansion to happen deer fences must be used to keep deer out. Deer fencing can be a problem for Black Grouse, a rare and important bird, as they can fly into fences and kill themselves.
- It is vital that people who live in areas like The Great Trossachs Forest can earn an income. Moorland is needed for many land uses that bring income into rural areas, like sheep grazing, grouse shooting and deer stalking (hunting).



Woodland and moorland in TGTf (c) FC Photo Library / John McFarlane

Role play cards

<p>Tourist</p> <ul style="list-style-type: none">• Wants to go to the Trossachs to see the traditional Scottish landscape - one without trees.• Wants to have lots of viewpoints where you can see for miles around without any trees obstructing the view	<p>City resident</p> <ul style="list-style-type: none">• Is really concerned about climate change and believes planting more trees is a very positive way to help prevent climate change.• Trees lock up carbon dioxide (CO₂) as they grow, reducing the amount of CO₂ that enters the atmosphere and causes climate change.
<p>Moorland ecologist</p> <ul style="list-style-type: none">• Expanding woodland will mean a reduction in moorland habitat. This will have negative effects on important open ground species such as Golden Eagles.• Deer eat young trees so for woodland expansion to happen deer fences must be used to keep deer out. Deer fencing can be bad news for Black Grouse, a rare species, as they can fly into fences and kill themselves.	<p>Woodland ecologist</p> <ul style="list-style-type: none">• Wants more woodland to help woodland species such as red squirrels, pine marten and narrow-headed wood ant.• There are areas of existing woodland but they are not connected to each other so woodland species cannot travel between them. Connecting these woodlands up will greatly improve the habitat for these species.

Woodland



Woodland



Moorland



Moorland

